

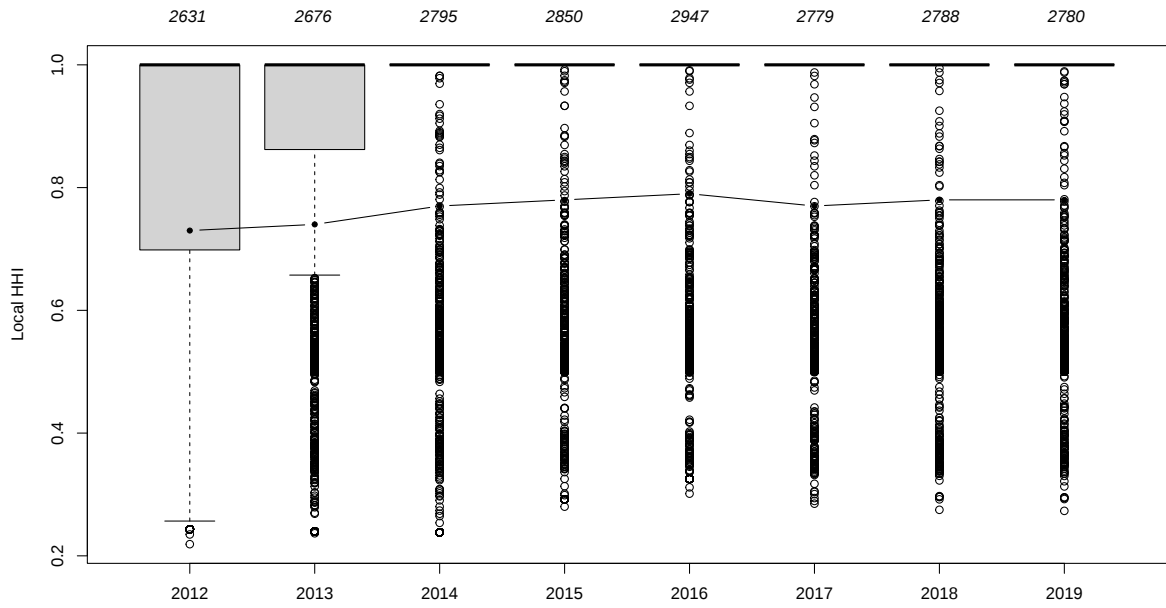
# Online Appendix

## The Competitive Effects of Store-Format Repositioning: Evidence from a Norwegian Grocery Acquisition

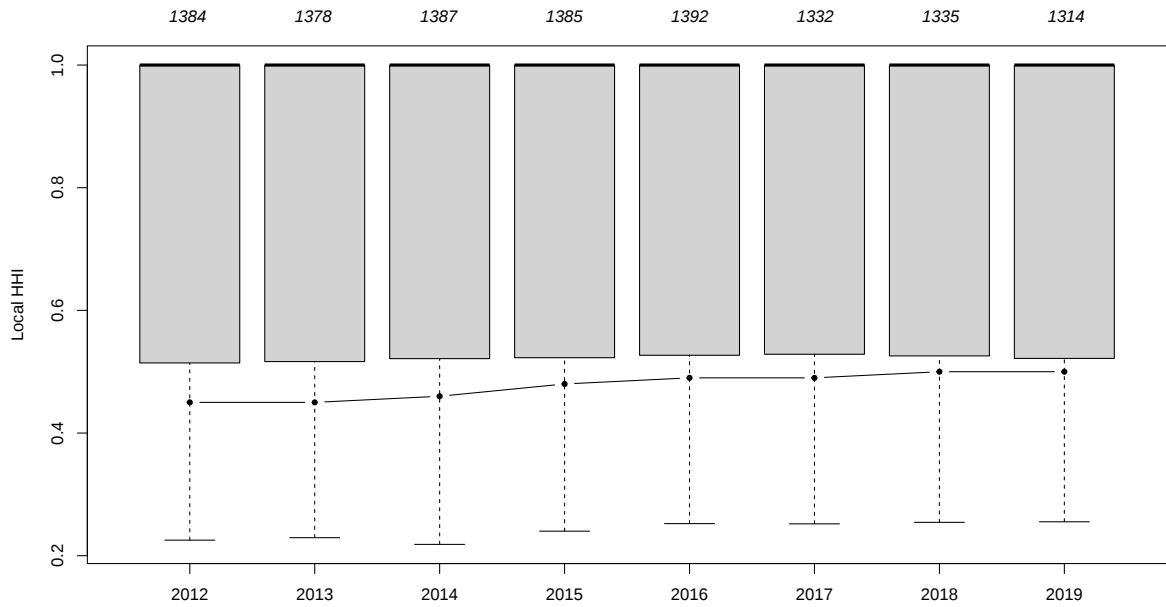
Emil Mathias Strøm Halseth

July 6, 2026

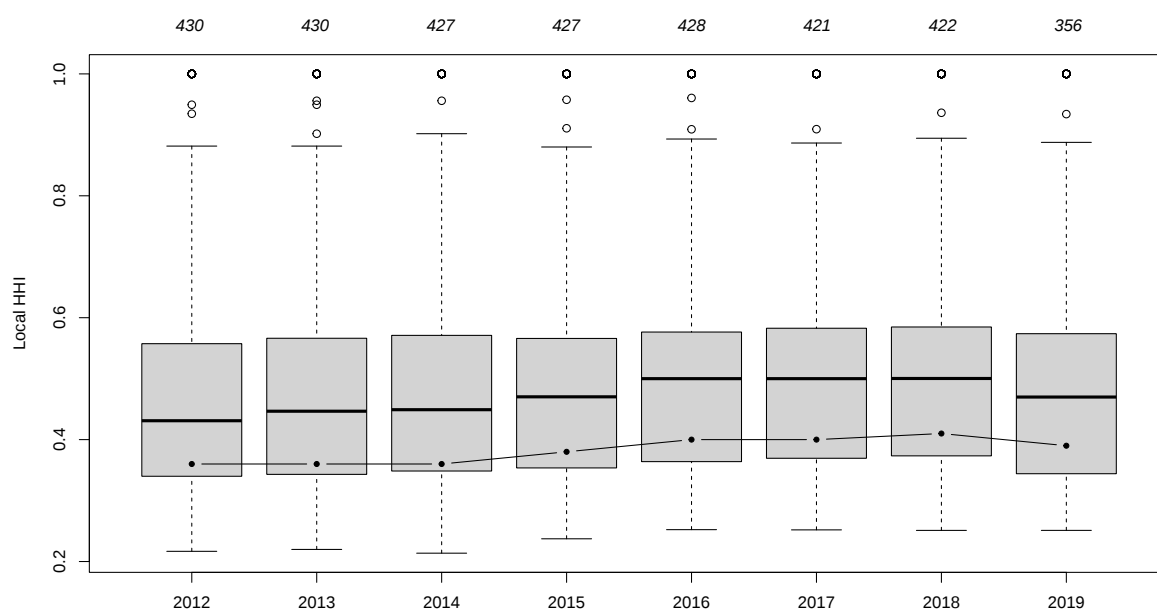
This Online Appendix collects supporting material referenced in the main text: (i) local-concentration box plots of the Herfindahl–Hirschman Index across alternative geographic units (Figures [OA.1–OA.4](#)); (ii) supplementary figures for the analysis of national real food prices (Figures [OA.5–OA.7](#)); and (iii) the full set of store-level regression tables and the corresponding event-study plots for each outcome (effective store prices, local product price deviations, product variety, variety entropy, and sales) and treatment arm (rebranding to Extra, Prix, or Bunnpris, and rival closures), including the specifications that exclude the last period before the event.



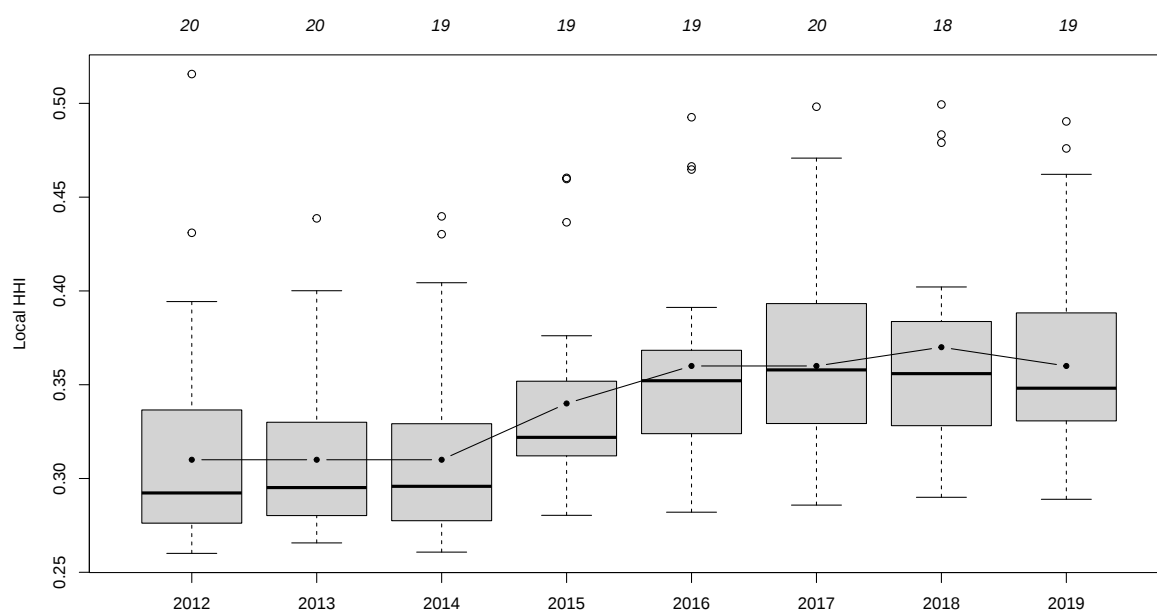
**Figure OA.1:** Box plots of the Herfindahl-Hirschman Index (HHI) at the *Basic Statistical Unit* (BSU) level, 2012–2019, calculated using store revenues aggregated at the umbrella chain level. The data cover the vast majority of grocery stores in Norway. The weighted mean, based on BSU sales shares, is shown as black dots connected by lines. The number of local markets in the sample is shown above each box plot. *Source:* Geodata.



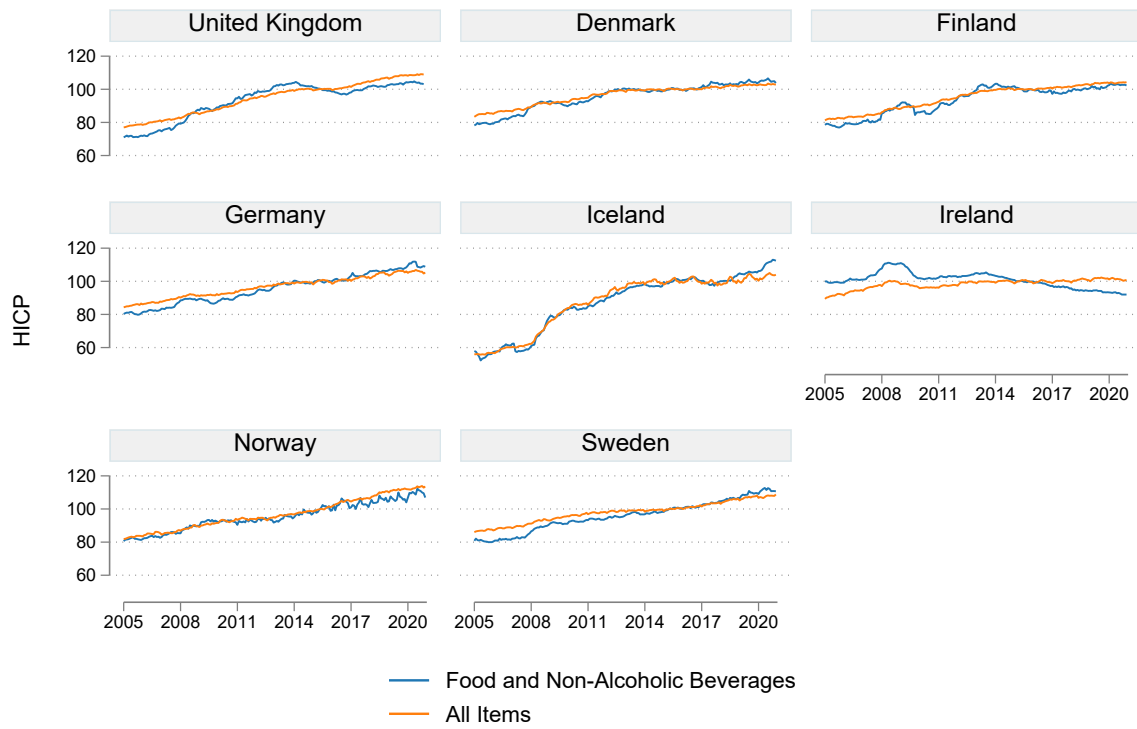
**Figure OA.2:** Box plots of the Herfindahl-Hirschman Index (HHI) at the *postal area* level, 2012–2019, calculated using store revenues aggregated at the umbrella chain level. The data cover the vast majority of grocery stores in Norway. The weighted mean, based on postal area sales shares, is shown as black dots connected by lines. The number of local markets in the sample is shown above each box plot. *Source:* Geodata.



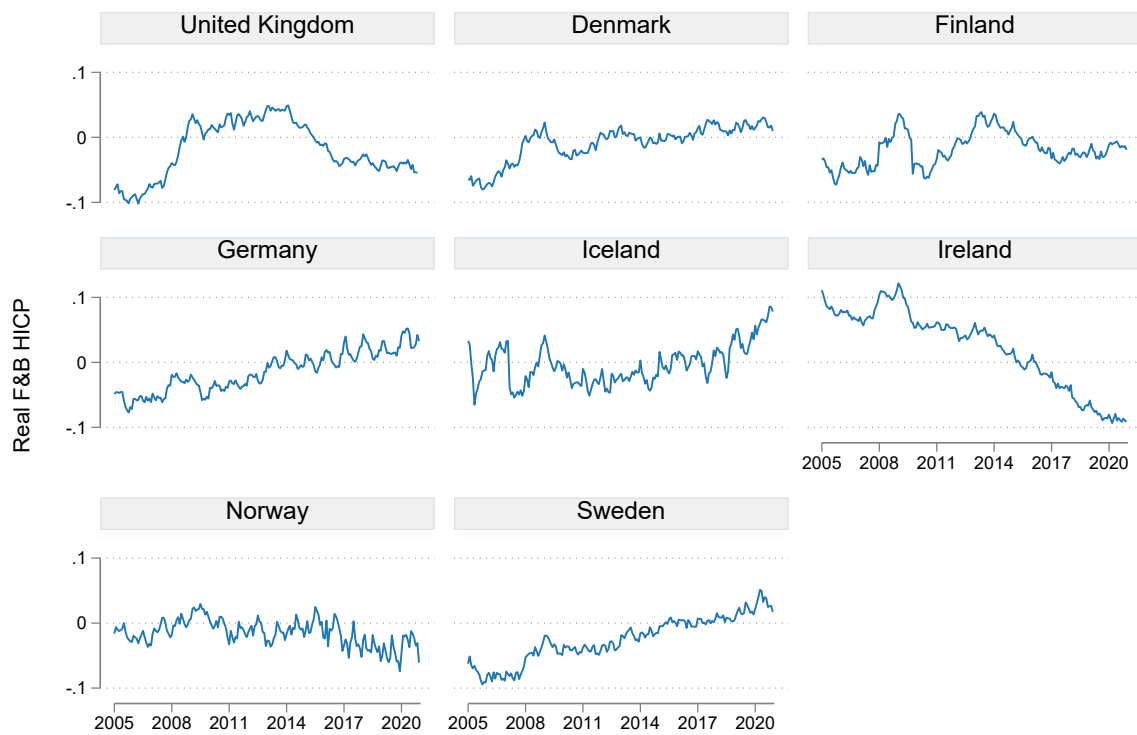
**Figure OA.3:** Box plots of the Herfindahl–Hirschman Index (HHI) at the *municipality* level, 2012–2019, calculated using store revenues aggregated at the umbrella chain level. The data cover the vast majority of grocery stores in Norway. The weighted mean, based on municipality sales shares, is shown as black dots connected by lines. The number of local markets in the sample is shown above each box plot. *Source:* Geodata.



**Figure OA.4:** Box plots of the Herfindahl–Hirschman Index (HHI) at the *county* level, 2012–2019, calculated using store revenues aggregated at the umbrella chain level. The data cover the vast majority of grocery stores in Norway. The weighted mean, based on county sales shares, is shown as black dots connected by lines. The number of local markets in the sample is shown above each box plot. *Source:* Geodata.



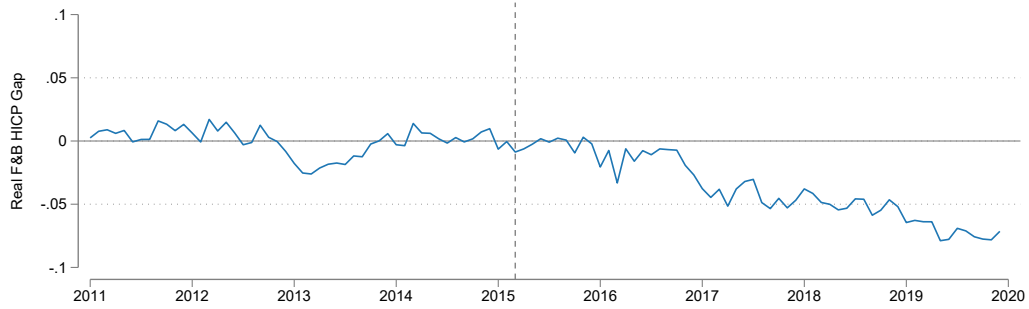
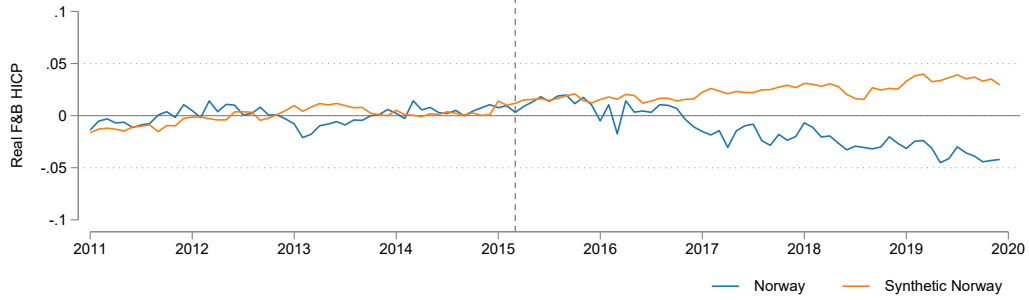
**Figure OA.5:** Food and Non-Alcoholic Beverages and All-Items HICP, 2005–2020. Mean index values for 2015 = 100. *Source:* Eurostat.



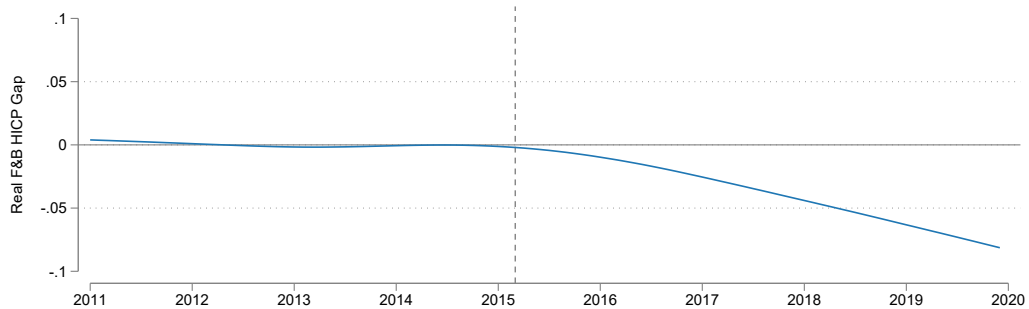
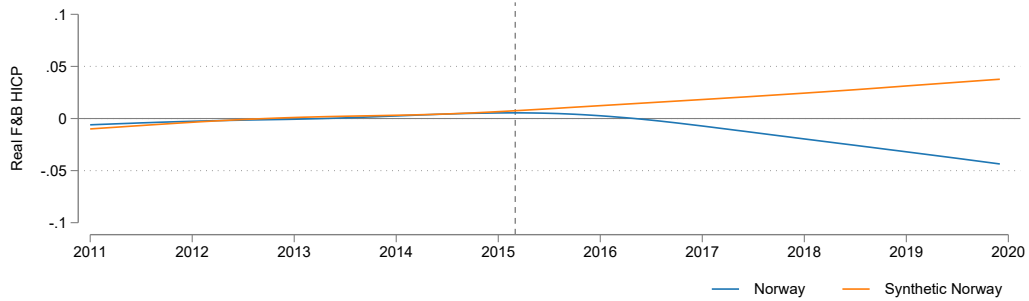
**Figure OA.6:** Percentage deviations in food prices from overall prices by country, 2005–2020, calculated as  $\ln(P_t^{Food}) - \ln(P_t^{All})$ . *Source:* Eurostat.

# Synthetic control analysis: real food prices, 2011–2019

## (a) Deseasonalized (monthly fixed effects)



## (b) HP-filtered ( $\lambda = 14400$ )



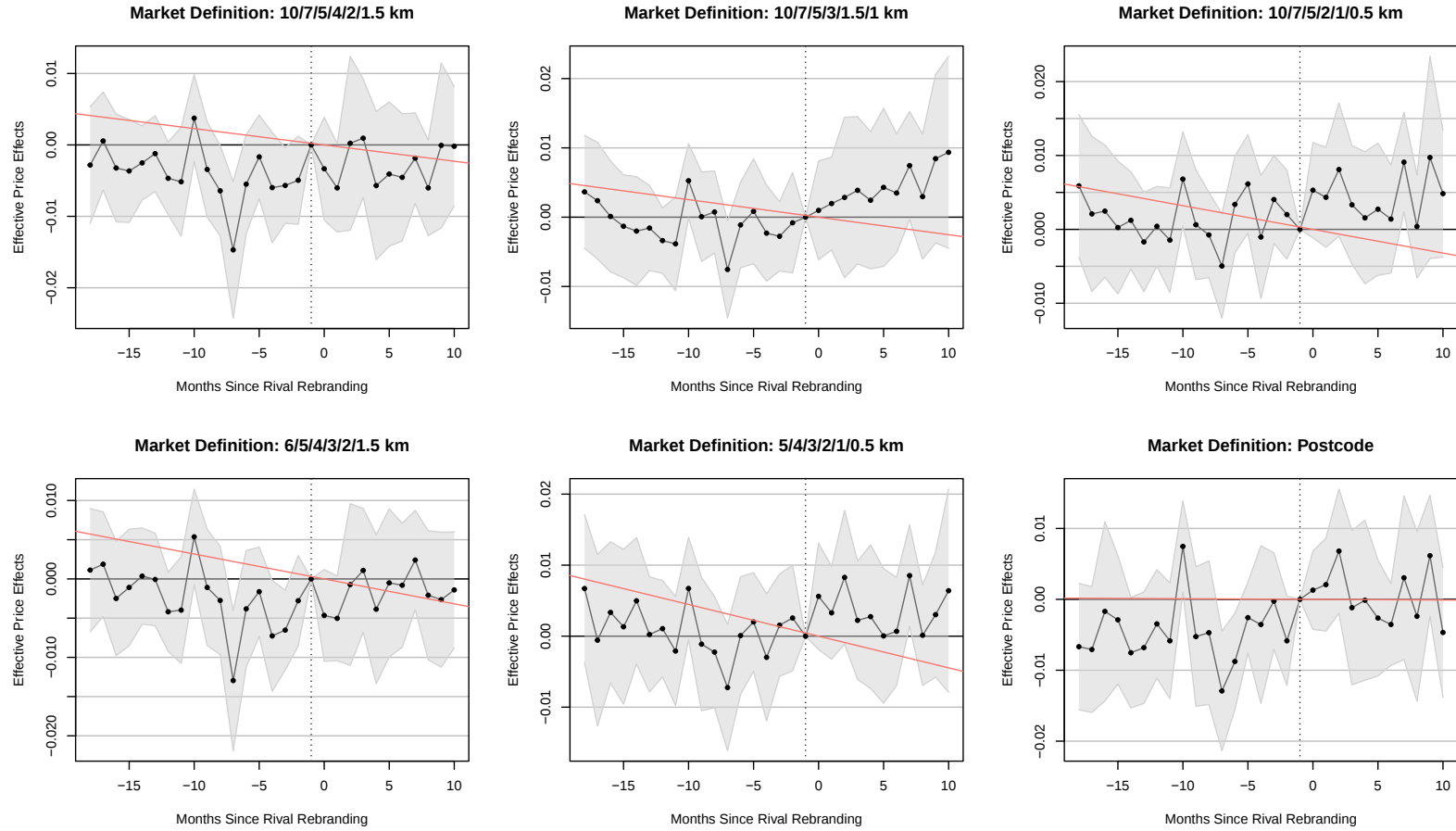
**Figure OA.7:** Percentage deviations in food prices relative to overall prices for Norway and its synthetic control, computed as  $\ln(P_t^{Food}) - \ln(P_t^{All})$ . Panel (a) removes monthly fixed effects (deseasonalization), while Panel (b) applies an HP filter ( $\lambda = 14400$ ). The lower part of each panel shows the gap between Norway and its synthetic control. The vertical line marks March 2015, preceding the first store rebranding. Synthetic control weights, reported in the main manuscript, minimize pre-acquisition differences. The donor pool is restricted to Nordic countries. *Source:* Eurostat.

**Table OA.1:** Estimated effect of Extra on effective store prices

|                             | $\ln(\hat{P}_{it}^1)$ |                   |                   |                   |                   |                    |
|-----------------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
|                             | (1)                   | (2)               | (3)               | (4)               | (5)               | (6)                |
| $T_{\text{Extra}}$          | -0.002<br>(0.003)     | 0.005<br>(0.004)  | 0.007*<br>(0.003) | -0.001<br>(0.003) | 0.006<br>(0.004)  | 0.002<br>(0.003)   |
| $\ln(\text{Population})$    | -0.056<br>(0.067)     | -0.067<br>(0.066) | -0.060<br>(0.062) | -0.031<br>(0.065) | -0.057<br>(0.060) | -0.052*<br>(0.020) |
| $\ln(\text{Median Income})$ | 0.035<br>(0.062)      | 0.050<br>(0.067)  | -0.001<br>(0.060) | 0.053<br>(0.061)  | 0.001<br>(0.058)  | -0.030<br>(0.067)  |
| Market Definition           | 10–1.5 km             | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode           |
| Months                      | 36                    | 36                | 36                | 36                | 36                | 36                 |
| Stores                      | 348                   | 396               | 468               | 372               | 492               | 529                |
| Observations                | 10,808                | 12,371            | 14,955            | 11,662            | 15,893            | 17,351             |
| $R^2$                       | 0.79                  | 0.81              | 0.82              | 0.80              | 0.83              | 0.84               |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: log effective store prices ( $\ln(\hat{P}_{it}^1)$ ), Extra rebranding



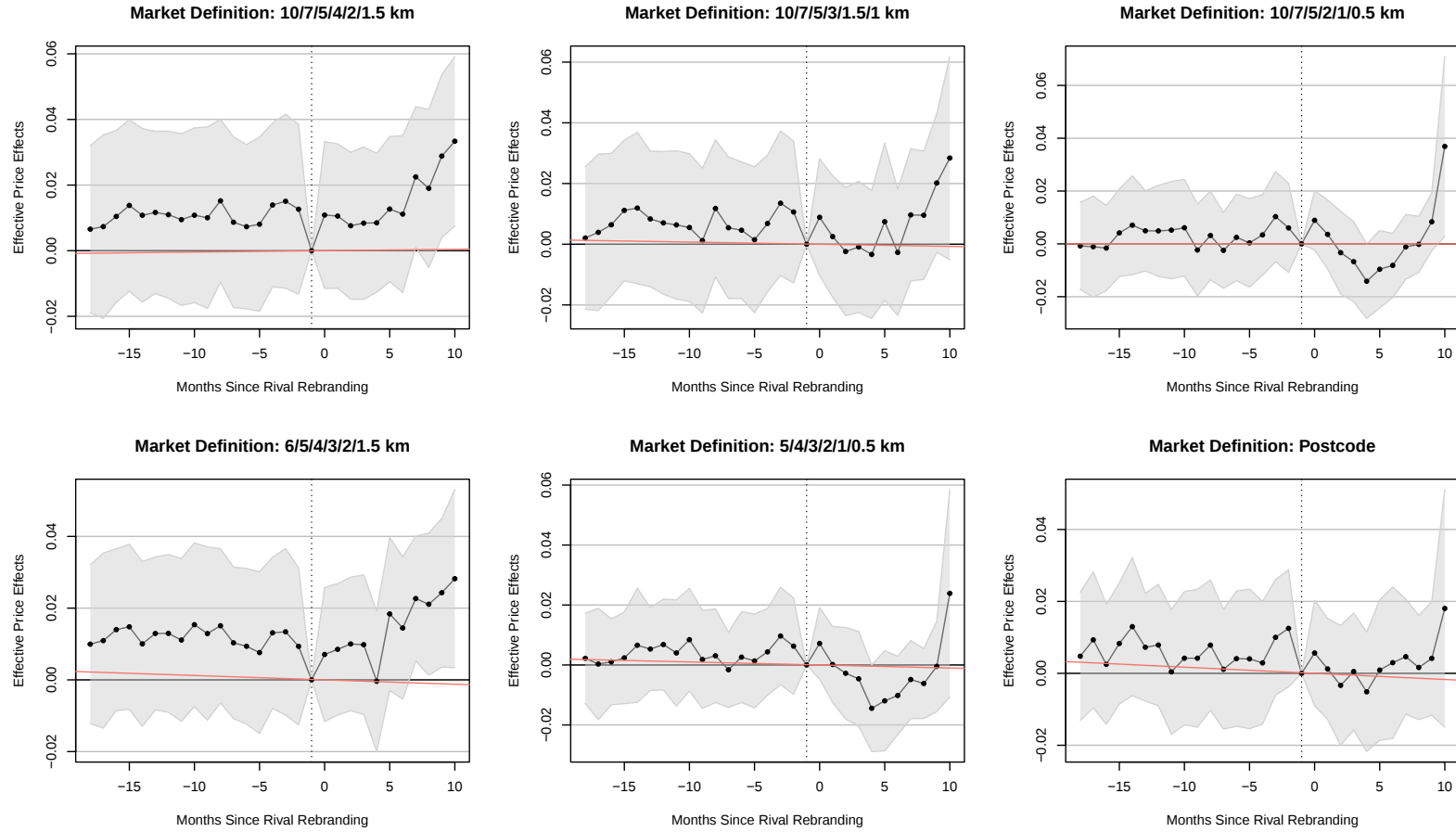
**Figure OA.8:** Estimated percentage store price effects of rival rebranding to Extra over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.2:** Estimated effect of Prix on effective store prices

|                             | $\ln(\hat{P}_{it}^1)$ |                   |                   |                   |                   |                    |
|-----------------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|--------------------|
|                             | (1)                   | (2)               | (3)               | (4)               | (5)               | (6)                |
| $T_{\text{Prix}}$           | 0.016<br>(0.012)      | 0.006<br>(0.011)  | 0.001<br>(0.007)  | 0.016<br>(0.010)  | -0.002<br>(0.007) | 0.004<br>(0.008)   |
| $\ln(\text{Population})$    | -0.020<br>(0.064)     | -0.035<br>(0.062) | -0.052<br>(0.061) | -0.002<br>(0.063) | -0.057<br>(0.060) | -0.049*<br>(0.019) |
| $\ln(\text{Median Income})$ | 0.025<br>(0.059)      | 0.033<br>(0.063)  | -0.013<br>(0.061) | 0.028<br>(0.058)  | -0.018<br>(0.058) | -0.019<br>(0.064)  |
| Market Definition           | 10–1.5 km             | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode           |
| Months                      | 36                    | 36                | 36                | 36                | 36                | 36                 |
| Stores                      | 327                   | 372               | 449               | 350               | 479               | 512                |
| Observations                | 10,060                | 11,615            | 14,365            | 10,889            | 15,521            | 16,705             |
| $R^2$                       | 0.78                  | 0.79              | 0.82              | 0.79              | 0.82              | 0.83               |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: log effective store prices ( $\ln(\hat{P}_{it}^1)$ ), Prix rebranding



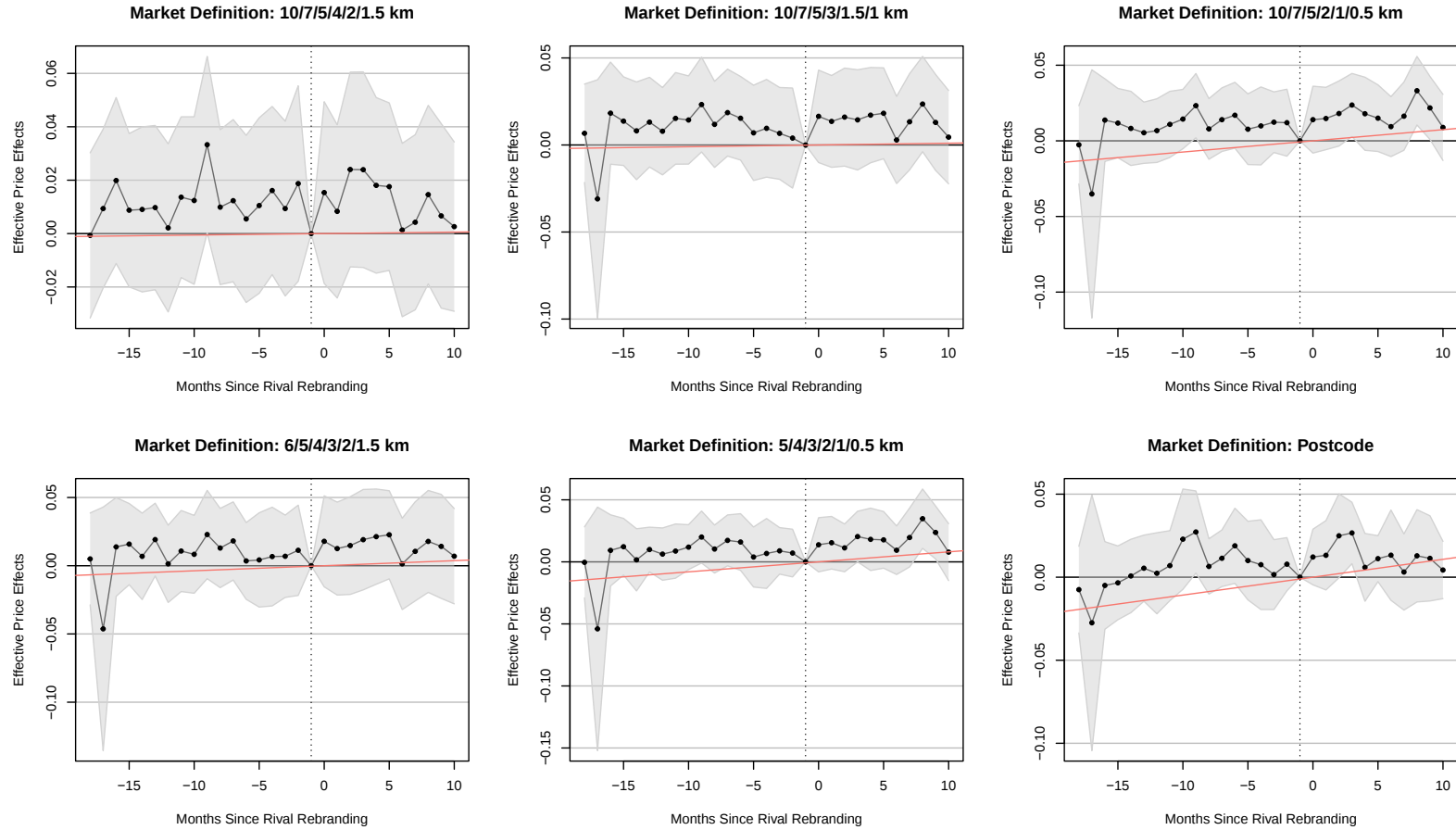
**Figure OA.9:** Estimated percentage store price effects of rival rebranding to Prix over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.3:** Estimated effect of Bunnpris on effective store prices

|                             | $\ln(\hat{P}_{it}^1)$ |                   |                   |                  |                   |                     |
|-----------------------------|-----------------------|-------------------|-------------------|------------------|-------------------|---------------------|
|                             | (1)                   | (2)               | (3)               | (4)              | (5)               | (6)                 |
| $T_{\text{Bunnpris}}$       | 0.012<br>(0.016)      | 0.015<br>(0.013)  | 0.018<br>(0.010)  | 0.015<br>(0.017) | 0.018<br>(0.010)  | 0.013<br>(0.009)    |
| $\ln(\text{Population})$    | -0.016<br>(0.067)     | -0.028<br>(0.064) | -0.049<br>(0.061) | 0.007<br>(0.064) | -0.049<br>(0.060) | -0.048**<br>(0.017) |
| $\ln(\text{Median Income})$ | 0.034<br>(0.060)      | 0.023<br>(0.065)  | -0.032<br>(0.058) | 0.016<br>(0.060) | -0.026<br>(0.056) | -0.040<br>(0.063)   |
| Market Definition           | 10–1.5 km             | 10–1 km           | 10–0.5 km         | 6–1.5 km         | 5–0.5 km          | Postcode            |
| Months                      | 36                    | 36                | 36                | 36               | 36                | 36                  |
| Stores                      | 291                   | 342               | 424               | 317              | 456               | 489                 |
| Observations                | 9,277                 | 10,951            | 13,781            | 10,158           | 14,903            | 16,112              |
| $R^2$                       | 0.76                  | 0.78              | 0.81              | 0.77             | 0.81              | 0.83                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: log effective store prices ( $\ln(\hat{P}_{it}^1)$ ), Bunnpris rebranding



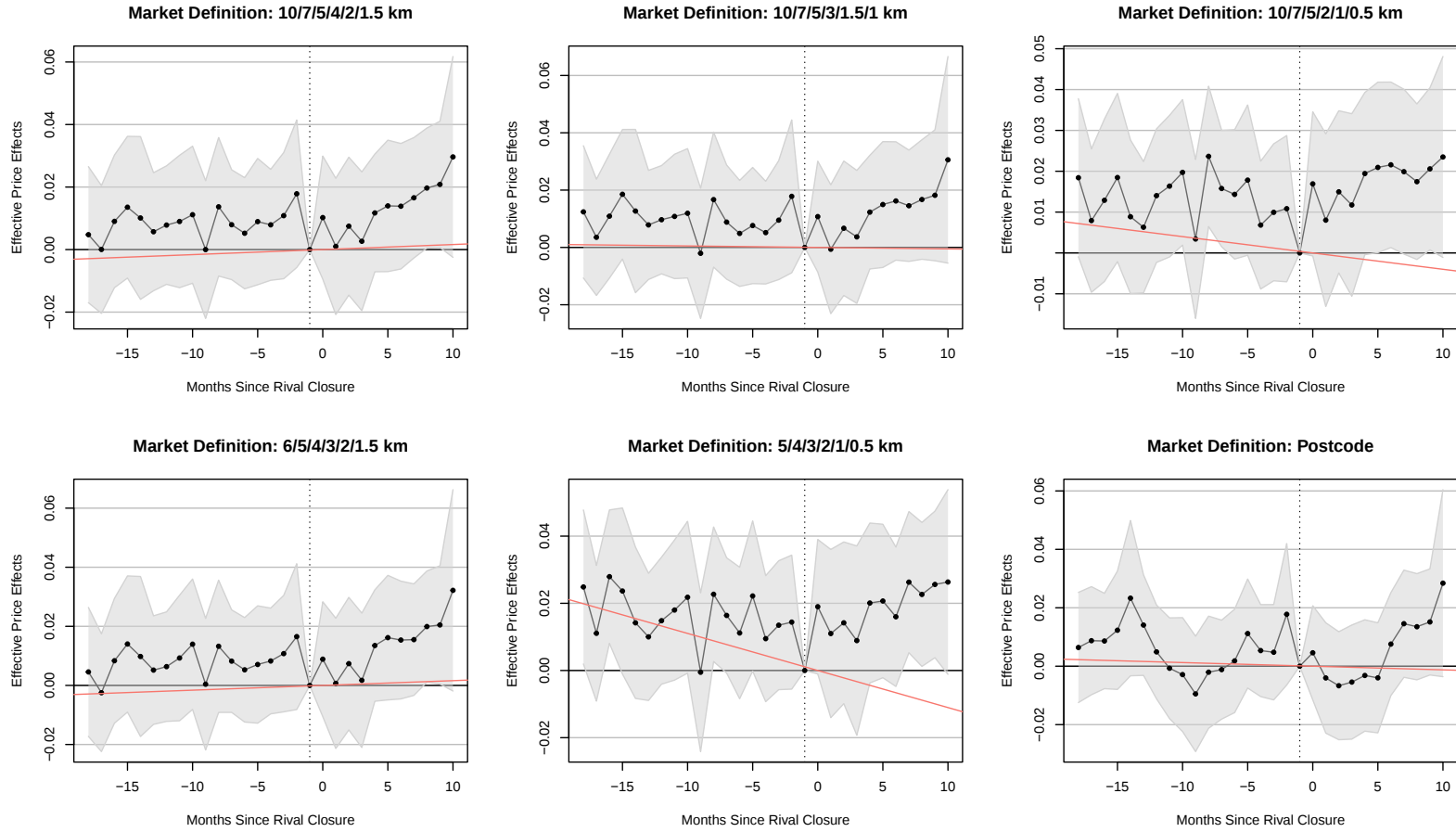
**Figure OA.10:** Estimated percentage store price effects of rival rebranding to Bunnpris over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.4:** Estimated effect of rival closure on effective store prices

|                             | $\ln(\hat{P}_{it}^1)$ |                   |                   |                   |                   |                     |
|-----------------------------|-----------------------|-------------------|-------------------|-------------------|-------------------|---------------------|
|                             | (1)                   | (2)               | (3)               | (4)               | (5)               | (6)                 |
| $T_{\text{Closure}}$        | 0.016<br>(0.011)      | 0.015<br>(0.010)  | 0.019*<br>(0.010) | 0.016<br>(0.010)  | 0.020*<br>(0.010) | 0.005<br>(0.008)    |
| $\ln(\text{Population})$    | -0.027<br>(0.067)     | -0.045<br>(0.067) | -0.075<br>(0.066) | -0.014<br>(0.065) | -0.066<br>(0.063) | -0.048**<br>(0.019) |
| $\ln(\text{Median Income})$ | 0.018<br>(0.061)      | 0.028<br>(0.066)  | -0.036<br>(0.062) | 0.021<br>(0.059)  | -0.037<br>(0.060) | -0.036<br>(0.065)   |
| Market Definition           | 10–1.5 km             | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode            |
| Months                      | 36                    | 36                | 36                | 36                | 36                | 36                  |
| Stores                      | 314                   | 355               | 434               | 337               | 463               | 504                 |
| Observations                | 10,040                | 11,363            | 14,127            | 10,815            | 15,141            | 16,626              |
| $R^2$                       | 0.77                  | 0.79              | 0.81              | 0.78              | 0.82              | 0.83                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: log effective store prices ( $\ln(\hat{P}_{it}^1)$ ), rival closure



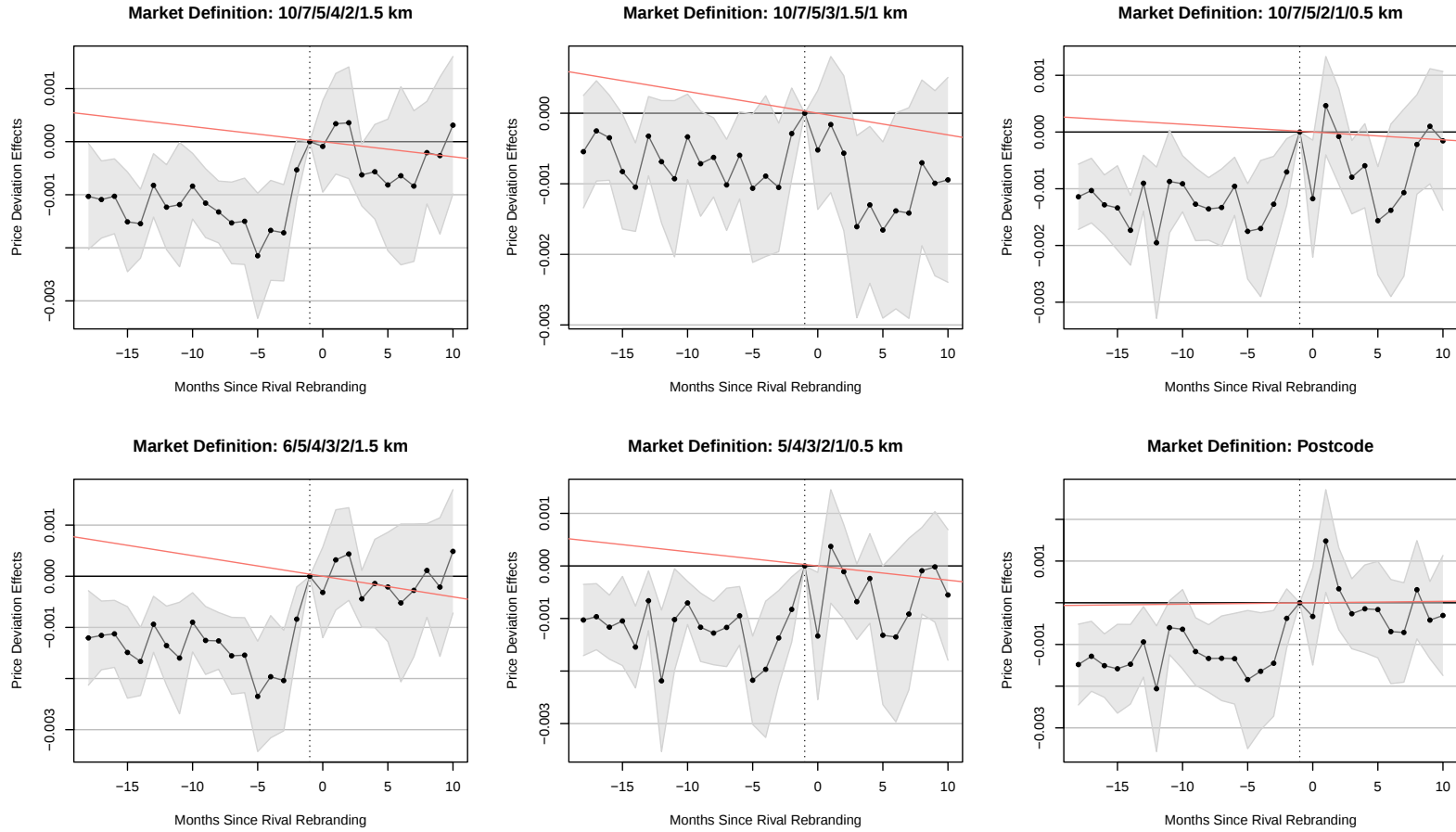
**Figure OA.11:** Estimated percentage store price effects of rival closure over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.5:** Estimated effect of Extra on local product price deviations

|                    | (1)                | (2)                 | (3)                 | $\hat{P}_{it}^2$ | (4)                 | (5)                 | (6)              |
|--------------------|--------------------|---------------------|---------------------|------------------|---------------------|---------------------|------------------|
| $T_{\text{Extra}}$ | 0.000<br>(0.000)   | -0.001<br>(0.000)   | -0.001<br>(0.000)   |                  | 0.000<br>(0.000)    | -0.001<br>(0.000)   | 0.000<br>(0.000) |
| ln(Population)     | 0.040**<br>(0.013) | 0.045***<br>(0.012) | 0.046***<br>(0.014) |                  | 0.045***<br>(0.012) | 0.049***<br>(0.013) | 0.009<br>(0.007) |
| ln(Median Income)  | 0.001<br>(0.011)   | 0.007<br>(0.011)    | 0.002<br>(0.011)    |                  | 0.003<br>(0.011)    | 0.005<br>(0.011)    | 0.011<br>(0.017) |
| Market Definition  | 10–1.5 km          | 10–1 km             | 10–0.5 km           |                  | 6–1.5 km            | 5–0.5 km            | Postcode         |
| Months             | 36                 | 36                  | 36                  |                  | 36                  | 36                  | 36               |
| Stores             | 348                | 396                 | 468                 |                  | 372                 | 492                 | 529              |
| Observations       | 10,808             | 12,371              | 14,955              |                  | 11,662              | 15,893              | 17,351           |
| R <sup>2</sup>     | 0.17               | 0.17                | 0.17                |                  | 0.17                | 0.17                | 0.18             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: local product price deviation index ( $\hat{P}_{it}^2$ ), Extra rebranding



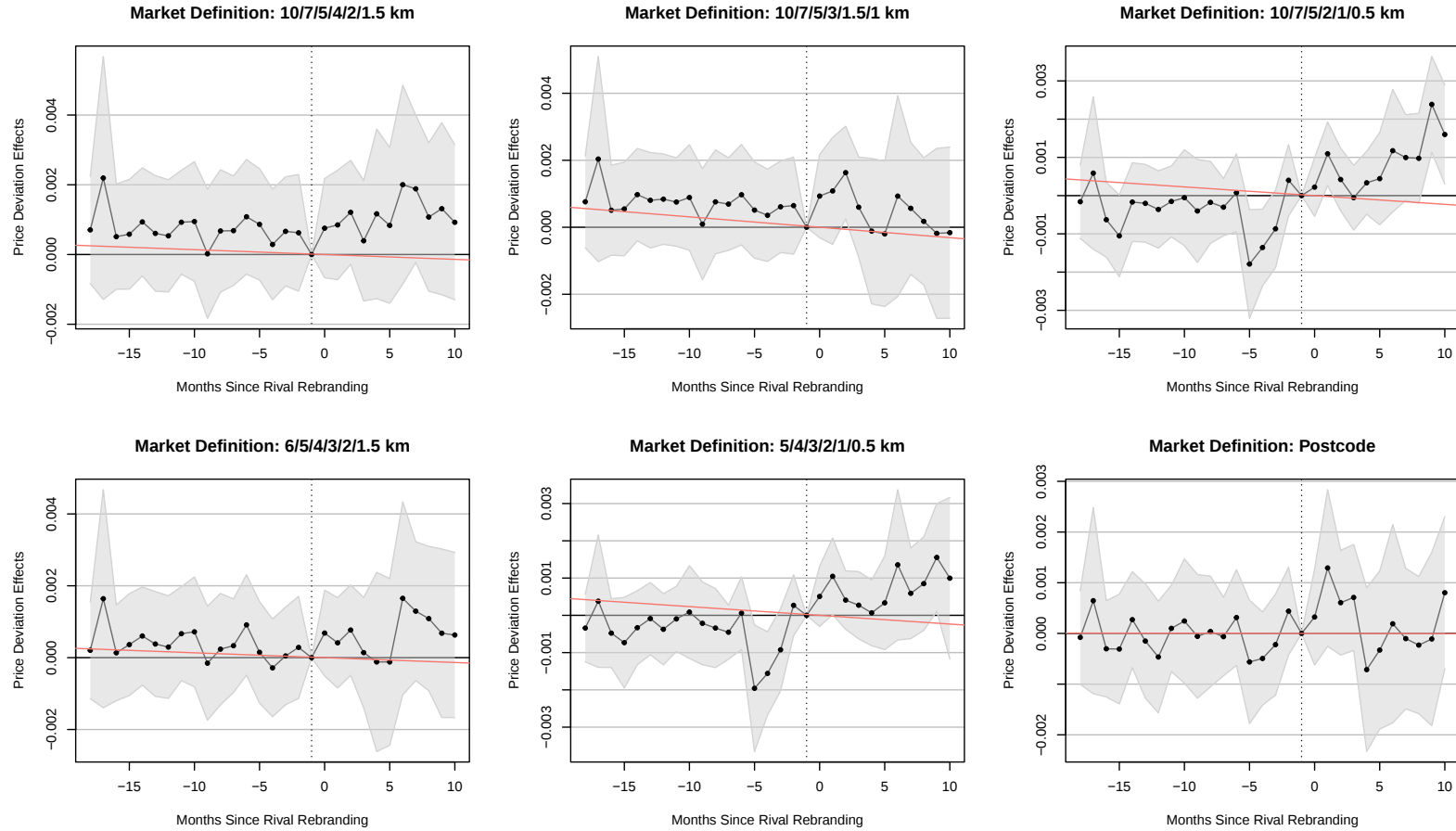
**Figure OA.12:** Estimated product price deviation effects of rival rebranding to Extra over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.6:** Estimated effect of Prix on local product price deviations

|                   | $\hat{P}_{it}^2$   |                     |                     |                     |                     |                  |
|-------------------|--------------------|---------------------|---------------------|---------------------|---------------------|------------------|
|                   | (1)                | (2)                 | (3)                 | (4)                 | (5)                 | (6)              |
| $T_{\text{Prix}}$ | 0.001<br>(0.001)   | 0.000<br>(0.001)    | 0.001<br>(0.001)    | 0.001<br>(0.001)    | 0.001<br>(0.001)    | 0.000<br>(0.001) |
| ln(Population)    | 0.041**<br>(0.013) | 0.047***<br>(0.013) | 0.048***<br>(0.014) | 0.044***<br>(0.013) | 0.050***<br>(0.012) | 0.009<br>(0.007) |
| ln(Median Income) | 0.002<br>(0.011)   | 0.007<br>(0.011)    | 0.003<br>(0.011)    | 0.004<br>(0.011)    | 0.006<br>(0.011)    | 0.013<br>(0.017) |
| Market Definition | 10–1.5 km          | 10–1 km             | 10–0.5 km           | 6–1.5 km            | 5–0.5 km            | Postcode         |
| Months            | 36                 | 36                  | 36                  | 36                  | 36                  | 36               |
| Stores            | 327                | 372                 | 449                 | 350                 | 479                 | 512              |
| Observations      | 10,060             | 11,615              | 14,365              | 10,889              | 15,521              | 16,705           |
| R <sup>2</sup>    | 0.16               | 0.16                | 0.17                | 0.16                | 0.17                | 0.17             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: local product price deviation index ( $\hat{P}_{it}^2$ ), Prix rebranding



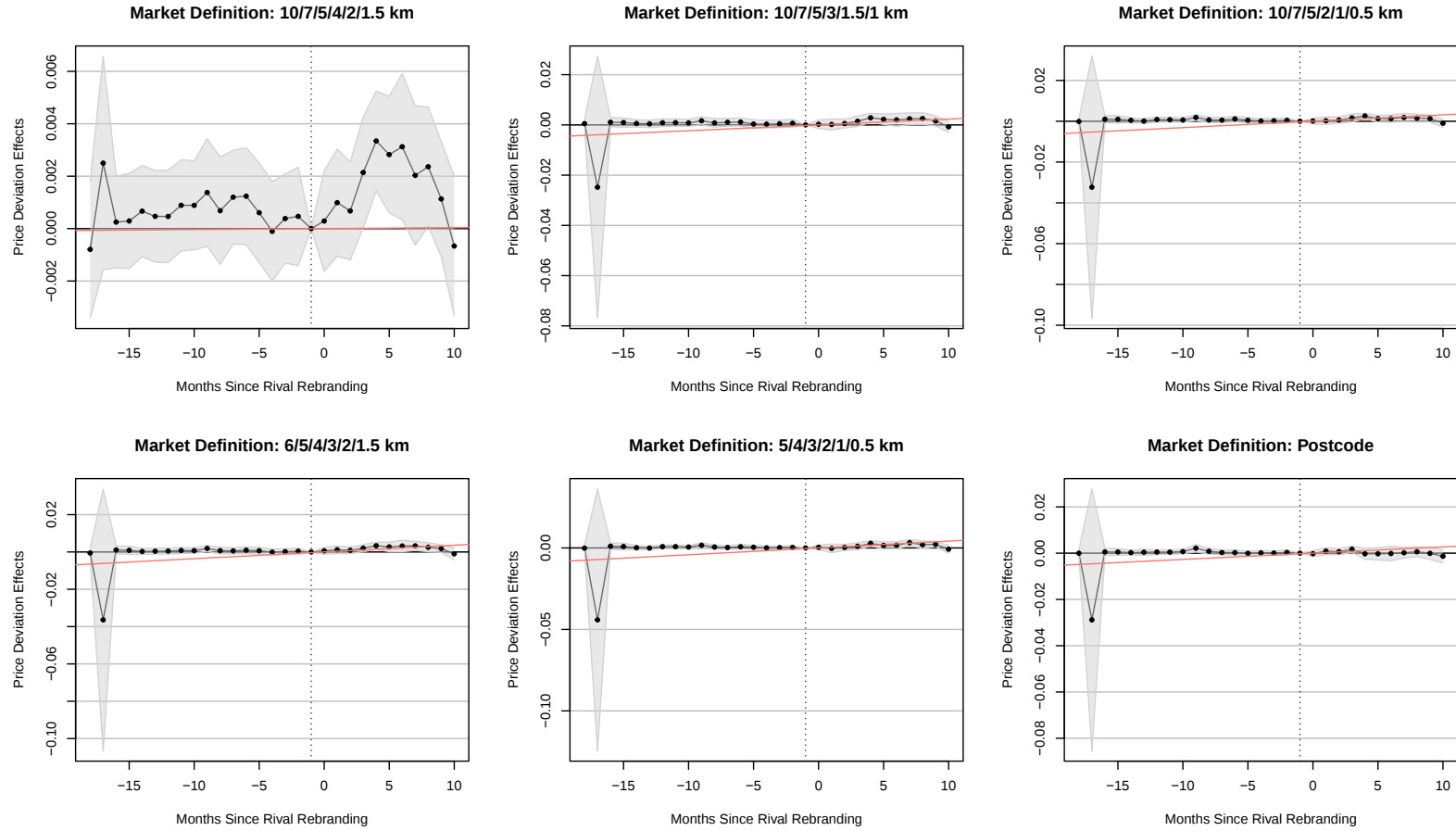
**Figure OA.13:** Estimated product price deviation effects of rival rebranding to Prix over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.7:** Estimated effect of Bunnpris on local product price deviations

|                       | $\hat{P}_{it}^2$   |                     |                    |                     |                     |                  |
|-----------------------|--------------------|---------------------|--------------------|---------------------|---------------------|------------------|
|                       | (1)                | (2)                 | (3)                | (4)                 | (5)                 | (6)              |
| $T_{\text{Bunnpris}}$ | 0.002<br>(0.001)   | 0.002<br>(0.001)    | 0.001<br>(0.001)   | 0.002<br>(0.001)    | 0.002<br>(0.001)    | 0.000<br>(0.001) |
| ln(Population)        | 0.042**<br>(0.014) | 0.049***<br>(0.014) | 0.049**<br>(0.015) | 0.048***<br>(0.013) | 0.051***<br>(0.013) | 0.008<br>(0.008) |
| ln(Median Income)     | 0.001<br>(0.011)   | -0.002<br>(0.013)   | -0.005<br>(0.013)  | -0.003<br>(0.012)   | 0.000<br>(0.012)    | 0.006<br>(0.018) |
| Market Definition     | 10–1.5 km          | 10–1 km             | 10–0.5 km          | 6–1.5 km            | 5–0.5 km            | Postcode         |
| Months                | 36                 | 36                  | 36                 | 36                  | 36                  | 36               |
| Stores                | 291                | 342                 | 424                | 317                 | 456                 | 489              |
| Observations          | 9,277              | 10,951              | 13,781             | 10,158              | 14,903              | 16,112           |
| R <sup>2</sup>        | 0.16               | 0.16                | 0.16               | 0.16                | 0.17                | 0.16             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: local product price deviation index ( $\hat{P}_{it}^2$ ), Bunnpris rebranding



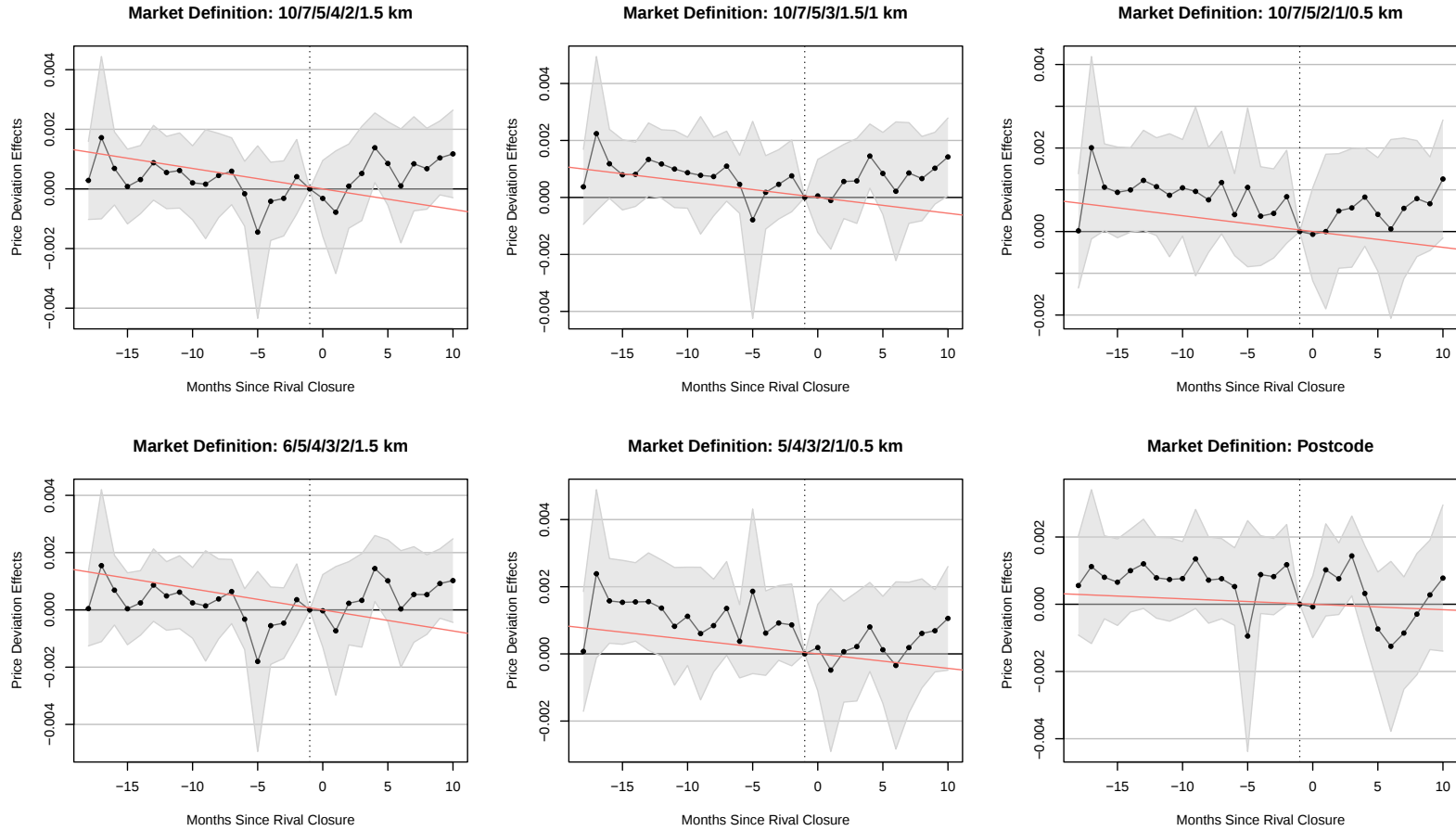
**Figure OA.14:** Estimated product price deviation effects of rival rebranding to Bunnpris over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.8:** Estimated effect of rival closure on local product price deviations

|                      | (1)                | (2)                 | (3)                 | $\hat{P}_{it}^2$ | (4)                 | (5)                 | (6)              |
|----------------------|--------------------|---------------------|---------------------|------------------|---------------------|---------------------|------------------|
| $T_{\text{Closure}}$ | 0.001<br>(0.001)   | 0.001<br>(0.001)    | 0.000<br>(0.001)    |                  | 0.001<br>(0.001)    | 0.000<br>(0.001)    | 0.000<br>(0.001) |
| ln(Population)       | 0.040**<br>(0.013) | 0.046***<br>(0.013) | 0.047***<br>(0.014) |                  | 0.044***<br>(0.012) | 0.049***<br>(0.013) | 0.008<br>(0.007) |
| ln(Median Income)    | 0.004<br>(0.011)   | 0.010<br>(0.011)    | 0.004<br>(0.012)    |                  | 0.006<br>(0.011)    | 0.007<br>(0.011)    | 0.009<br>(0.017) |
| Market Definition    | 10–1.5 km          | 10–1 km             | 10–0.5 km           |                  | 6–1.5 km            | 5–0.5 km            | Postcode         |
| Months               | 36                 | 36                  | 36                  |                  | 36                  | 36                  | 36               |
| Stores               | 314                | 355                 | 434                 |                  | 337                 | 463                 | 504              |
| Observations         | 10,040             | 11,363              | 14,127              |                  | 10,815              | 15,141              | 16,626           |
| R <sup>2</sup>       | 0.16               | 0.16                | 0.17                |                  | 0.16                | 0.17                | 0.17             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots: local product price deviation index ( $\hat{P}_{it}^2$ ), rival closure



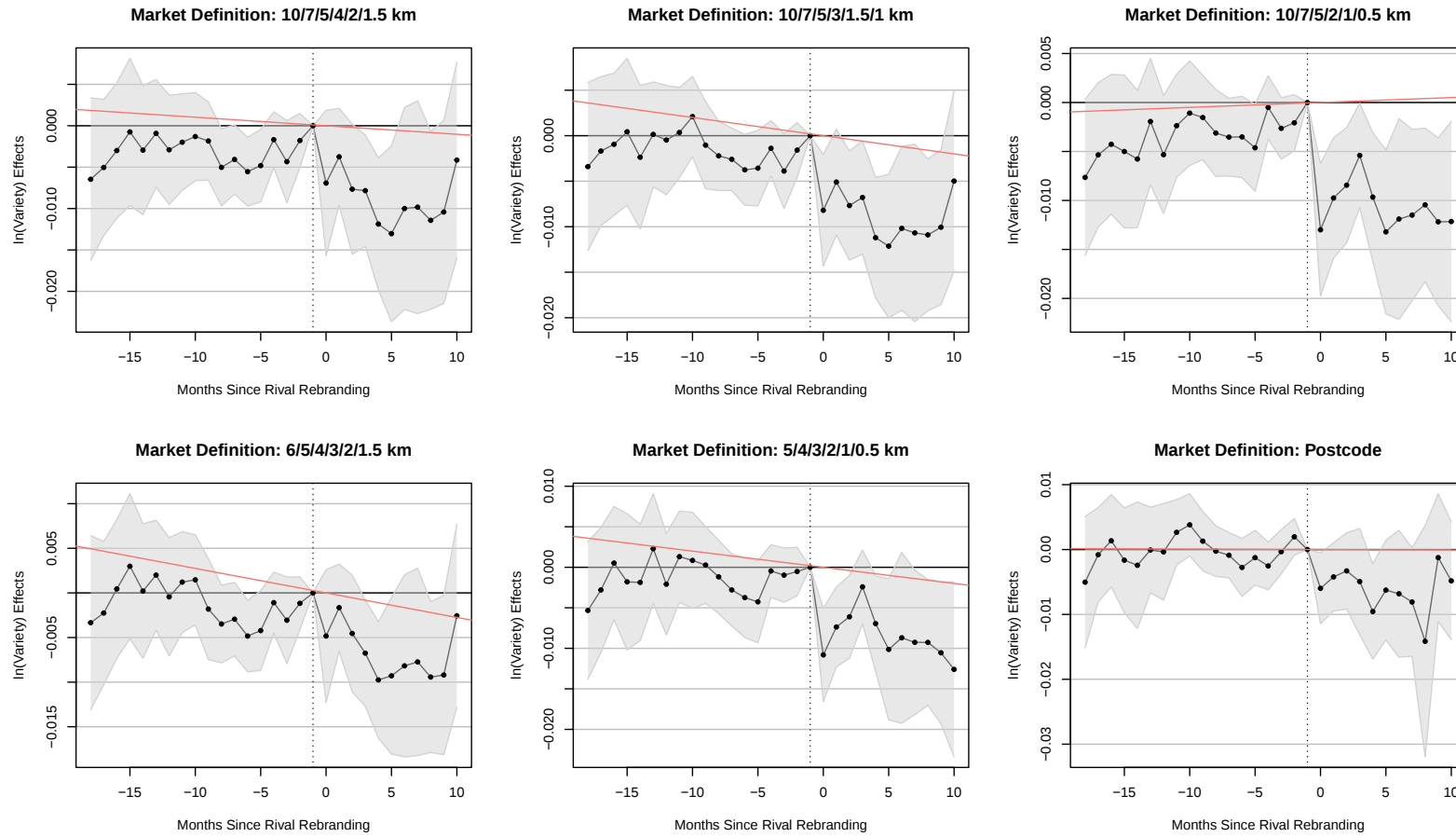
**Figure OA.15:** Estimated product price deviation effects of rival closure over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.9:** Estimated effect of Extra on variety

|                    | ln(Variety)       |                    |                      |                   |                     |                    |
|--------------------|-------------------|--------------------|----------------------|-------------------|---------------------|--------------------|
|                    | (1)               | (2)                | (3)                  | (4)               | (5)                 | (6)                |
| $T_{\text{Extra}}$ | -0.009<br>(0.005) | -0.009*<br>(0.003) | -0.013***<br>(0.004) | -0.007<br>(0.004) | -0.011**<br>(0.004) | -0.007*<br>(0.003) |
| ln(Population)     | -0.017<br>(0.127) | -0.031<br>(0.128)  | -0.089<br>(0.122)    | 0.015<br>(0.123)  | -0.078<br>(0.122)   | 0.000<br>(0.038)   |
| ln(Median Income)  | 0.058<br>(0.098)  | 0.038<br>(0.096)   | 0.036<br>(0.089)     | 0.080<br>(0.096)  | 0.049<br>(0.089)    | 0.052<br>(0.113)   |
| Market Definition  | 10–1.5 km         | 10–1 km            | 10–0.5 km            | 6–1.5 km          | 5–0.5 km            | Postcode           |
| Months             | 36                | 36                 | 36                   | 36                | 36                  | 36                 |
| Stores             | 348               | 396                | 468                  | 372               | 492                 | 529                |
| Observations       | 10,808            | 12,371             | 14,955               | 11,662            | 15,893              | 17,351             |
| $R^2$              | 0.96              | 0.97               | 0.97                 | 0.97              | 0.97                | 0.97               |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: $\ln(\text{Variety})$ , Extra rebranding



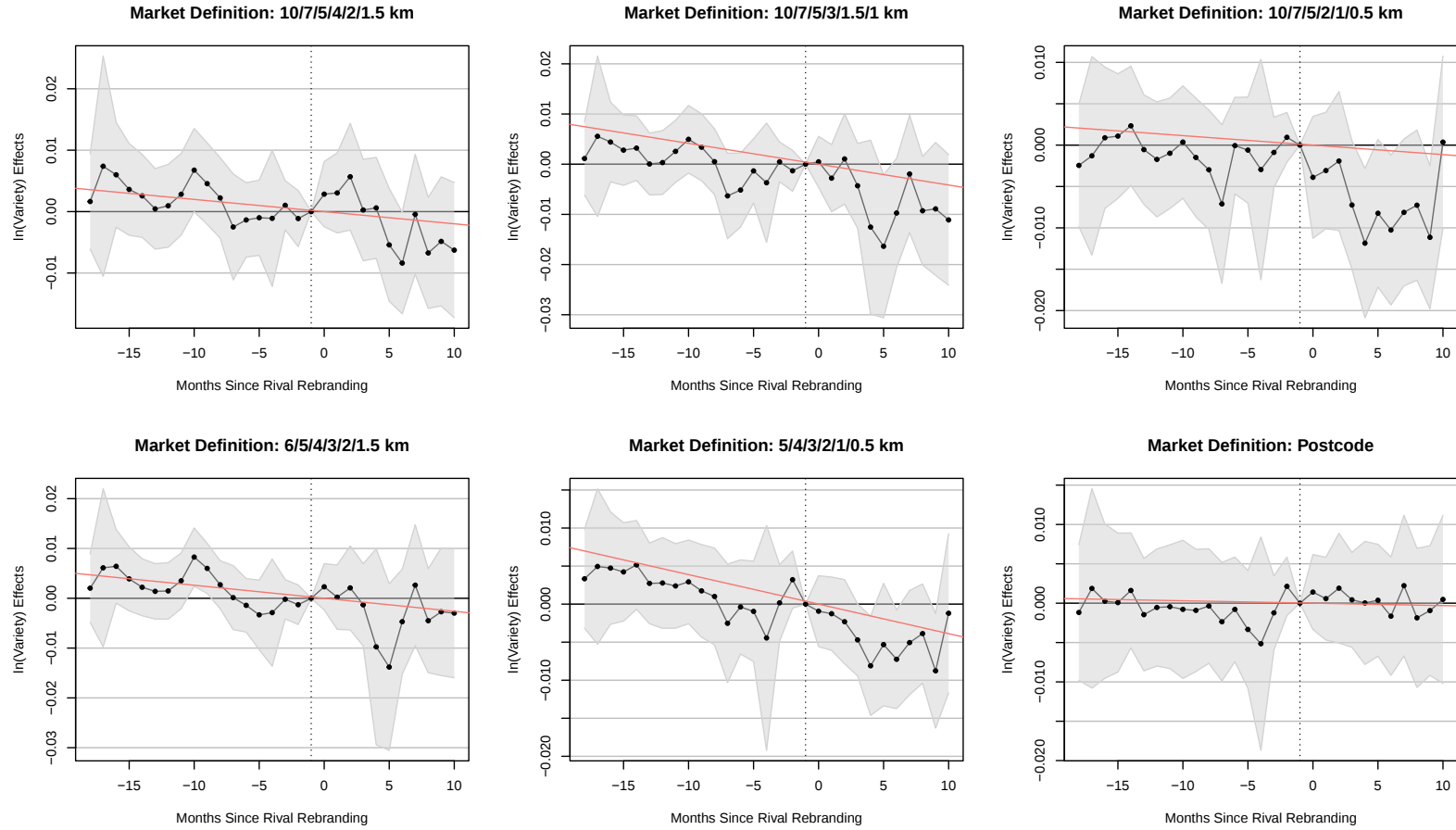
**Figure OA.16:** Estimated percentage variety effects of rival rebranding to Extra over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.10:** Estimated effect of Prix on variety

|                   | ln(Variety)       |                   |                   |                   |                   |                  |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------|
|                   | (1)               | (2)               | (3)               | (4)               | (5)               | (6)              |
| $T_{\text{Prix}}$ | -0.001<br>(0.004) | -0.007<br>(0.004) | -0.005<br>(0.004) | -0.002<br>(0.004) | -0.004<br>(0.003) | 0.000<br>(0.004) |
| ln(Population)    | 0.015<br>(0.126)  | -0.001<br>(0.133) | -0.055<br>(0.124) | 0.038<br>(0.122)  | -0.070<br>(0.123) | 0.008<br>(0.035) |
| ln(Median Income) | 0.057<br>(0.099)  | 0.047<br>(0.099)  | 0.047<br>(0.090)  | 0.077<br>(0.097)  | 0.058<br>(0.090)  | 0.065<br>(0.109) |
| Market Definition | 10–1.5 km         | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode         |
| Months            | 36                | 36                | 36                | 36                | 36                | 36               |
| Stores            | 327               | 372               | 449               | 350               | 479               | 512              |
| Observations      | 10,060            | 11,615            | 14,365            | 10,889            | 15,521            | 16,705           |
| $R^2$             | 0.96              | 0.96              | 0.97              | 0.96              | 0.97              | 0.97             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

## Event-study plots: $\ln(\text{Variety})$ , Prix rebranding



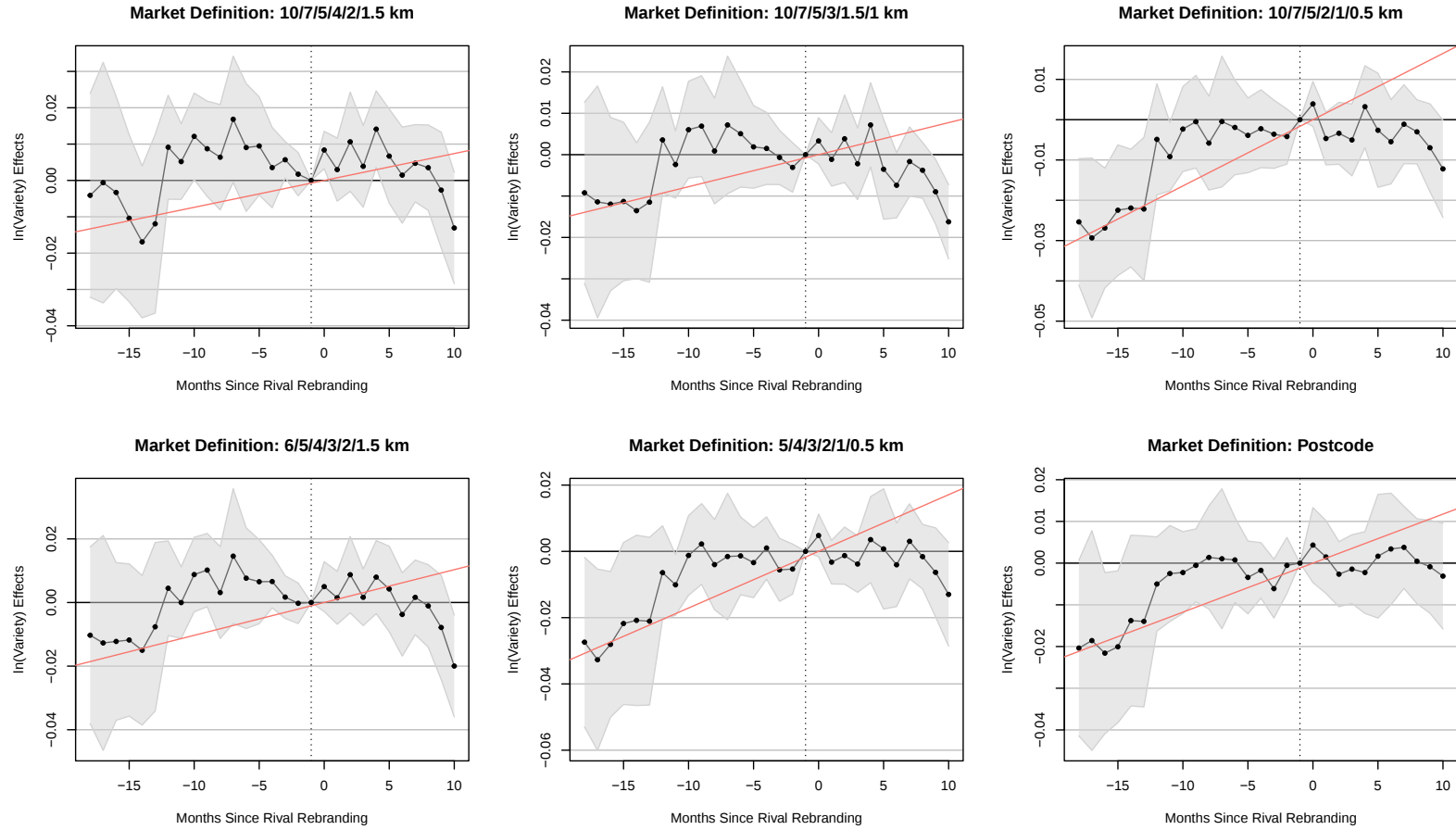
**Figure OA.17:** Estimated percentage variety effects of rival rebranding to Prix over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.11:** Estimated effect of Bunnpris on variety

|                       | ln(Variety)      |                   |                   |                   |                   |                  |
|-----------------------|------------------|-------------------|-------------------|-------------------|-------------------|------------------|
|                       | (1)              | (2)               | (3)               | (4)               | (5)               | (6)              |
| $T_{\text{Bunnpris}}$ | 0.002<br>(0.005) | -0.003<br>(0.003) | -0.003<br>(0.005) | -0.002<br>(0.005) | -0.001<br>(0.005) | 0.001<br>(0.005) |
| ln(Population)        | 0.001<br>(0.131) | -0.008<br>(0.129) | -0.077<br>(0.123) | 0.032<br>(0.127)  | -0.080<br>(0.124) | 0.010<br>(0.036) |
| ln(Median Income)     | 0.080<br>(0.101) | 0.079<br>(0.093)  | 0.051<br>(0.086)  | 0.110<br>(0.097)  | 0.066<br>(0.087)  | 0.083<br>(0.108) |
| Market Definition     | 10–1.5 km        | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode         |
| Months                | 36               | 36                | 36                | 36                | 36                | 36               |
| Stores                | 291              | 342               | 424               | 317               | 456               | 489              |
| Observations          | 9,277            | 10,951            | 13,781            | 10,158            | 14,903            | 16,112           |
| R <sup>2</sup>        | 0.96             | 0.96              | 0.97              | 0.96              | 0.97              | 0.97             |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

## Event-study plots: $\ln(\text{Variety})$ , Bunnpris rebranding



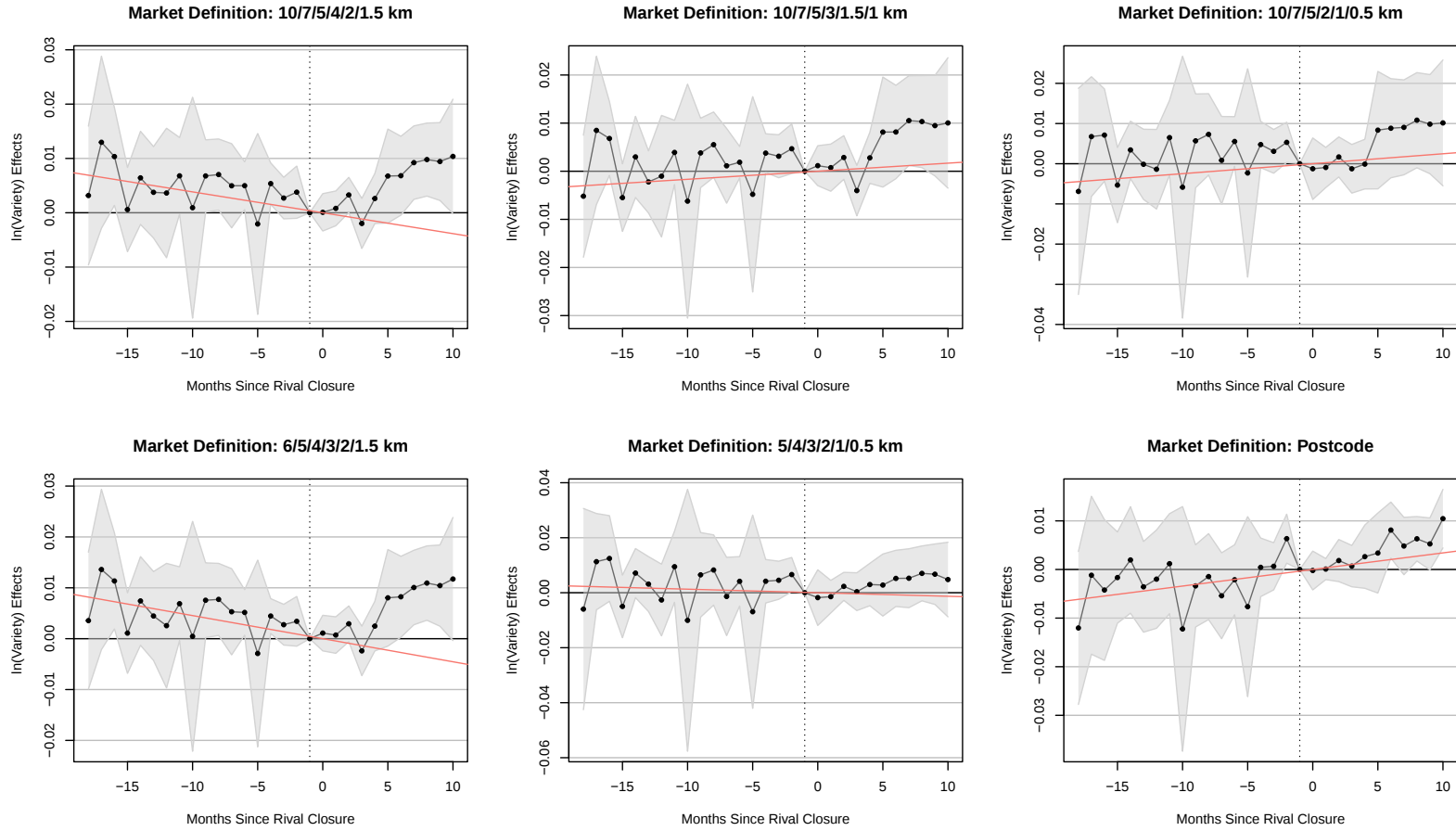
**Figure OA.18:** Estimated percentage variety effects of rival rebranding to Bunnpris over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.12:** Estimated effect of rival closure on variety

|                      | ln(Variety) |         |           |          |          |          |
|----------------------|-------------|---------|-----------|----------|----------|----------|
|                      | (1)         | (2)     | (3)       | (4)      | (5)      | (6)      |
| $T_{\text{Closure}}$ | 0.006*      | 0.006   | 0.007     | 0.007*   | 0.004    | 0.004*   |
|                      | (0.003)     | (0.004) | (0.005)   | (0.003)  | (0.004)  | (0.002)  |
| ln(Population)       | -0.038      | -0.036  | -0.092    | -0.011   | -0.075   | 0.004    |
|                      | (0.131)     | (0.129) | (0.127)   | (0.128)  | (0.125)  | (0.037)  |
| ln(Median Income)    | 0.047       | 0.055   | 0.021     | 0.072    | 0.031    | 0.059    |
|                      | (0.104)     | (0.100) | (0.096)   | (0.103)  | (0.095)  | (0.111)  |
| Market Definition    | 10–1.5 km   | 10–1 km | 10–0.5 km | 6–1.5 km | 5–0.5 km | Postcode |
| Months               | 36          | 36      | 36        | 36       | 36       | 36       |
| Stores               | 314         | 355     | 434       | 337      | 463      | 504      |
| Observations         | 10,040      | 11,363  | 14,127    | 10,815   | 15,141   | 16,626   |
| R <sup>2</sup>       | 0.96        | 0.96    | 0.97      | 0.96     | 0.97     | 0.97     |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: $\ln(\text{Variety})$ , rival closure



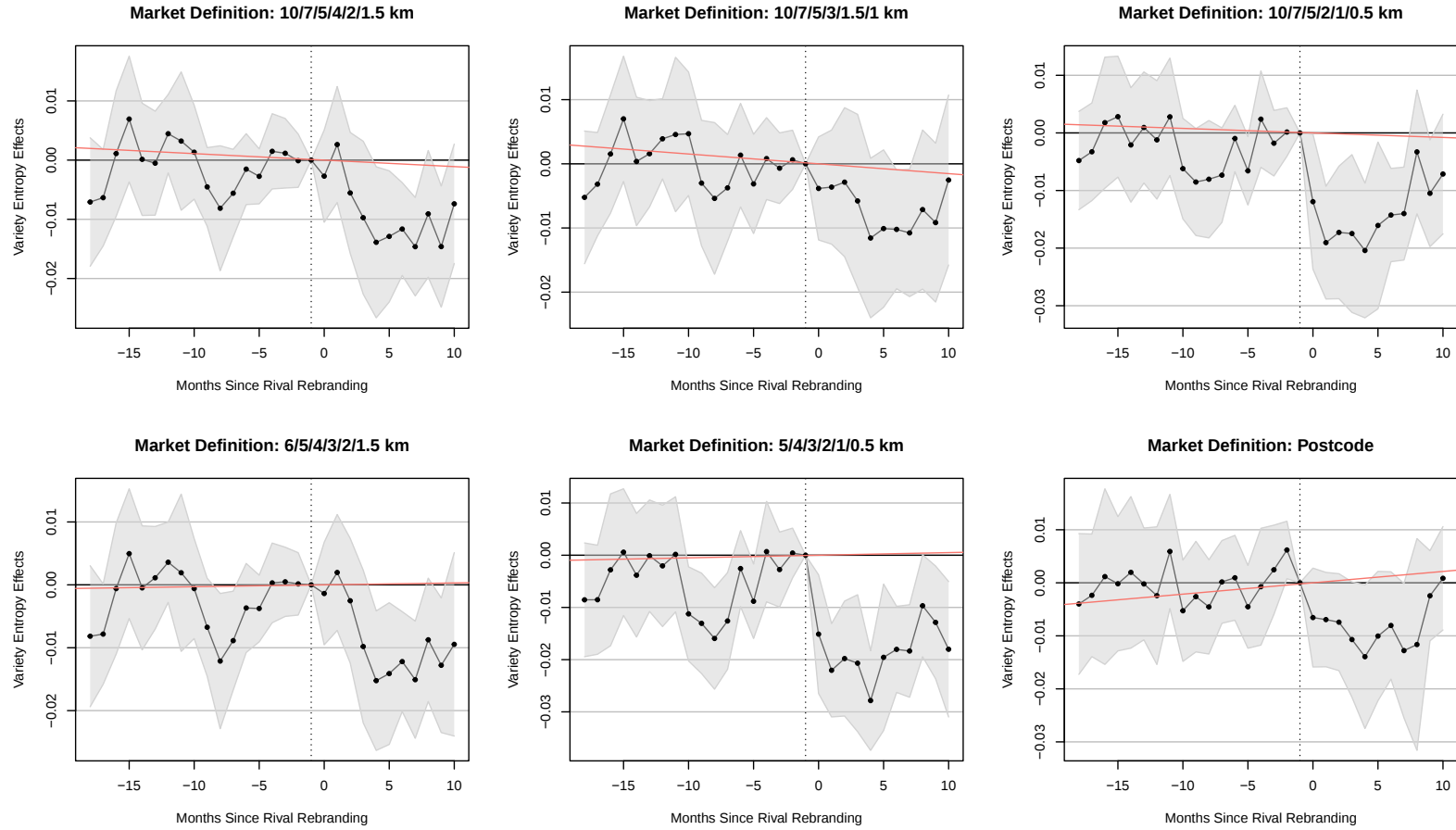
**Figure OA.19:** Estimated percentage variety effects of rival closure over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.13:** Estimated effect of Extra on variety entropy

|                             | Variety Entropy   |                   |                     |                   |                      |                     |
|-----------------------------|-------------------|-------------------|---------------------|-------------------|----------------------|---------------------|
|                             | (1)               | (2)               | (3)                 | (4)               | (5)                  | (6)                 |
| $T_{\text{Extra}}$          | -0.007<br>(0.005) | -0.006<br>(0.005) | -0.016**<br>(0.005) | -0.007<br>(0.005) | -0.020***<br>(0.005) | -0.010*<br>(0.004)  |
| $\ln(\text{Population})$    | 0.180<br>(0.134)  | 0.140<br>(0.135)  | 0.108<br>(0.112)    | 0.165<br>(0.127)  | 0.106<br>(0.109)     | 0.097***<br>(0.022) |
| $\ln(\text{Median Income})$ | 0.170<br>(0.099)  | 0.131<br>(0.100)  | 0.155<br>(0.079)    | 0.177<br>(0.096)  | 0.163*<br>(0.077)    | 0.196*<br>(0.078)   |
| Market Definition           | 10–1.5 km         | 10–1 km           | 10–0.5 km           | 6–1.5 km          | 5–0.5 km             | Postcode            |
| Months                      | 36                | 36                | 36                  | 36                | 36                   | 36                  |
| Stores                      | 348               | 396               | 468                 | 372               | 492                  | 529                 |
| Observations                | 10,808            | 12,371            | 14,955              | 11,662            | 15,893               | 17,351              |
| $R^2$                       | 0.88              | 0.89              | 0.90                | 0.89              | 0.90                 | 0.90                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: variety entropy ( $E_{it}$ ), Extra rebranding



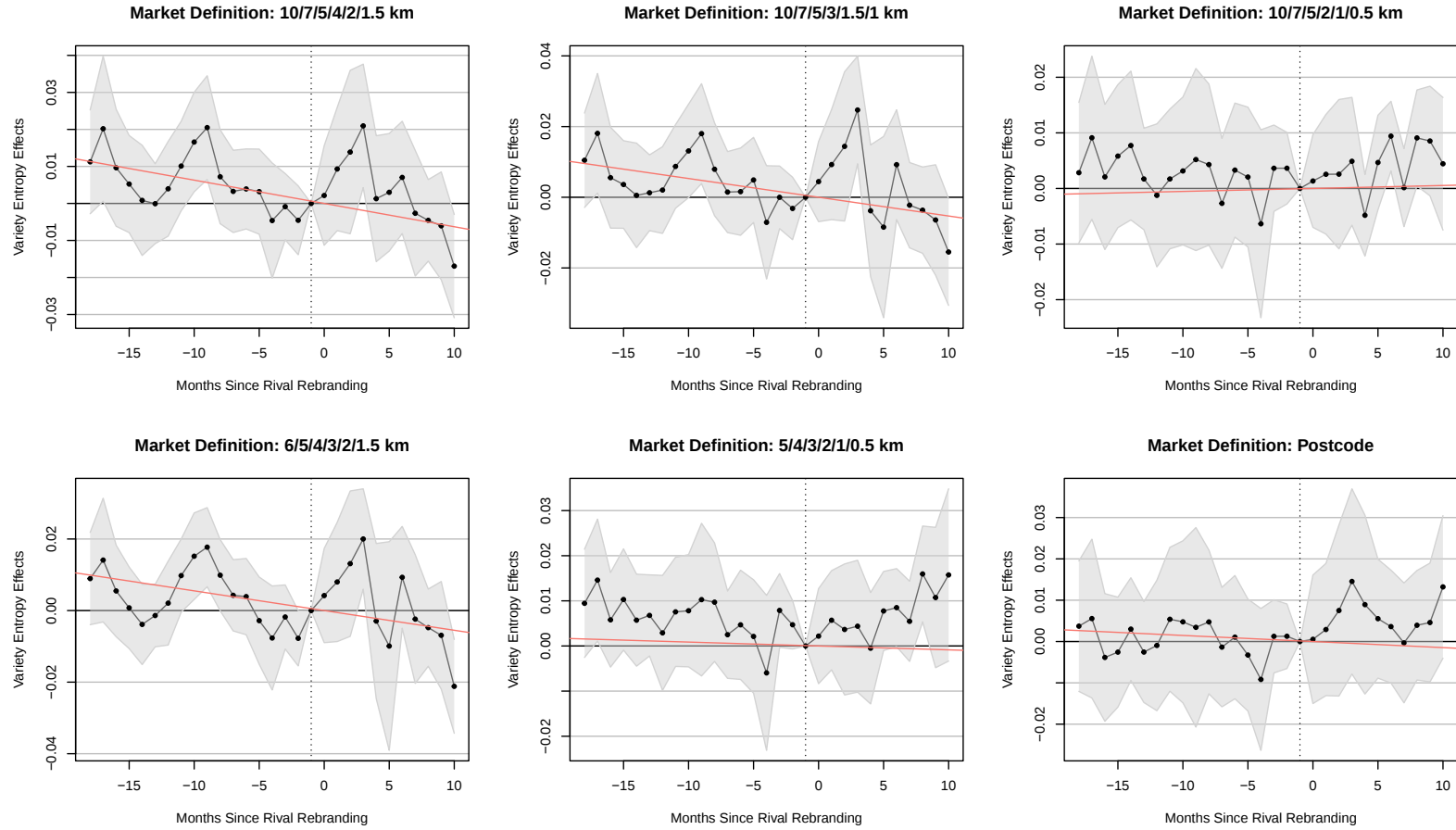
**Figure OA.20:** Estimated variety index effects of rival rebranding to Extra over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.14:** Estimated effect of Prix on variety entropy

|                             | Variety Entropy  |                  |                   |                   |                   |                     |
|-----------------------------|------------------|------------------|-------------------|-------------------|-------------------|---------------------|
|                             | (1)              | (2)              | (3)               | (4)               | (5)               | (6)                 |
| $T_{\text{Prix}}$           | 0.003<br>(0.007) | 0.004<br>(0.006) | 0.005<br>(0.004)  | 0.003<br>(0.007)  | 0.008<br>(0.005)  | 0.005<br>(0.007)    |
| $\ln(\text{Population})$    | 0.193<br>(0.133) | 0.160<br>(0.132) | 0.132<br>(0.112)  | 0.176<br>(0.127)  | 0.110<br>(0.110)  | 0.102***<br>(0.020) |
| $\ln(\text{Median Income})$ | 0.190<br>(0.099) | 0.164<br>(0.099) | 0.176*<br>(0.081) | 0.194*<br>(0.096) | 0.179*<br>(0.078) | 0.214**<br>(0.077)  |
| Market Definition           | 10–1.5 km        | 10–1 km          | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode            |
| Months                      | 36               | 36               | 36                | 36                | 36                | 36                  |
| Stores                      | 327              | 372              | 449               | 350               | 479               | 512                 |
| Observations                | 10,060           | 11,615           | 14,365            | 10,889            | 15,521            | 16,705              |
| $R^2$                       | 0.88             | 0.89             | 0.89              | 0.88              | 0.90              | 0.90                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: variety entropy ( $E_{it}$ ), Prix rebranding



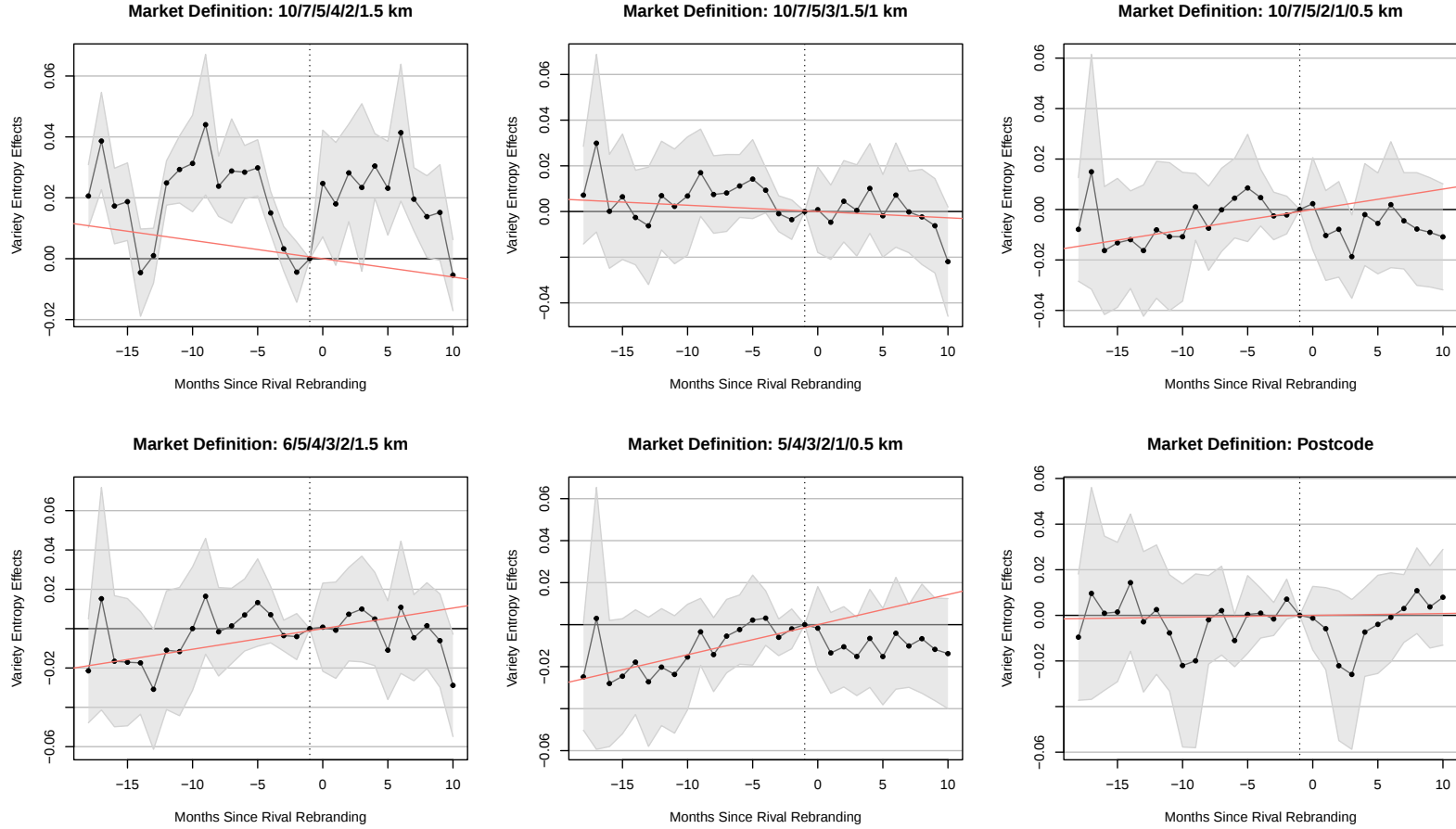
**Figure OA.21:** Estimated variety index effects of rival rebranding to Prix over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.15:** Estimated effect of Bunnpris on variety entropy

|                             | Variety Entropy    |                   |                   |                   |                   |                     |
|-----------------------------|--------------------|-------------------|-------------------|-------------------|-------------------|---------------------|
|                             | (1)                | (2)               | (3)               | (4)               | (5)               | (6)                 |
| $T_{\text{Bunnpris}}$       | 0.020**<br>(0.006) | -0.002<br>(0.009) | -0.007<br>(0.009) | -0.002<br>(0.011) | -0.009<br>(0.010) | -0.005<br>(0.008)   |
| $\ln(\text{Population})$    | 0.180<br>(0.138)   | 0.150<br>(0.134)  | 0.112<br>(0.114)  | 0.172<br>(0.131)  | 0.101<br>(0.112)  | 0.104***<br>(0.021) |
| $\ln(\text{Median Income})$ | 0.186<br>(0.099)   | 0.164<br>(0.094)  | 0.168*<br>(0.077) | 0.217*<br>(0.095) | 0.180*<br>(0.076) | 0.226**<br>(0.077)  |
| Market Definition           | 10–1.5 km          | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode            |
| Months                      | 36                 | 36                | 36                | 36                | 36                | 36                  |
| Stores                      | 291                | 342               | 424               | 317               | 456               | 489                 |
| Observations                | 9,277              | 10,951            | 13,781            | 10,158            | 14,903            | 16,112              |
| $R^2$                       | 0.87               | 0.88              | 0.89              | 0.88              | 0.89              | 0.90                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: variety entropy ( $E_{it}$ ), Bunnpris rebranding



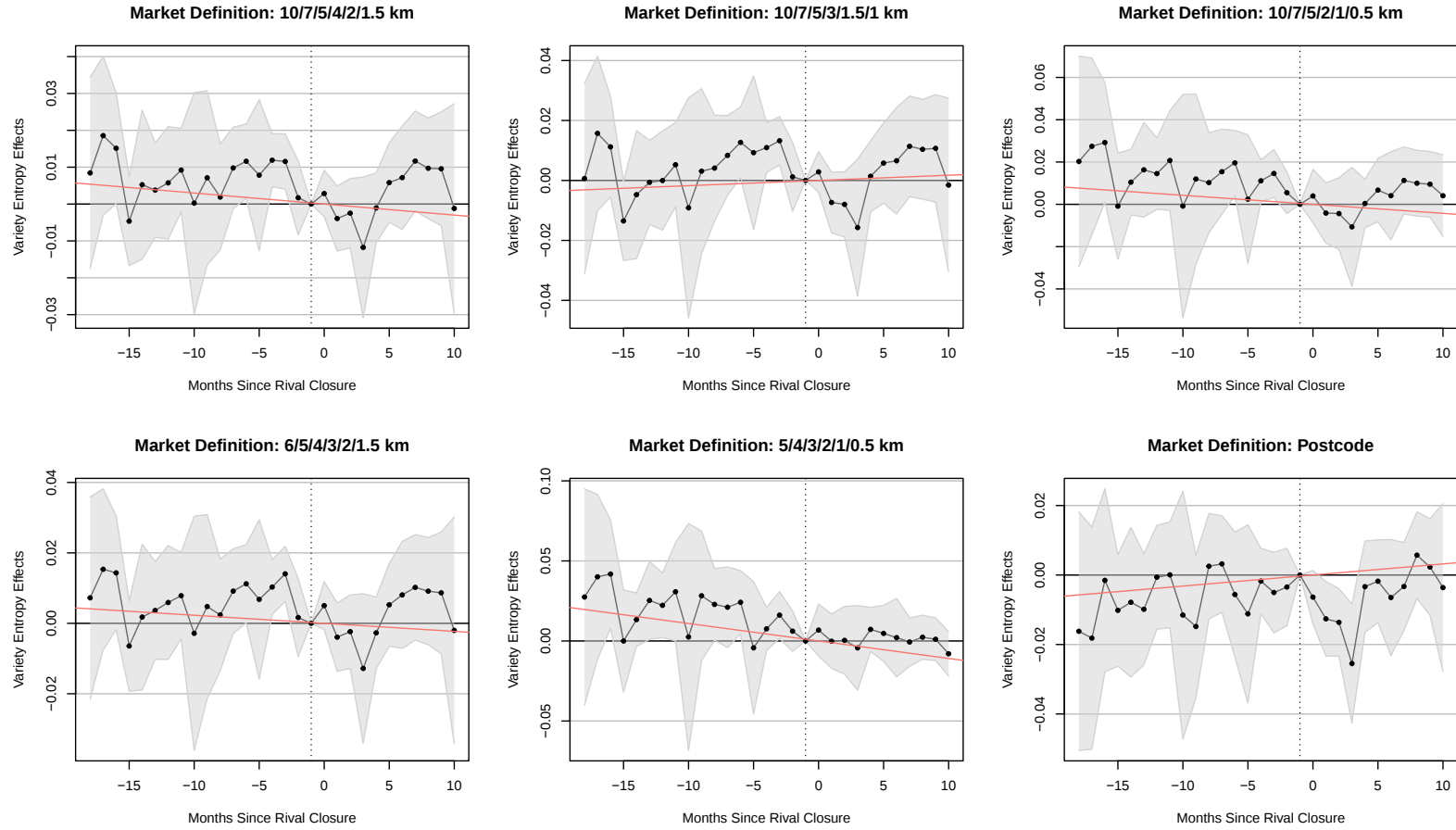
**Figure OA.22:** Estimated variety index effects of rival rebranding to Bunnpris over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.16:** Estimated effect of rival closures on variety entropy

|                             | Variety Entropy  |                  |                  |                  |                   |                     |
|-----------------------------|------------------|------------------|------------------|------------------|-------------------|---------------------|
|                             | (1)              | (2)              | (3)              | (4)              | (5)               | (6)                 |
| $T_{\text{Closure}}$        | 0.002<br>(0.006) | 0.003<br>(0.007) | 0.001<br>(0.007) | 0.002<br>(0.007) | -0.002<br>(0.005) | -0.007<br>(0.005)   |
| $\ln(\text{Population})$    | 0.134<br>(0.146) | 0.133<br>(0.138) | 0.102<br>(0.123) | 0.128<br>(0.138) | 0.127<br>(0.114)  | 0.098***<br>(0.021) |
| $\ln(\text{Median Income})$ | 0.175<br>(0.107) | 0.174<br>(0.103) | 0.142<br>(0.089) | 0.191<br>(0.105) | 0.140<br>(0.085)  | 0.201*<br>(0.079)   |
| Market Definition           | 10–1.5 km        | 10–1 km          | 10–0.5 km        | 6–1.5 km         | 5–0.5 km          | Postcode            |
| Months                      | 36               | 36               | 36               | 36               | 36                | 36                  |
| Stores                      | 314              | 355              | 434              | 337              | 463               | 504                 |
| Observations                | 10,040           | 11,363           | 14,127           | 10,815           | 15,141            | 16,626              |
| $R^2$                       | 0.87             | 0.88             | 0.89             | 0.88             | 0.89              | 0.90                |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: variety entropy ( $E_{it}$ ), rival closure



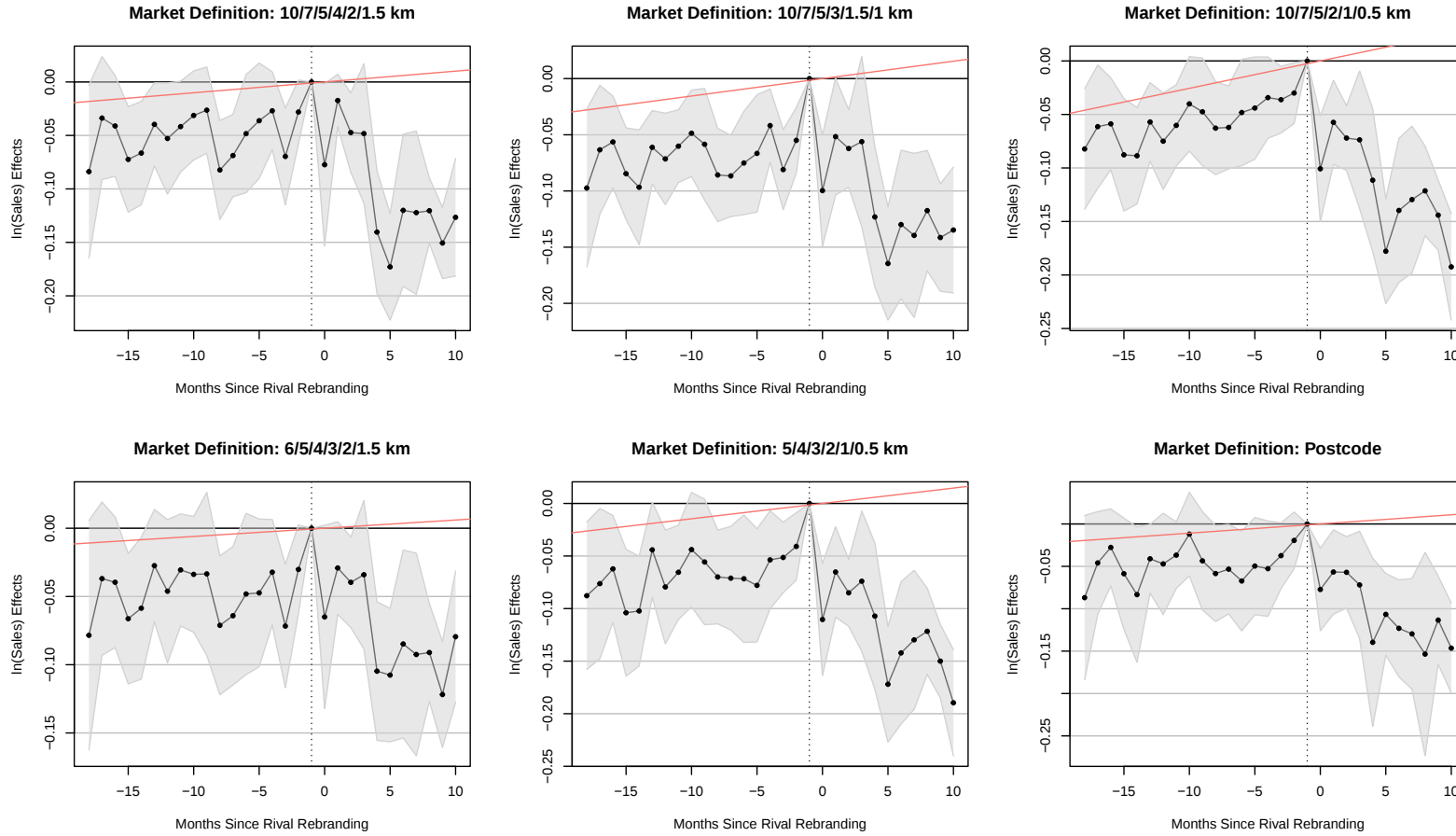
**Figure OA.23:** Estimated variety index effects of rival closure over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.17:** Estimated effect of Extra on sales

|                    | ln(Sales)            |                      |                      |                      |                      |                      |
|--------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                    | (1)                  | (2)                  | (3)                  | (4)                  | (5)                  | (6)                  |
| $T_{\text{Extra}}$ | -0.093***<br>(0.016) | -0.101***<br>(0.018) | -0.126***<br>(0.014) | -0.070***<br>(0.015) | -0.129***<br>(0.015) | -0.117***<br>(0.021) |
| ln(Population)     | -0.109<br>(0.389)    | 0.000<br>(0.401)     | -0.108<br>(0.395)    | 0.002<br>(0.400)     | -0.149<br>(0.461)    | -0.043<br>(0.069)    |
| ln(Median Income)  | 0.574<br>(0.351)     | 0.472<br>(0.335)     | 0.164<br>(0.308)     | 0.561<br>(0.342)     | 0.120<br>(0.320)     | 0.357<br>(0.271)     |
| Market Definition  | 10–1.5 km            | 10–1 km              | 10–0.5 km            | 6–1.5 km             | 5–0.5 km             | Postcode             |
| Months             | 36                   | 36                   | 36                   | 36                   | 36                   | 36                   |
| Stores             | 348                  | 396                  | 468                  | 372                  | 492                  | 529                  |
| Observations       | 10,808               | 12,371               | 14,955               | 11,662               | 15,893               | 17,351               |
| R <sup>2</sup>     | 0.83                 | 0.84                 | 0.84                 | 0.83                 | 0.84                 | 0.85                 |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

# Event-study plots: $\ln(\text{Sales})$ , Extra rebranding



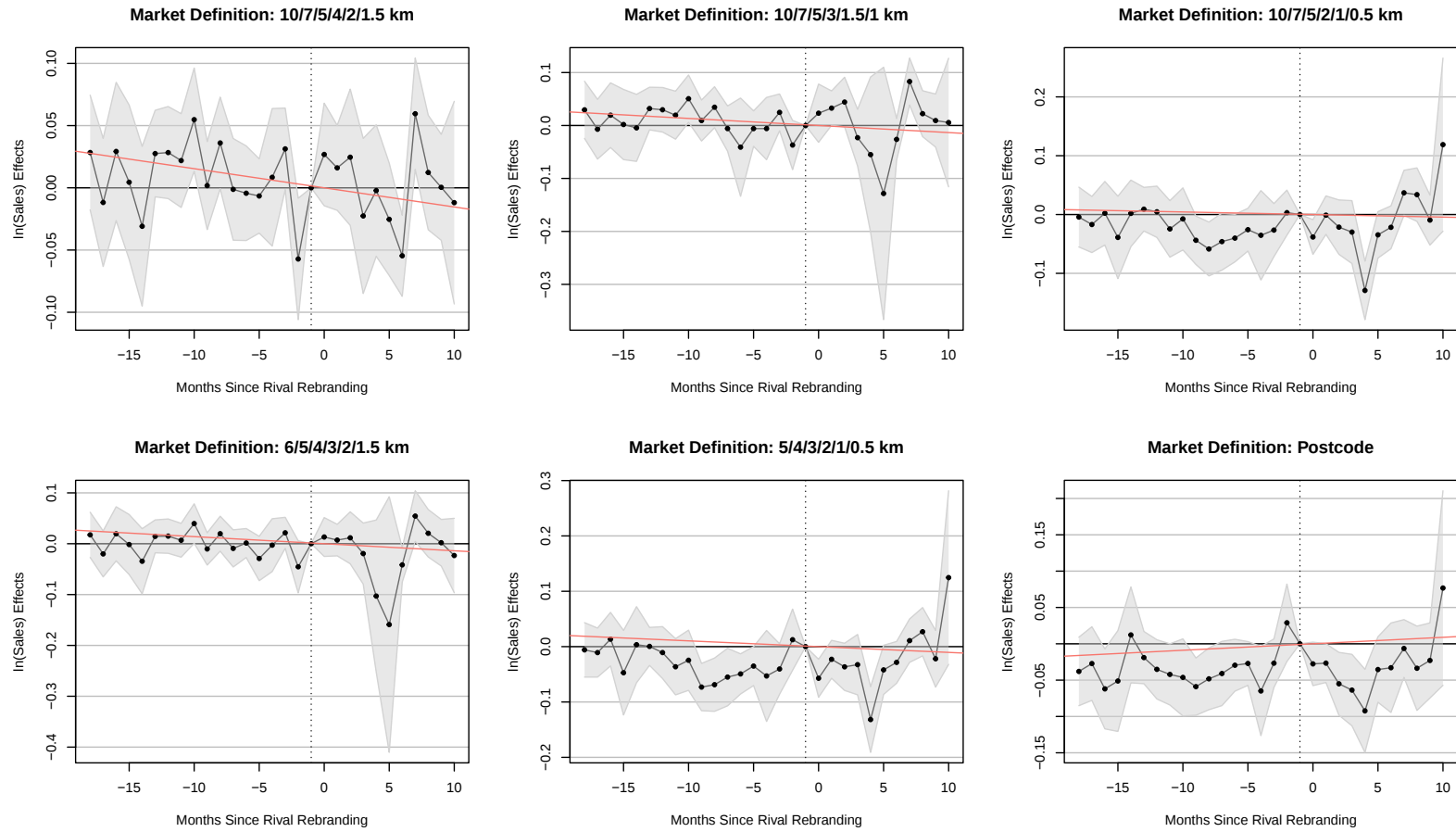
**Figure OA.24:** Estimated percentage sales effects of rival rebranding to Extra over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.18:** Estimated effect of Prix on sales

|                   | ln(Sales)         |                   |                   |                   |                   |                   |
|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                   | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               |
| $T_{\text{Prix}}$ | -0.010<br>(0.017) | -0.008<br>(0.018) | -0.015<br>(0.022) | -0.025<br>(0.018) | -0.025<br>(0.021) | -0.033<br>(0.018) |
| ln(Population)    | 0.105<br>(0.378)  | 0.181<br>(0.383)  | -0.007<br>(0.407) | 0.185<br>(0.391)  | -0.124<br>(0.471) | -0.003<br>(0.057) |
| ln(Median Income) | 0.532<br>(0.344)  | 0.429<br>(0.330)  | 0.059<br>(0.311)  | 0.541<br>(0.339)  | 0.058<br>(0.324)  | 0.437<br>(0.262)  |
| Market Definition | 10–1.5 km         | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode          |
| Months            | 36                | 36                | 36                | 36                | 36                | 36                |
| Stores            | 327               | 372               | 449               | 350               | 479               | 512               |
| Observations      | 10,060            | 11,615            | 14,365            | 10,889            | 15,521            | 16,705            |
| $R^2$             | 0.83              | 0.84              | 0.84              | 0.83              | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

## Event-study plots: $\ln(\text{Sales})$ , Prix rebranding



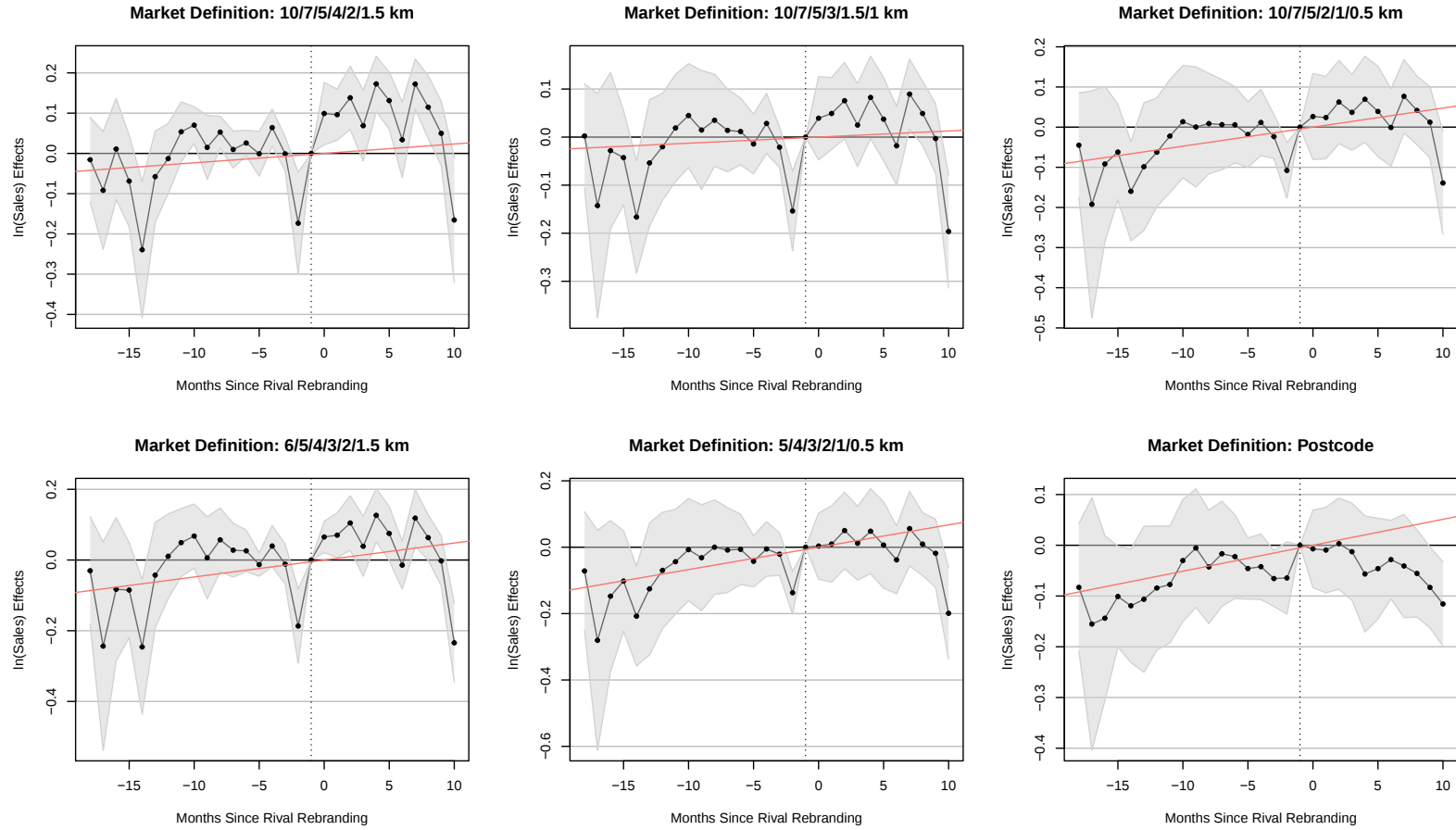
**Figure OA.25:** Estimated percentage sales effects of rival rebranding to Prix over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.19:** Estimated effect of Bunnpris on sales

|                       | ln(Sales)          |                  |                   |                  |                   |                   |
|-----------------------|--------------------|------------------|-------------------|------------------|-------------------|-------------------|
|                       | (1)                | (2)              | (3)               | (4)              | (5)               | (6)               |
| $T_{\text{Bunnpris}}$ | 0.081**<br>(0.030) | 0.023<br>(0.035) | 0.025<br>(0.044)  | 0.037<br>(0.032) | -0.001<br>(0.053) | -0.045<br>(0.039) |
| ln(Population)        | 0.011<br>(0.391)   | 0.110<br>(0.394) | -0.113<br>(0.399) | 0.107<br>(0.400) | -0.199<br>(0.469) | -0.011<br>(0.058) |
| ln(Median Income)     | 0.660<br>(0.351)   | 0.453<br>(0.328) | 0.057<br>(0.296)  | 0.559<br>(0.348) | 0.058<br>(0.313)  | 0.420<br>(0.268)  |
| Market Definition     | 10–1.5 km          | 10–1 km          | 10–0.5 km         | 6–1.5 km         | 5–0.5 km          | Postcode          |
| Months                | 36                 | 36               | 36                | 36               | 36                | 36                |
| Stores                | 291                | 342              | 424               | 317              | 456               | 489               |
| Observations          | 9,277              | 10,951           | 13,781            | 10,158           | 14,903            | 16,112            |
| R <sup>2</sup>        | 0.82               | 0.83             | 0.83              | 0.82             | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

## Event-study plots: $\ln(\text{Sales})$ , Bunnpris rebranding



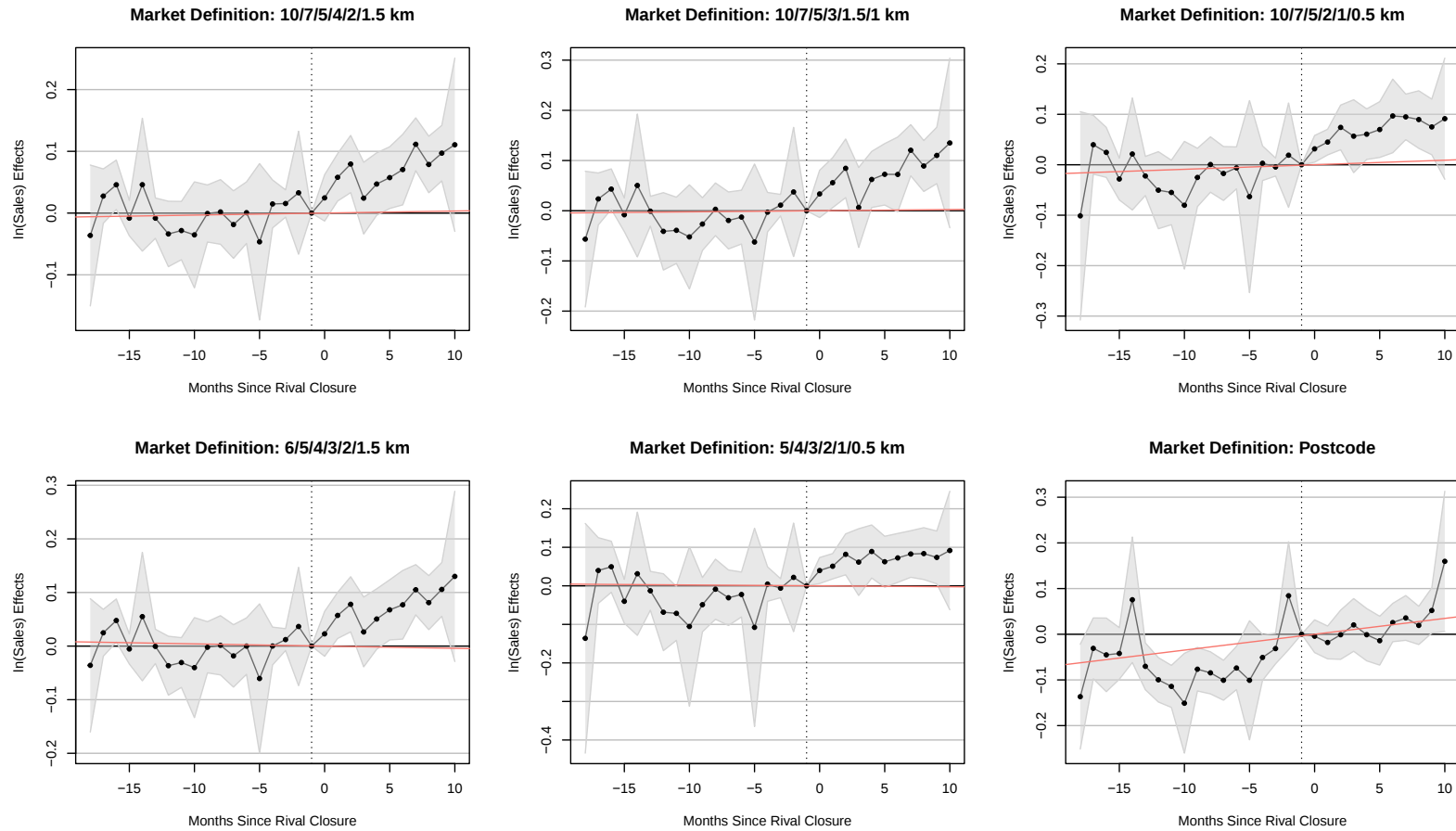
**Figure OA.26:** Estimated percentage sales effects of rival rebranding to Bunnpris over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.20:** Estimated effect of rival closure on sales

|                      | ln(Sales)           |                     |                     |                     |                    |                   |
|----------------------|---------------------|---------------------|---------------------|---------------------|--------------------|-------------------|
|                      | (1)                 | (2)                 | (3)                 | (4)                 | (5)                | (6)               |
| $T_{\text{Closure}}$ | 0.078***<br>(0.019) | 0.083***<br>(0.023) | 0.076***<br>(0.021) | 0.082***<br>(0.022) | 0.073**<br>(0.025) | 0.024<br>(0.019)  |
| ln(Population)       | -0.064<br>(0.390)   | 0.063<br>(0.394)    | -0.121<br>(0.413)   | 0.011<br>(0.394)    | -0.170<br>(0.479)  | -0.008<br>(0.068) |
| ln(Median Income)    | 0.558<br>(0.355)    | 0.490<br>(0.341)    | 0.016<br>(0.319)    | 0.531<br>(0.346)    | 0.002<br>(0.329)   | 0.528<br>(0.273)  |
| Market Definition    | 10–1.5 km           | 10–1 km             | 10–0.5 km           | 6–1.5 km            | 5–0.5 km           | Postcode          |
| Months               | 36                  | 36                  | 36                  | 36                  | 36                 | 36                |
| Stores               | 314                 | 355                 | 434                 | 337                 | 463                | 504               |
| Observations         | 10,040              | 11,363              | 14,127              | 10,815              | 15,141             | 16,626            |
| $R^2$                | 0.81                | 0.83                | 0.83                | 0.82                | 0.84               | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 and the demographics are measured at the municipality level. The standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

## Event-study plots: $\ln(\text{Sales})$ , rival closure



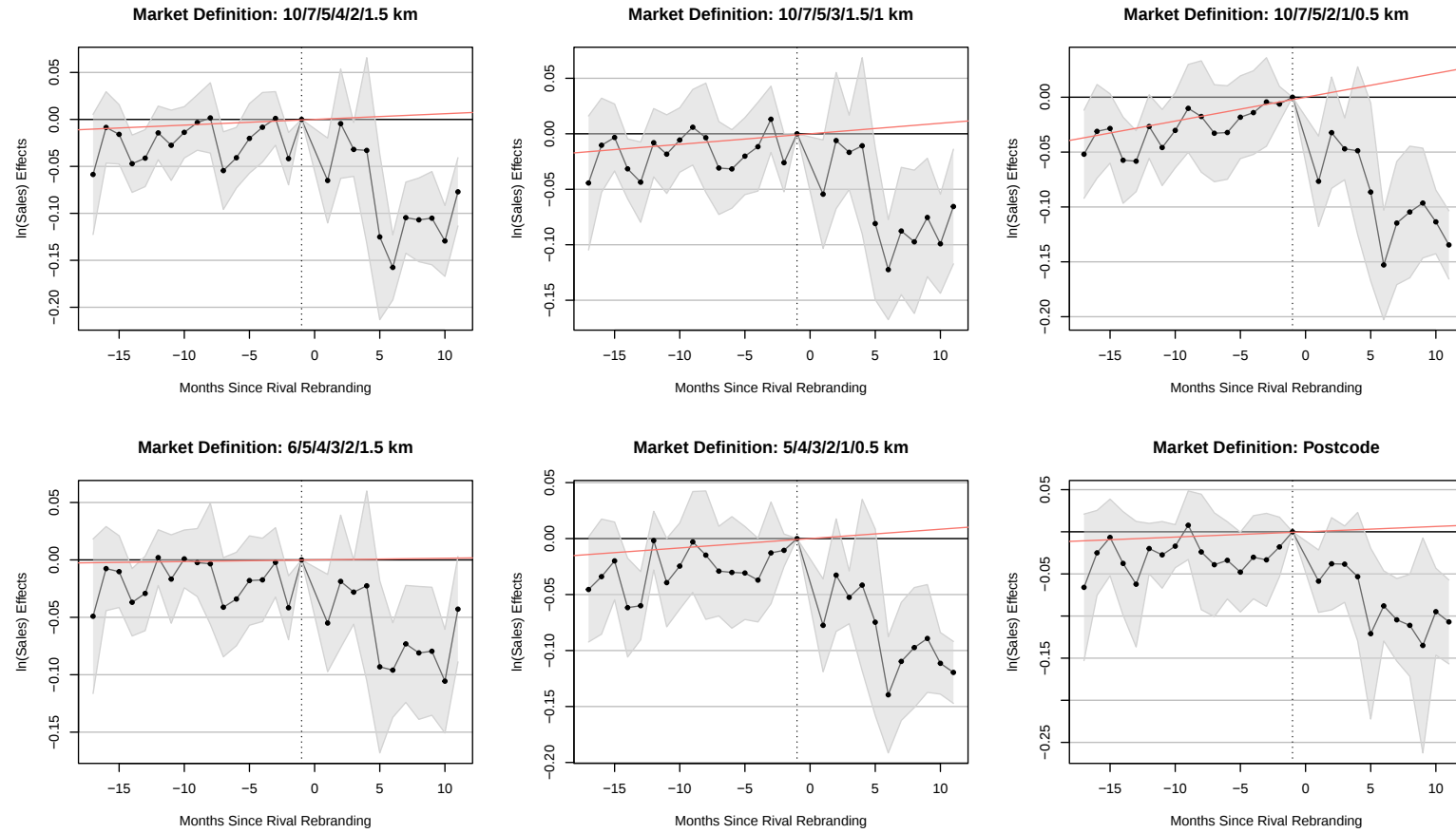
**Figure OA.27:** Estimated percentage sales effects of rival closure over time. The horizontal axis displays months relative to the event,  $l \in [-18, +10]$ , with the vertical line marking  $l = -1$ —the last month before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.21:** Estimated effect of Extra on sales: last period before event excluded

|                    | ln(Sales)            |                     |                      |                     |                      |                      |
|--------------------|----------------------|---------------------|----------------------|---------------------|----------------------|----------------------|
|                    | (1)                  | (2)                 | (3)                  | (4)                 | (5)                  | (6)                  |
| $T_{\text{Extra}}$ | -0.072***<br>(0.017) | -0.051**<br>(0.018) | -0.096***<br>(0.015) | -0.053**<br>(0.018) | -0.091***<br>(0.013) | -0.094***<br>(0.022) |
| ln(Population)     | -0.124<br>(0.390)    | -0.017<br>(0.403)   | -0.118<br>(0.397)    | -0.023<br>(0.402)   | -0.165<br>(0.463)    | -0.043<br>(0.069)    |
| ln(Median Income)  | 0.573<br>(0.350)     | 0.461<br>(0.335)    | 0.158<br>(0.309)     | 0.563<br>(0.342)    | 0.117<br>(0.321)     | 0.356<br>(0.271)     |
| Market Definition  | 10–1.5 km            | 10–1 km             | 10–0.5 km            | 6–1.5 km            | 5–0.5 km             | Postcode             |
| Months             | 36                   | 36                  | 36                   | 36                  | 36                   | 36                   |
| Stores             | 348                  | 396                 | 468                  | 372                 | 492                  | 529                  |
| Observations       | 10,744               | 12,306              | 14,902               | 11,600              | 15,850               | 17,301               |
| R <sup>2</sup>     | 0.83                 | 0.84                | 0.84                 | 0.83                | 0.84                 | 0.85                 |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots:  $\ln(\text{Sales})$ , Extra rebranding, last period before event excluded



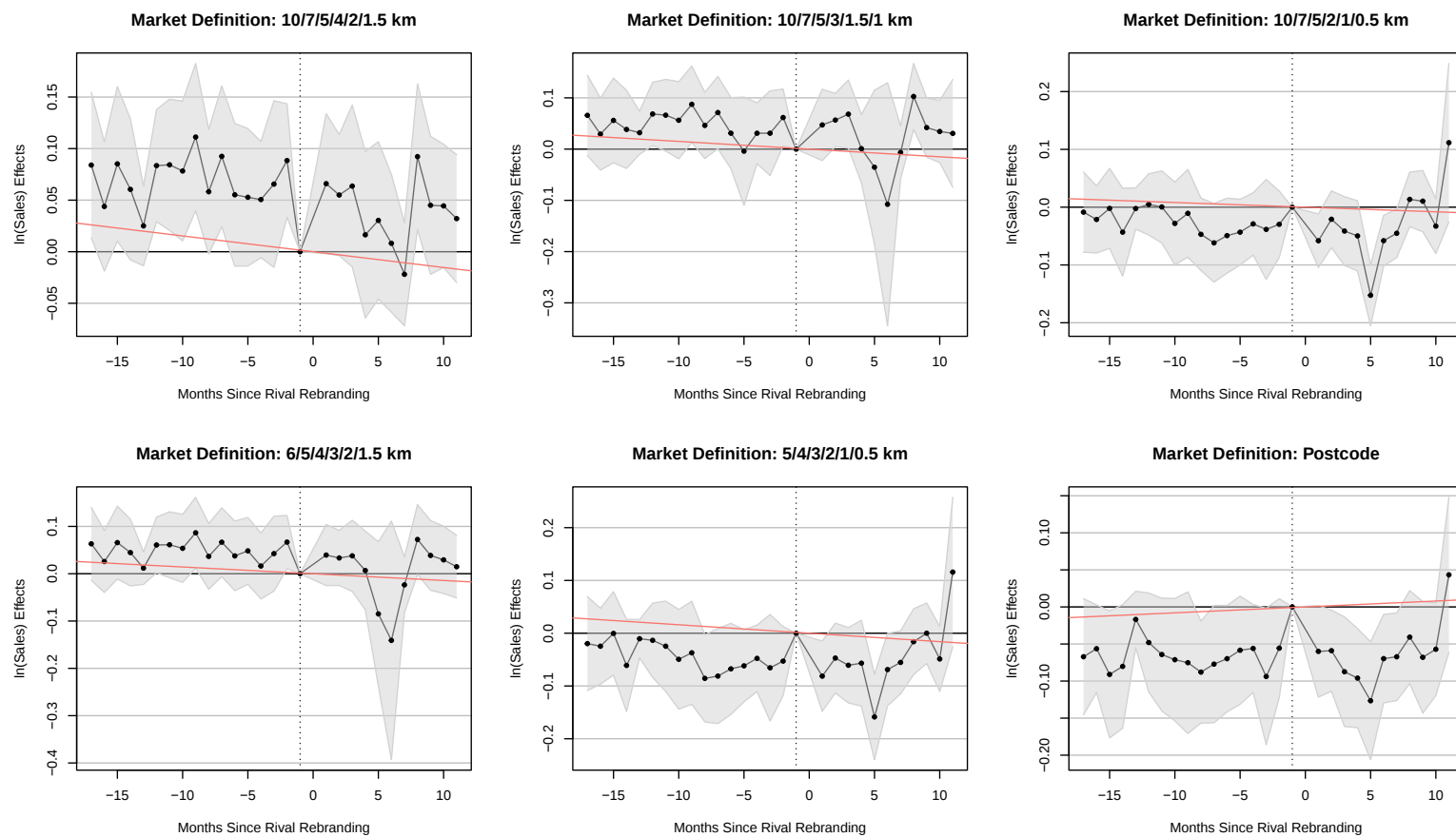
**Figure OA.28:** Estimated percentage sales effects of rival rebranding to Extra over time, excluding the last period before rebranding. The horizontal axis displays months relative to the excluded month,  $l \in [-17, +11]$ , with the vertical line marking  $l = -1$ —two months before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.22:** Estimated effect of Prix on sales: last period before event excluded

|                   | ln(Sales)        |                  |                   |                  |                   |                    |
|-------------------|------------------|------------------|-------------------|------------------|-------------------|--------------------|
|                   | (1)              | (2)              | (3)               | (4)              | (5)               | (6)                |
| $T_{\text{Prix}}$ | 0.034<br>(0.031) | 0.019<br>(0.026) | -0.030<br>(0.026) | 0.007<br>(0.033) | -0.045<br>(0.036) | -0.065*<br>(0.030) |
| ln(Population)    | 0.096<br>(0.379) | 0.166<br>(0.385) | -0.011<br>(0.407) | 0.181<br>(0.391) | -0.120<br>(0.471) | -0.003<br>(0.057)  |
| ln(Median Income) | 0.538<br>(0.345) | 0.430<br>(0.331) | 0.064<br>(0.312)  | 0.549<br>(0.340) | 0.061<br>(0.324)  | 0.442<br>(0.263)   |
| Market Definition | 10–1.5 km        | 10–1 km          | 10–0.5 km         | 6–1.5 km         | 5–0.5 km          | Postcode           |
| Months            | 36               | 36               | 36                | 36               | 36                | 36                 |
| Stores            | 327              | 372              | 449               | 350              | 479               | 512                |
| Observations      | 10,017           | 11,574           | 14,331            | 10,849           | 15,491            | 16,672             |
| $R^2$             | 0.83             | 0.84             | 0.84              | 0.83             | 0.84              | 0.85               |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots:  $\ln(\text{Sales})$ , Prix rebranding, last period before event excluded



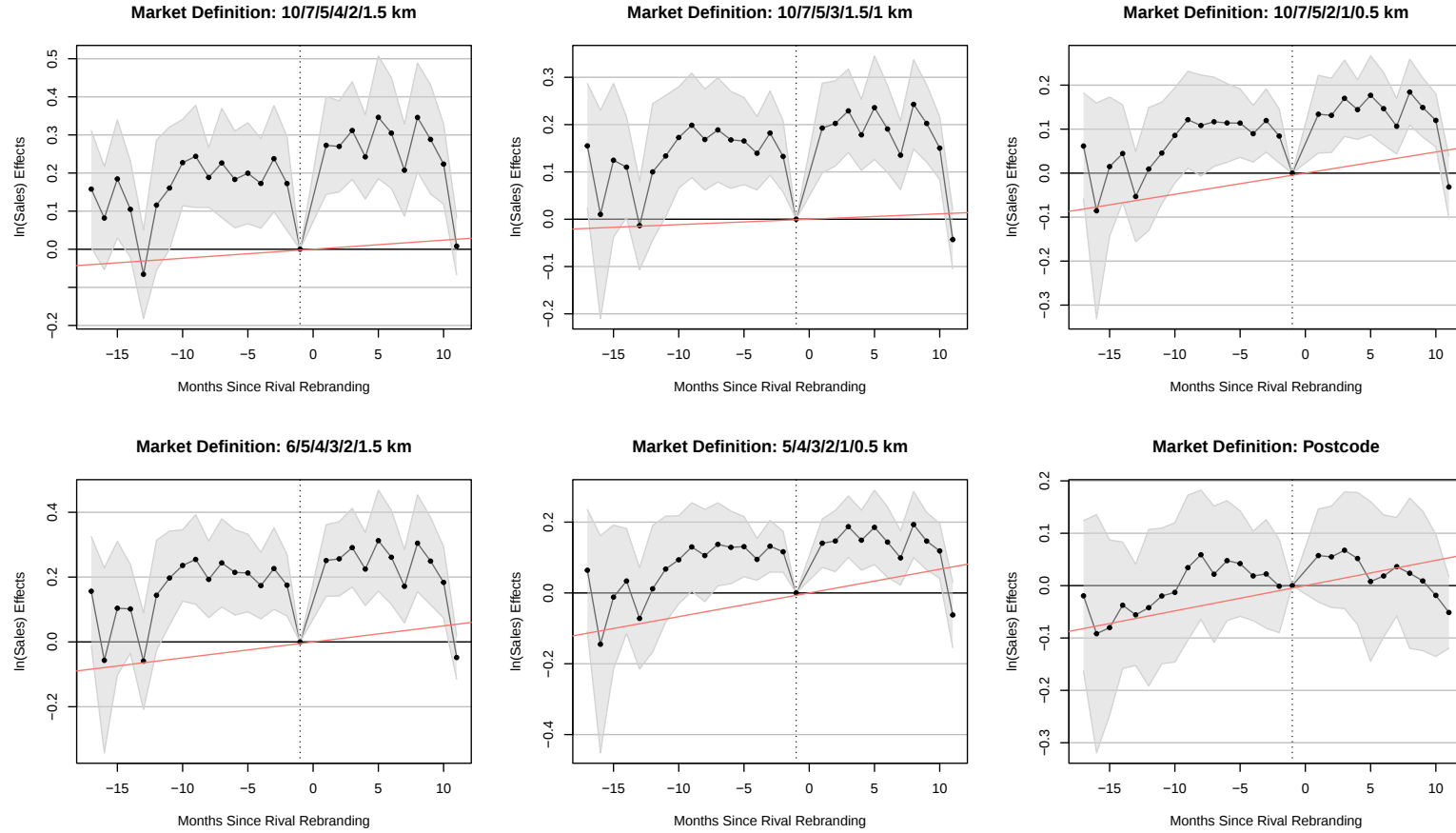
**Figure OA.29:** Estimated percentage sales effects of rival rebranding to Prix over time, excluding the last period before rebranding. The horizontal axis displays months relative to the excluded month,  $l \in [-17, +11]$ , with the vertical line marking  $l = -1$ —two months before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.23:** Estimated effect of Bunnpris on sales: last period before event excluded

|                       | ln(Sales)           |                     |                     |                     |                    |                   |
|-----------------------|---------------------|---------------------|---------------------|---------------------|--------------------|-------------------|
|                       | (1)                 | (2)                 | (3)                 | (4)                 | (5)                | (6)               |
| $T_{\text{Bunnpris}}$ | 0.255***<br>(0.061) | 0.176***<br>(0.040) | 0.132***<br>(0.032) | 0.223***<br>(0.063) | 0.136**<br>(0.041) | 0.019<br>(0.056)  |
| ln(Population)        | 0.012<br>(0.391)    | 0.113<br>(0.394)    | -0.111<br>(0.398)   | 0.108<br>(0.400)    | -0.197<br>(0.468)  | -0.011<br>(0.058) |
| ln(Median Income)     | 0.660<br>(0.351)    | 0.454<br>(0.328)    | 0.058<br>(0.295)    | 0.558<br>(0.348)    | 0.059<br>(0.312)   | 0.419<br>(0.268)  |
| Market Definition     | 10–1.5 km           | 10–1 km             | 10–0.5 km           | 6–1.5 km            | 5–0.5 km           | Postcode          |
| Months                | 36                  | 36                  | 36                  | 36                  | 36                 | 36                |
| Stores                | 291                 | 342                 | 424                 | 317                 | 456                | 489               |
| Observations          | 9,270               | 10,940              | 13,772              | 10,151              | 14,896             | 16,102            |
| $R^2$                 | 0.82                | 0.83                | 0.83                | 0.82                | 0.84               | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots:  $\ln(\text{Sales})$ , Bunnpris rebranding, last period before event excluded



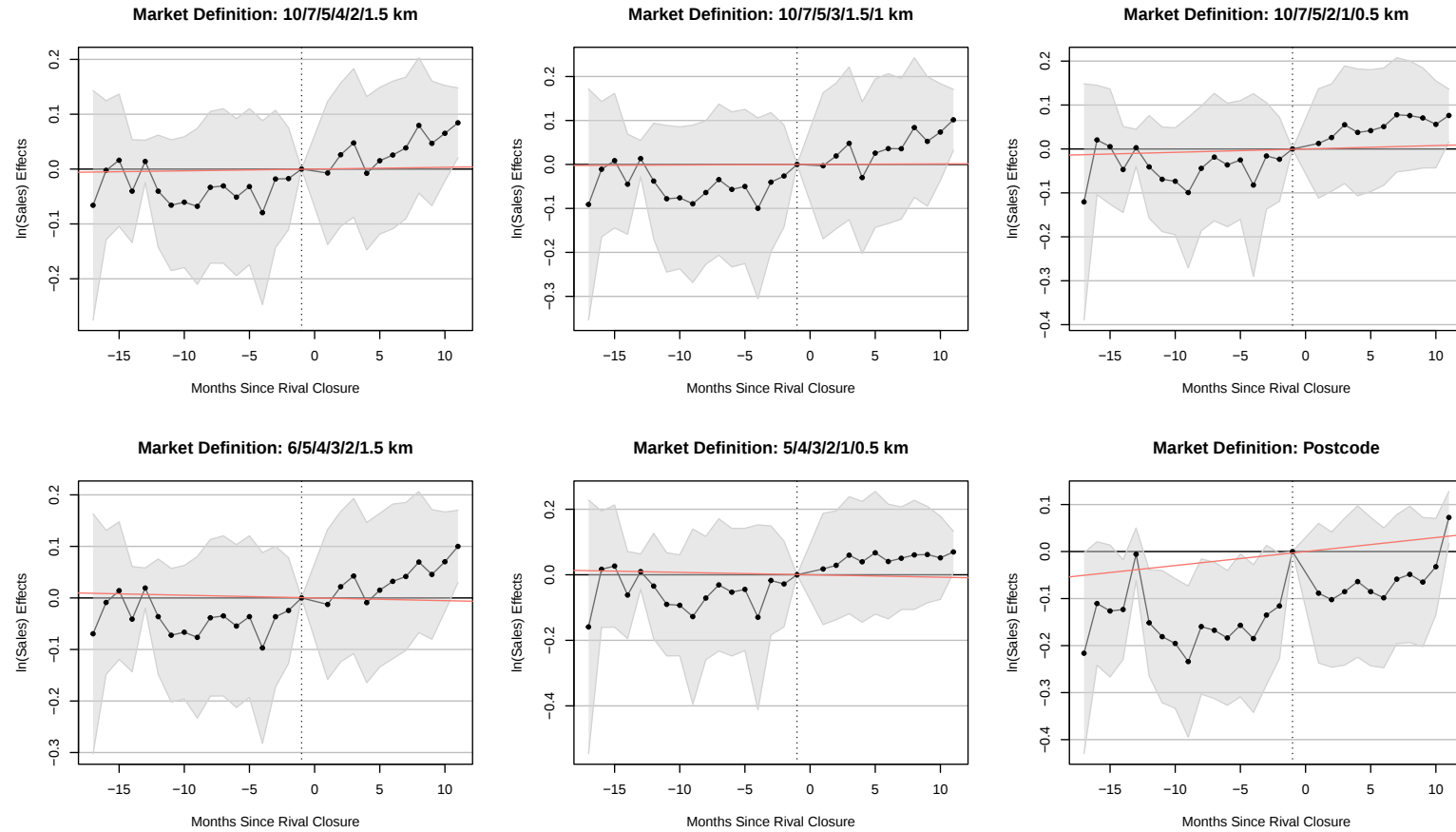
**Figure OA.30:** Estimated percentage sales effects of rival rebranding to Bunnpris over time, excluding the last period before rebranding. The horizontal axis displays months relative to the excluded month,  $l \in [-17, +11]$ , with the vertical line marking  $l = -1$ —two months before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.24:** Estimated effect of rival closure on sales: last period before event excluded

|                      | ln(Sales)         |                  |                   |                  |                   |                   |
|----------------------|-------------------|------------------|-------------------|------------------|-------------------|-------------------|
|                      | (1)               | (2)              | (3)               | (4)              | (5)               | (6)               |
| $T_{\text{Closure}}$ | 0.044<br>(0.064)  | 0.046<br>(0.079) | 0.056<br>(0.061)  | 0.044<br>(0.071) | 0.051<br>(0.078)  | -0.061<br>(0.068) |
| ln(Population)       | -0.065<br>(0.390) | 0.062<br>(0.394) | -0.121<br>(0.413) | 0.010<br>(0.394) | -0.170<br>(0.479) | -0.007<br>(0.067) |
| ln(Median Income)    | 0.555<br>(0.355)  | 0.487<br>(0.341) | 0.014<br>(0.319)  | 0.529<br>(0.346) | 0.000<br>(0.329)  | 0.529<br>(0.274)  |
| Market Definition    | 10–1.5 km         | 10–1 km          | 10–0.5 km         | 6–1.5 km         | 5–0.5 km          | Postcode          |
| Months               | 36                | 36               | 36                | 36               | 36                | 36                |
| Stores               | 314               | 355              | 434               | 337              | 463               | 504               |
| Observations         | 10,010            | 11,339           | 14,108            | 10,788           | 15,127            | 16,601            |
| $R^2$                | 0.81              | 0.83             | 0.83              | 0.82             | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

Event-study plots:  $\ln(\text{Sales})$ , rival closure, last period before event excluded



**Figure OA.31:** Estimated percentage sales effects of rival closure over time, excluding the last period before closure. The horizontal axis displays months relative to the excluded month,  $l \in [-17, +11]$ , with the vertical line marking  $l = -1$ —two months before the event. Point estimates are shown with 95% confidence intervals, based on standard errors clustered at the municipality level. A fitted linear pre-trend is displayed and extrapolated into the post-event period for comparison.

**Table OA.25:** Estimated effect of Extra on sales: group-specific linear trends and the last period before event excluded

|                         | ln(Sales) |         |           |          |           |          |
|-------------------------|-----------|---------|-----------|----------|-----------|----------|
|                         | (1)       | (2)     | (3)       | (4)      | (5)       | (6)      |
| $T_{\text{Extra}}$      | -0.069*   | -0.055  | -0.108*** | -0.044   | -0.081*** | -0.089** |
|                         | (0.029)   | (0.030) | (0.022)   | (0.032)  | (0.023)   | (0.030)  |
| ln(Population)          | -0.057    | 0.025   | -0.084    | 0.048    | -0.142    | -0.043   |
|                         | (0.376)   | (0.394) | (0.389)   | (0.390)  | (0.452)   | (0.067)  |
| ln(Median Income)       | 0.570     | 0.447   | 0.156     | 0.566    | 0.112     | 0.326    |
|                         | (0.345)   | (0.331) | (0.306)   | (0.338)  | (0.316)   | (0.269)  |
| Affected $\times$ Trend | 0.001     | 0.001   | 0.002     | 0.000    | 0.001     | 0.001    |
|                         | (0.001)   | (0.001) | (0.001)   | (0.001)  | (0.001)   | (0.001)  |
| Market Definition       | 10–1.5 km | 10–1 km | 10–0.5 km | 6–1.5 km | 5–0.5 km  | Postcode |
| Months                  | 36        | 36      | 36        | 36       | 36        | 36       |
| Stores                  | 348       | 396     | 468       | 372      | 492       | 529      |
| Observations            | 10,744    | 12,306  | 14,902    | 11,600   | 15,850    | 17,301   |
| R <sup>2</sup>          | 0.83      | 0.84    | 0.84      | 0.83     | 0.84      | 0.85     |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions and group-specific linear trends. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

**Table OA.26:** Estimated effect of Prix on sales: group-specific linear trends and the last period before event excluded

|                         | ln(Sales)         |                   |                   |                   |                   |                   |
|-------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                         | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               |
| $T_{\text{Prix}}$       | -0.003<br>(0.029) | -0.009<br>(0.032) | 0.015<br>(0.036)  | -0.012<br>(0.032) | 0.028<br>(0.038)  | -0.022<br>(0.026) |
| ln(Population)          | 0.097<br>(0.372)  | 0.170<br>(0.377)  | 0.018<br>(0.392)  | 0.194<br>(0.383)  | -0.094<br>(0.458) | -0.001<br>(0.057) |
| ln(Median Income)       | 0.540<br>(0.340)  | 0.445<br>(0.327)  | 0.094<br>(0.306)  | 0.556<br>(0.334)  | 0.099<br>(0.318)  | 0.447<br>(0.259)  |
| Affected $\times$ Trend | -0.002<br>(0.001) | -0.002<br>(0.002) | -0.001<br>(0.002) | -0.001<br>(0.001) | -0.002<br>(0.002) | 0.001<br>(0.001)  |
| Market Definition       | 10–1.5 km         | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode          |
| Months                  | 36                | 36                | 36                | 36                | 36                | 36                |
| Stores                  | 327               | 372               | 449               | 350               | 479               | 512               |
| Observations            | 10,017            | 11,574            | 14,331            | 10,849            | 15,491            | 16,672            |
| R <sup>2</sup>          | 0.83              | 0.84              | 0.84              | 0.82              | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions and group-specific linear trends. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

**Table OA.27:** Estimated effect of Bunnpris on sales: group-specific linear trends and the last period before event excluded

|                         | ln(Sales)        |                  |                   |                   |                   |                   |
|-------------------------|------------------|------------------|-------------------|-------------------|-------------------|-------------------|
|                         | (1)              | (2)              | (3)               | (4)               | (5)               | (6)               |
| $T_{\text{Bunnpris}}$   | 0.058<br>(0.032) | 0.026<br>(0.036) | -0.015<br>(0.035) | -0.016<br>(0.047) | -0.049<br>(0.049) | -0.062<br>(0.040) |
| ln(Population)          | 0.012<br>(0.390) | 0.109<br>(0.394) | -0.113<br>(0.398) | 0.108<br>(0.400)  | -0.199<br>(0.468) | -0.011<br>(0.058) |
| ln(Median Income)       | 0.661<br>(0.351) | 0.450<br>(0.328) | 0.057<br>(0.295)  | 0.558<br>(0.347)  | 0.056<br>(0.313)  | 0.418<br>(0.268)  |
| Affected $\times$ Trend | 0.002<br>(0.004) | 0.001<br>(0.003) | 0.005<br>(0.003)  | 0.005<br>(0.006)  | 0.007<br>(0.005)  | 0.005<br>(0.004)  |
| Market Definition       | 10–1.5 km        | 10–1 km          | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode          |
| Months                  | 36               | 36               | 36                | 36                | 36                | 36                |
| Stores                  | 291              | 342              | 424               | 317               | 456               | 489               |
| Observations            | 9,270            | 10,940           | 13,772            | 10,151            | 14,896            | 16,102            |
| R <sup>2</sup>          | 0.82             | 0.83             | 0.83              | 0.82              | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions and group-specific linear trends. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

**Table OA.28:** Estimated effect of rival closure on sales: group-specific linear trends and the last period before event excluded

|                         | ln(Sales)         |                   |                   |                   |                   |                   |
|-------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                         | (1)               | (2)               | (3)               | (4)               | (5)               | (6)               |
| $T_{\text{Closure}}$    | 0.073<br>(0.037)  | 0.091*<br>(0.041) | 0.083<br>(0.047)  | 0.092*<br>(0.038) | 0.111<br>(0.075)  | 0.037<br>(0.043)  |
| ln(Population)          | -0.079<br>(0.387) | 0.029<br>(0.390)  | -0.137<br>(0.409) | -0.016<br>(0.391) | -0.172<br>(0.475) | -0.005<br>(0.068) |
| ln(Median Income)       | 0.561<br>(0.355)  | 0.487<br>(0.340)  | 0.015<br>(0.318)  | 0.525<br>(0.345)  | 0.001<br>(0.329)  | 0.544*<br>(0.273) |
| Affected $\times$ Trend | 0.000<br>(0.002)  | 0.000<br>(0.002)  | 0.001<br>(0.002)  | -0.001<br>(0.002) | -0.001<br>(0.004) | 0.003<br>(0.002)  |
| Market Definition       | 10–1.5 km         | 10–1 km           | 10–0.5 km         | 6–1.5 km          | 5–0.5 km          | Postcode          |
| Months                  | 36                | 36                | 36                | 36                | 36                | 36                |
| Stores                  | 314               | 355               | 434               | 337               | 463               | 504               |
| Observations            | 10,010            | 11,339            | 14,108            | 10,788            | 15,127            | 16,601            |
| R <sup>2</sup>          | 0.81              | 0.83              | 0.83              | 0.81              | 0.84              | 0.85              |

*Notes:* Each column reports the estimated ATT using the estimator of Sun and Abraham (2021) with different local market definitions and group-specific linear trends. The data span all months of 2014–2016 except the last period before the rival rebranding. The demographics are measured at the municipality level and the standard errors shown in parentheses are clustered by Municipality. \*\*\*  $p < 0.001$ ; \*\*  $p < 0.01$ ; \*  $p < 0.05$ .