

RESEARCH REPORT ON THE BER BUSINESS TENDENCY SURVEYS

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1 Introduction

This reports sets out the BER business tendency survey results calculated with the microdata.

In this report, we first check that the microdata provides results that are consistent with the BER's published results. We calculate the balance statistics for all of the sectors and subsectors. Next, we compare the results to the reference series, to evaluate the tracking record of responses to the activity questions.

In all cases the new updated series for all the questions are calculated in R and exported to Excel.

Since 2016Q2, we have included imputed values, in order to increase the number of responses and to decrease the volatility of the balances. An imputed value refers to a latecomer in period $t - 1$, who had not responded in time in period t . For example, all the latecomers in 2017Q1, who had not responded in time in 2017Q2, were added to the 2017Q2 responses. If such a firm was also a latecomer in 2017Q2, the response may potentially be an imputed value in 2017Q3, if it is a latecomer again. The imputed values are reflected in the published results sine 2016Q2, and are therefore included in the comparisons below. The latecomers are still excluded, as we have decided to stick with this convention. The results below illustrate that the inclusion of latecomers does not influence the results substantially, with slightly changes at the subsector level.

All the duplicates have been removed. Duplicated may arise due to some respondents answering in both email/fax format, as well as via post. The BER only uses the first response that it receives.

We can try to create a balanced panel, by only including those respondents that answered in consecutive quarters.

2 The Building Survey

In this section we are going to look at the Building sector surveys and results. We have used the Building survey microdata to update the results for the period 1993Q2-2017Q2.

2.1 Collating and Cleaning the Microdata

In order to match the questions and responses in the different versions of the surveys, the surveys in the old records were compared to the current incarnations. We printed and marked the questions in the old (pre-2001) Building surveys. We then matched them to the new survey questions. The old questionnaires have been uploaded to the Dropbox folder.¹

¹In the scanned copies, X's denote questions that are no longer asked. Yellow denotes the Q1 consistency check - all the responses must be either 1s or 2s. Green denotes the questions that were only asked in earlier (pre-1996Q3) surveys. Red denotes apparent coding mistakes that we have corrected.

There were a number of errors in the raw microdata files.² We corrected the errors in the raw microdata files relating to the questionnaires. There were also a number of errors relating to the regions codes³, which have been corrected. Figure 1 illustrates the total number of responses in the Building survey microdata, by region code. The corrected files have been uploaded to the Dropbox folder.

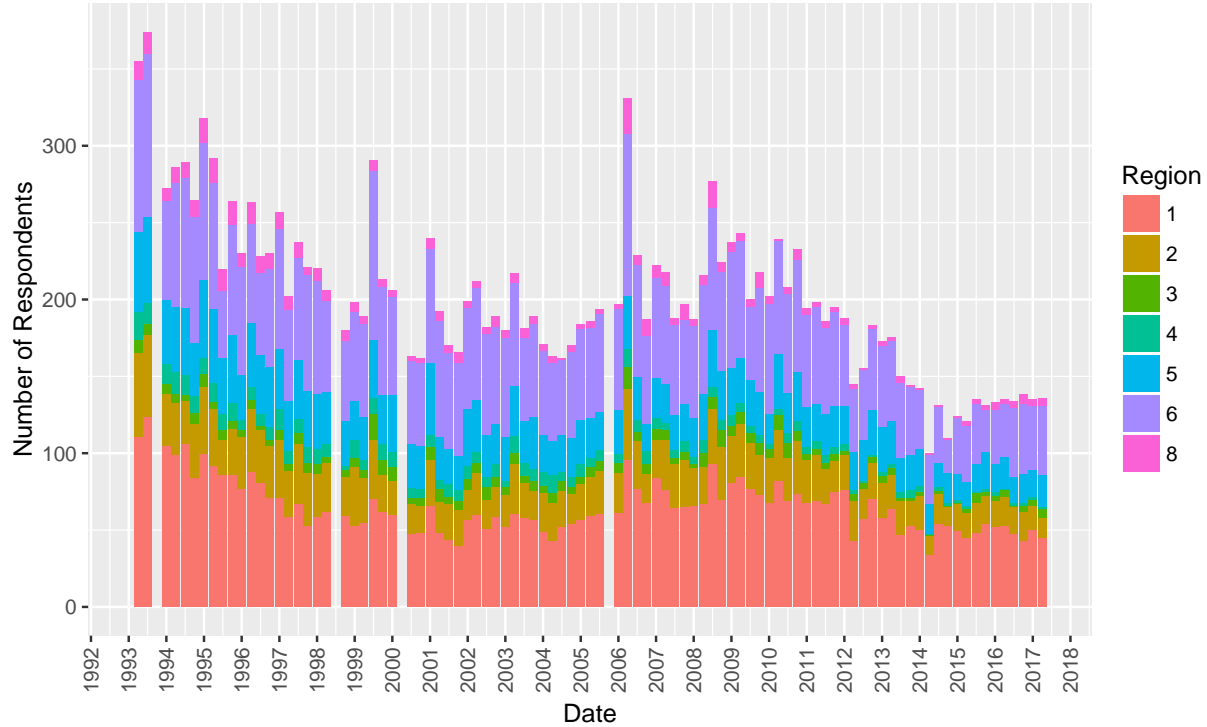


Figure 1: The number of respondents in the building sector by region (1993Q2-2017Q2)

2.2 The Building Sector Indicators

The indicators (balances) for a number of groupings were calculated, as is illustrated below, without any weighting (i.e. equal weights). A selection of the indicators are illustrated below, although balances have been calculated for all of the questions, and are included in the Excel files. Table 1 reports the subsector codes that were used to split the sample. The subsectors that the BER calculated before are *contractors* (total, residential and non-residential), and *subcontractors* (total, residential and non-residential). The new sectors are the *residential*, *non-residential* and *total building* sectors.

Figure 2 illustrates the results for Q1 (confidence) in the three new subsector classifications. Figure 3 illustrates the balances for total construction in the Western Cape, KwaZulu-Natal and Gauteng.

²In the pre-2001 data, Q8 and Q6 seemed to have changed, which led to large spikes (e.g. in 1995Q1). In the post-2001, responses for Q11 were recorded, but the question does not seem to exist.

³In the pre-2001 sample there were 9 region codes, but in the post-2001 sample there were 8 region codes. We assume that the following key holds in both samples: 01=WC, 05=KN, 06=GP. There was a clear change in region codes in 1995Q1, and region code before that (1993Q2-1994Q4) are different again. We have corrected these region codes.

Table 1: Building subsector codes

Sector	Code
Contractors: Residential	5000
Contractors: Non-residential	5010
Sub-contractors: Residential	6000
Sub-contractors: Non-residential	6010

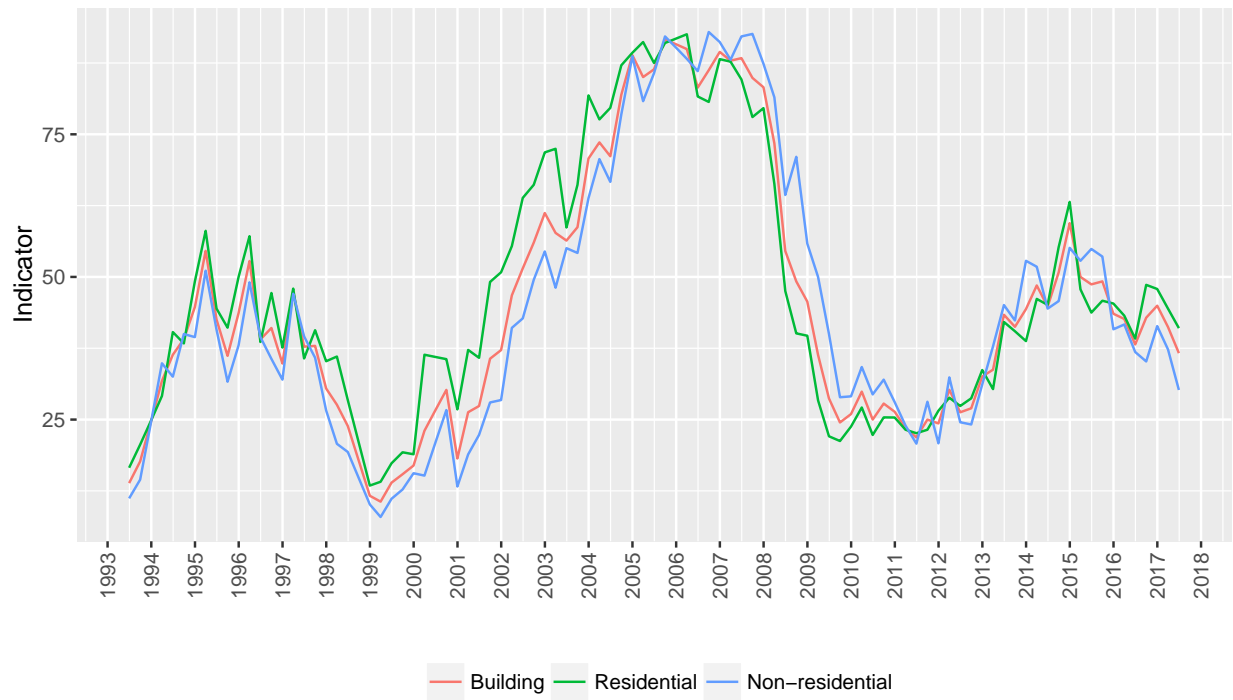


Figure 2: Building results for Q1 (confidence) in the new categories

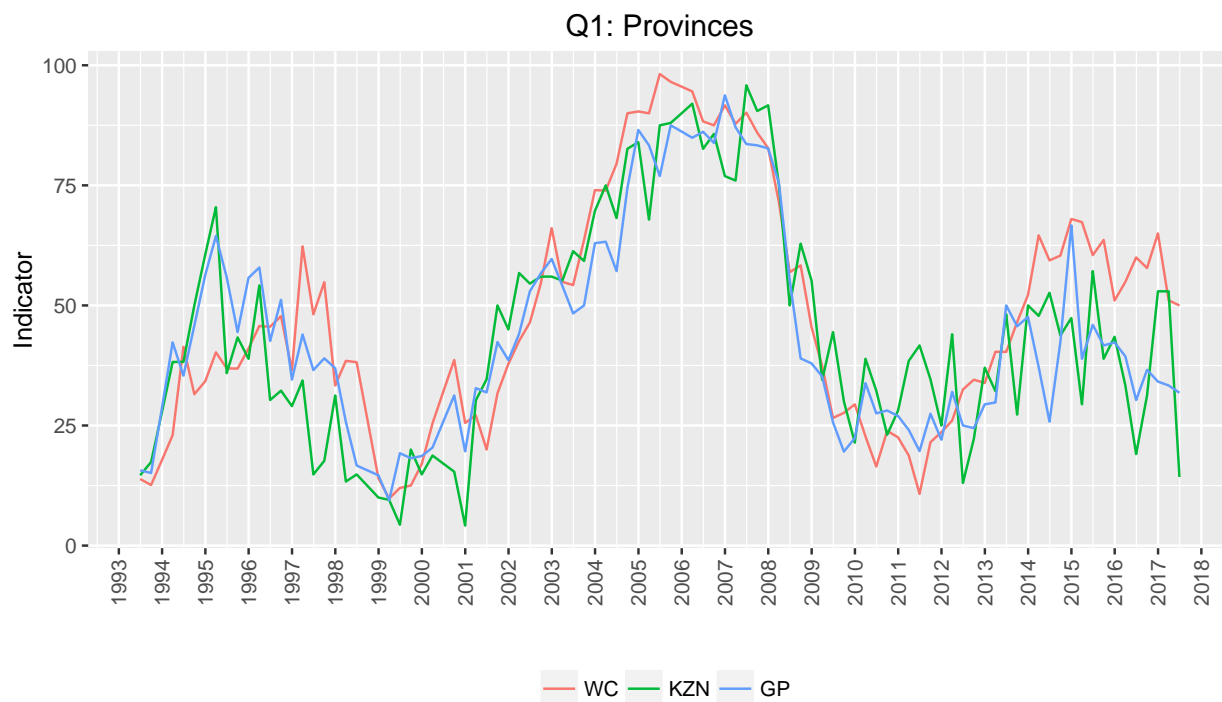


Figure 3: Building results for Q1 (confidence) in the main provinces

2.2.1 Alternative Weights

The balances were calculated without applying any weights (i.e. equal weights). The results are similar when the firm size weights are applied, as illustrated in Figure 3 for the total building sector. Ons moet entlik die Building ook weight - ten minste net met die firm weights. Convert na 4 kategoriees.

2.2.2 Latecomers

Start by calculating the results according to the old method - i.e. excluding outliers and without any firm or sector weights.

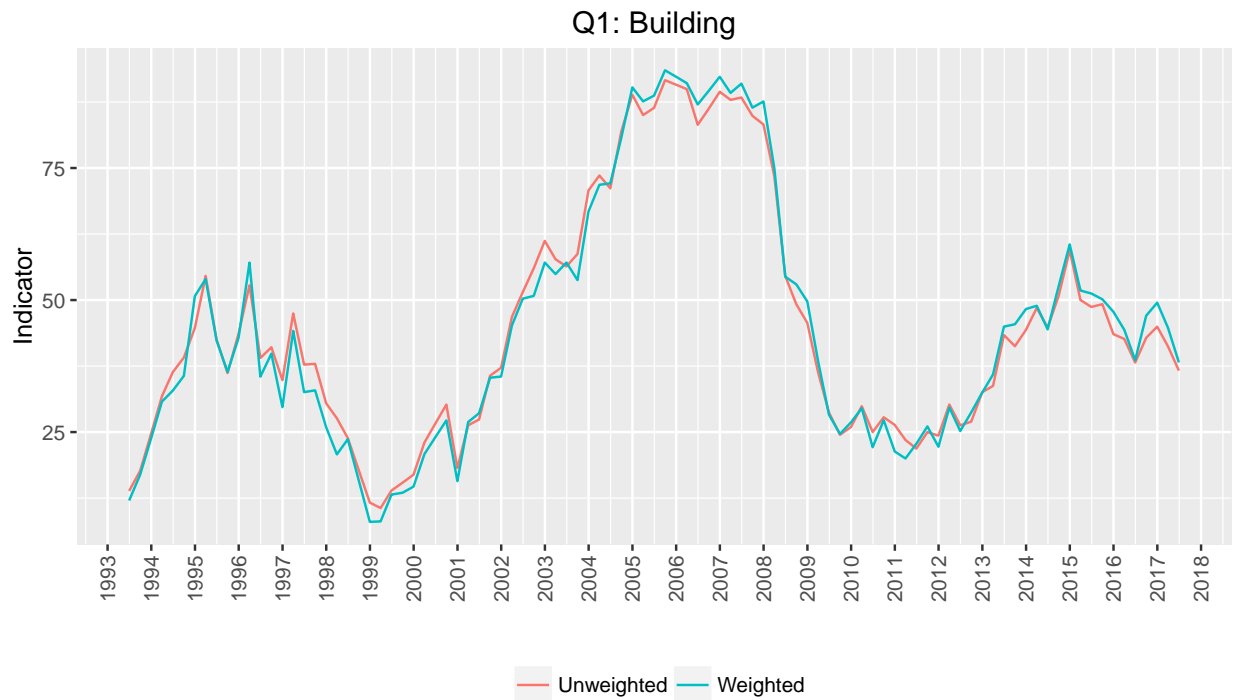


Figure 4: Building results for Q1 (confidence) - unweighted and partially weighted versions

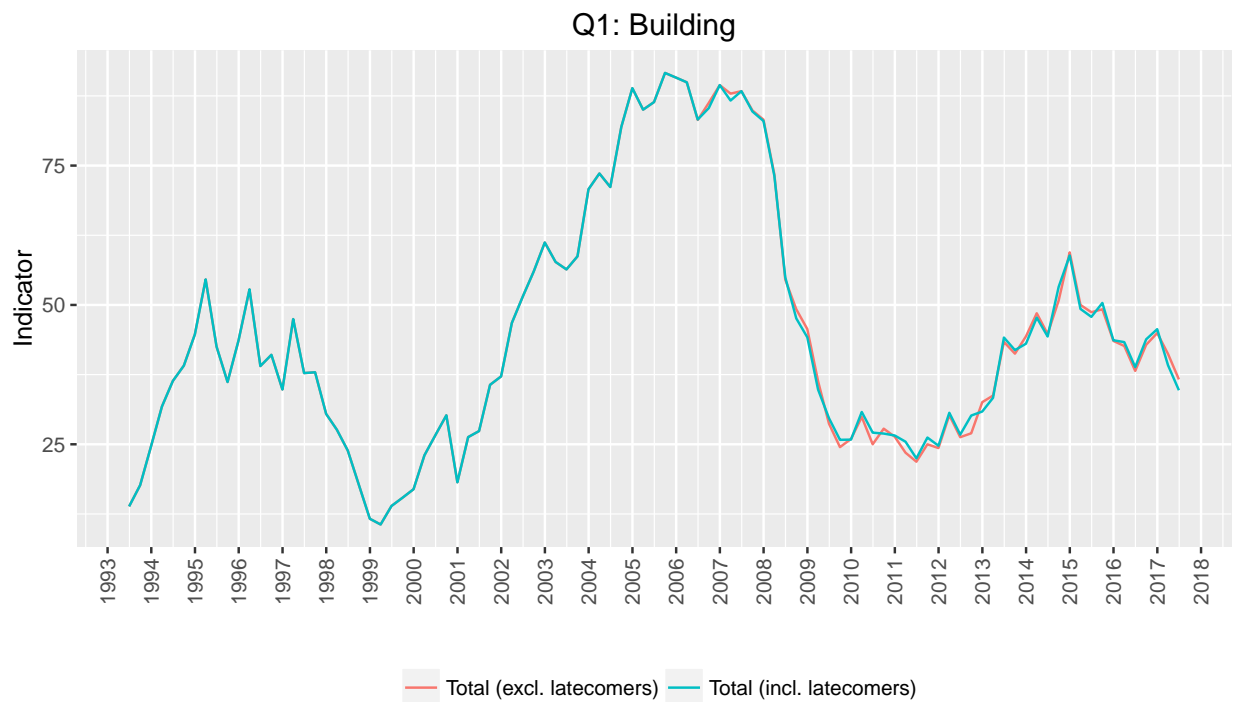


Figure 5: Building results for Q1 (confidence) - including and excluding latecomers

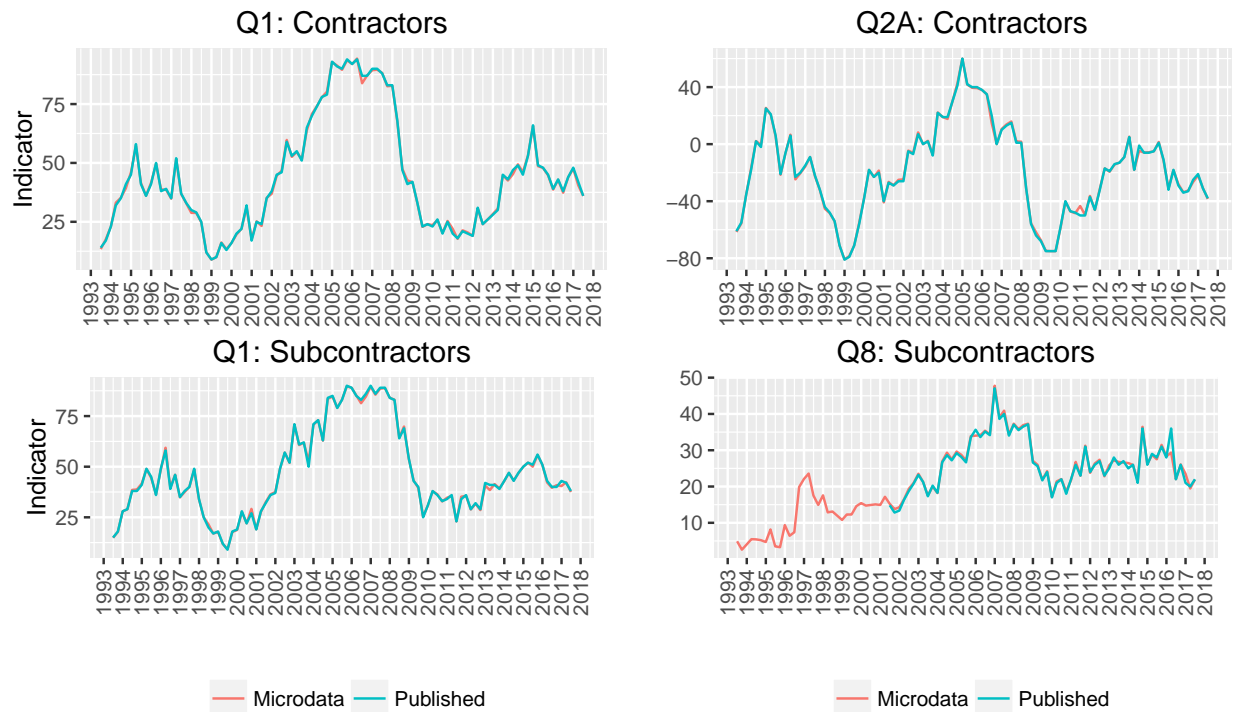


Figure 6: Microdata results compared to the published results

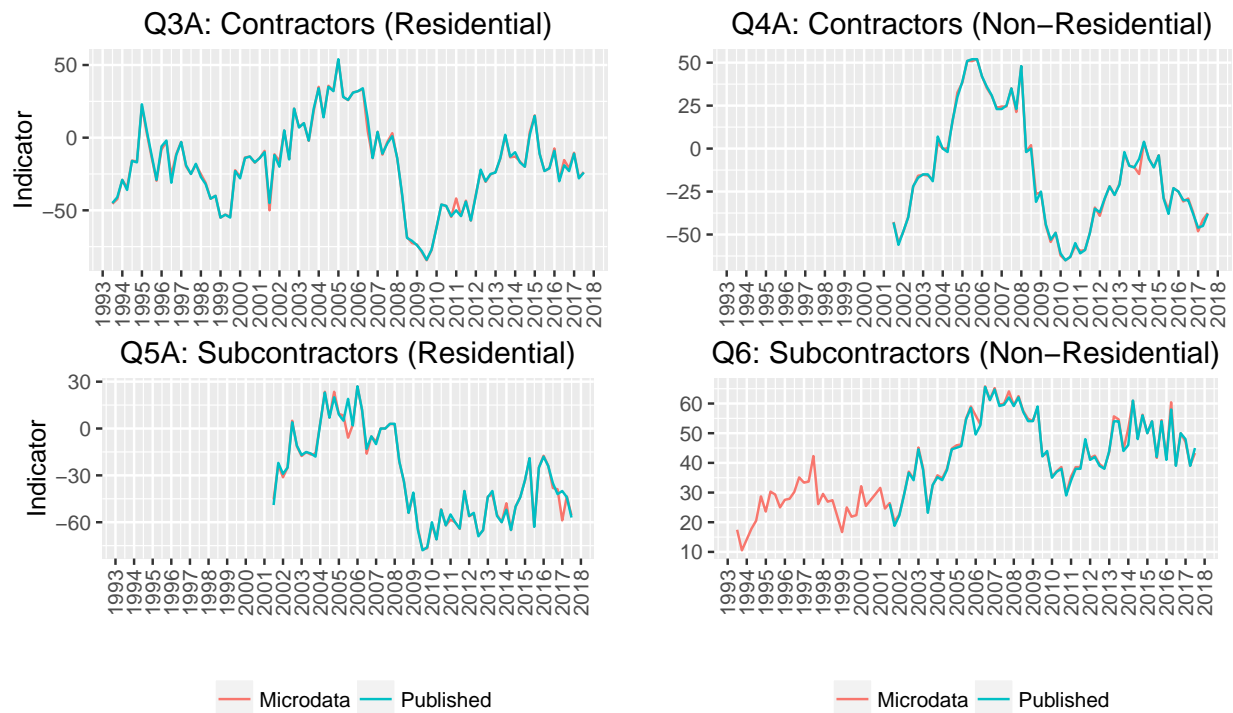


Figure 7: Microdata results compared to the published results

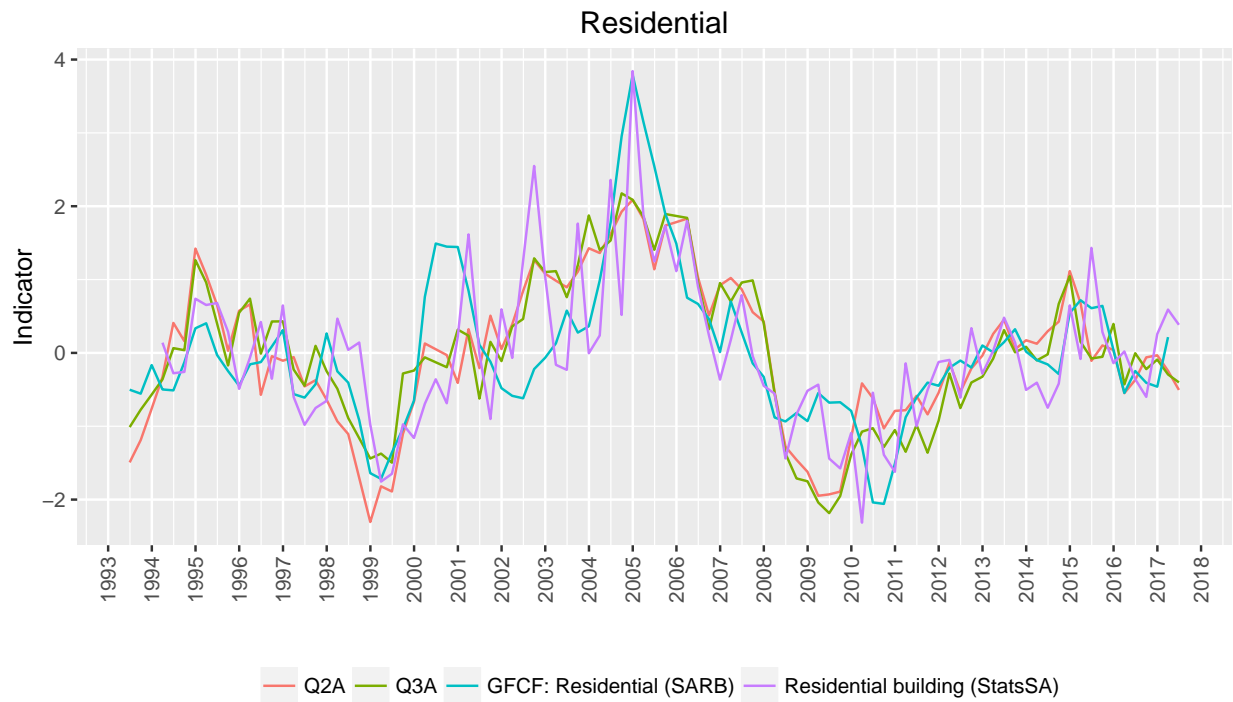


Figure 8: Residential results compared to the reference series

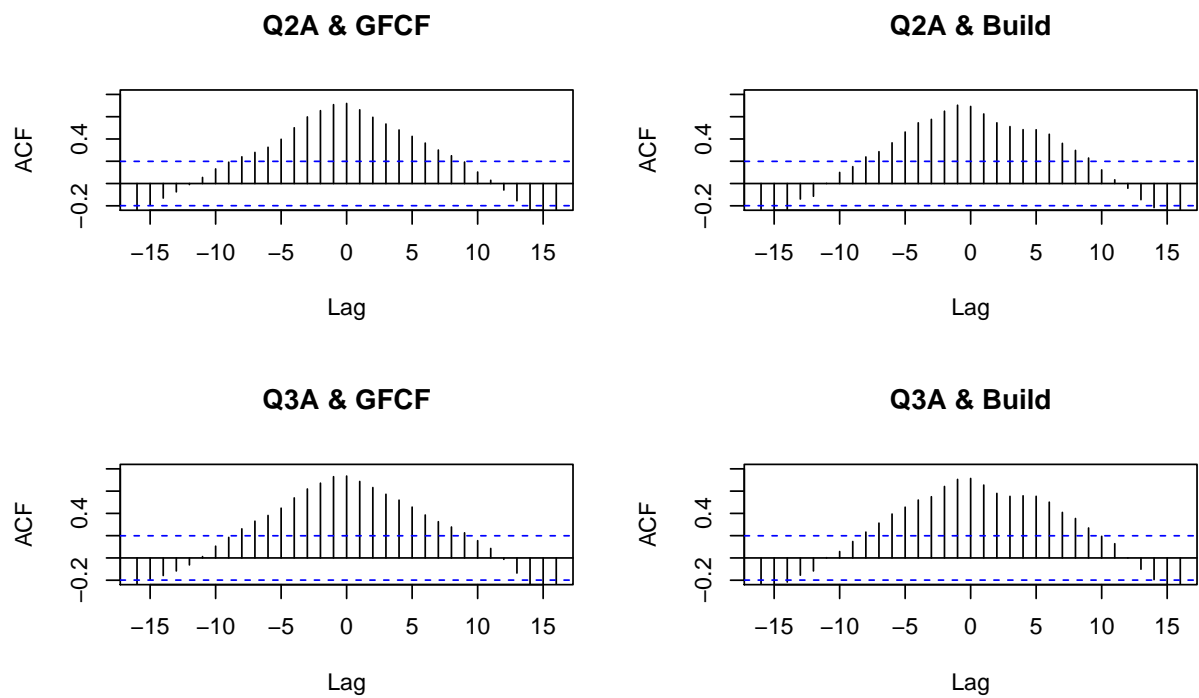


Figure 9: Residential series cross-correlations

Table 2: Residential series correlations		
	Q2A	Q3A
GFCF: Residential (SARB)	0.72***	0.73***
Residential building (StatsSA)	0.70***	0.71***

2.3 Published Series

2.4 Reference Series

2.5 Residential Activity

2.6 Residential Correlations

2.7 Residential Cross-correlations

2.8 Non-Residential Activity

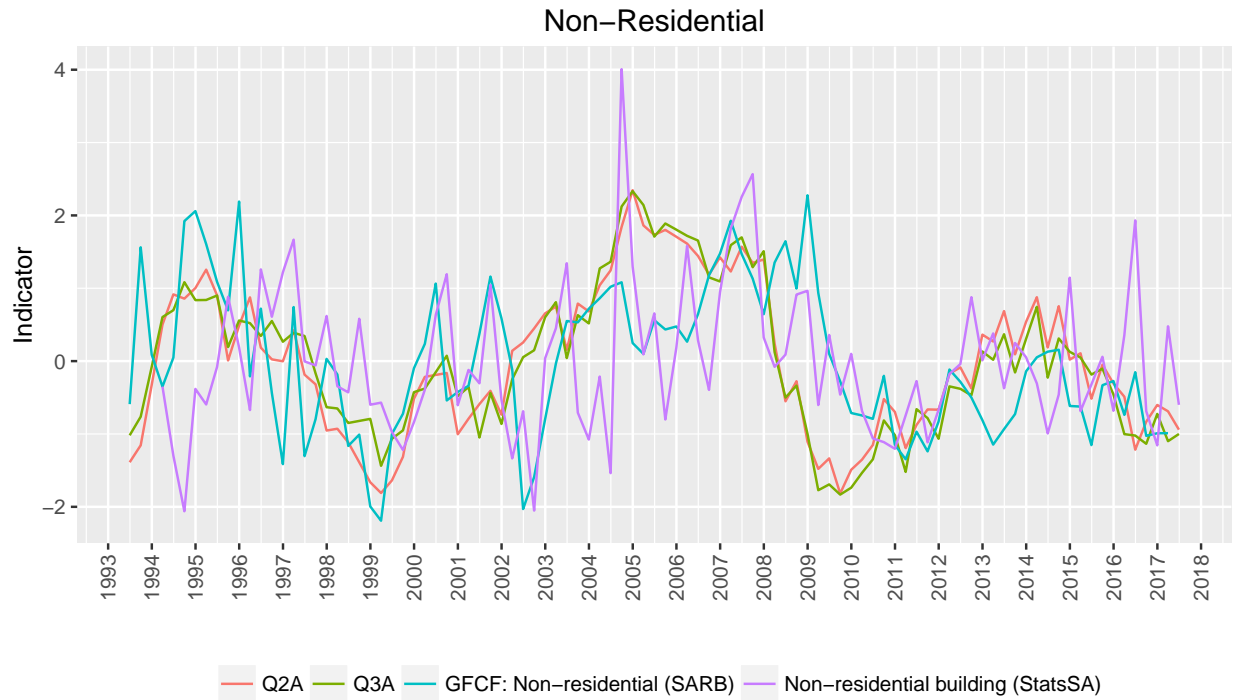


Figure 10: Non-residential results compared to the reference series

Table 3: Non-residential series correlations		
	Q2A	Q3A
GFCF: Non-residential (SARB)	0.46***	0.45***
Non-residential building (StatsSA)	0.27***	0.33***

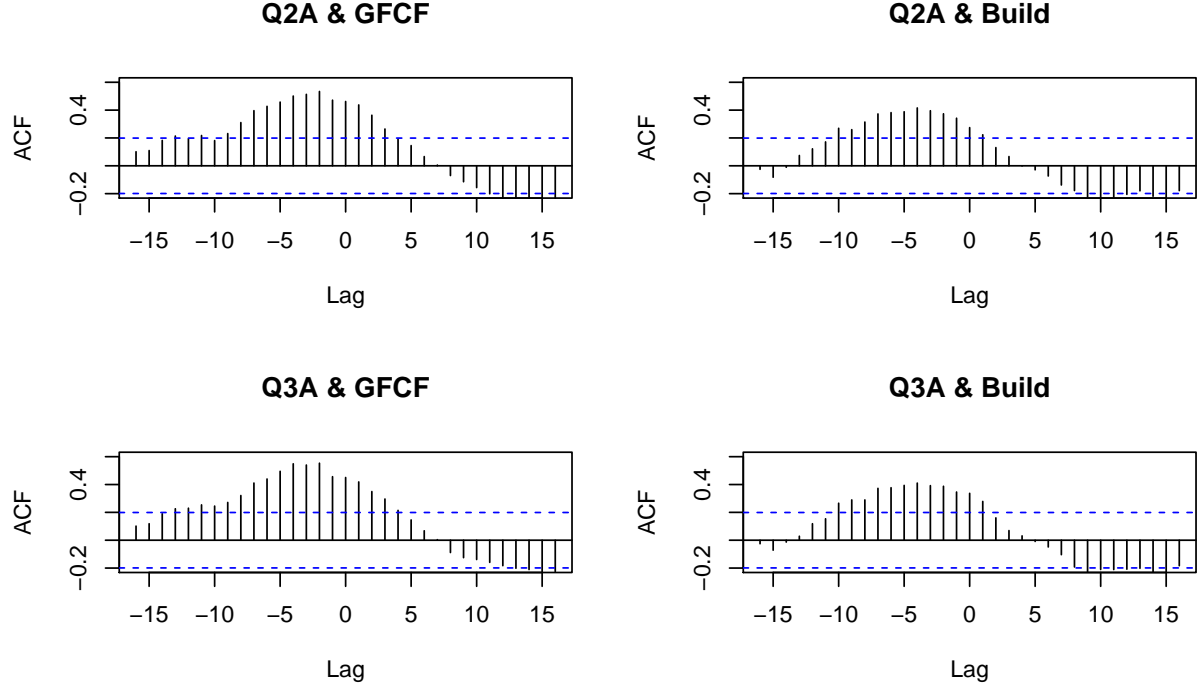


Figure 11: Non-residential series cross-correlations

2.9 Non-Residential Correlations

2.10 Non-Residential Cross-correlations

2.11 Total Building Activity

2.12 Total Building Correlations

Table 4: Total series correlations		
	Q2A	Q3A
GFCF: Res & Non-res (SARB)	0.73***	0.74***
GFCF: Total (SARB)	0.31***	0.30***
Total building (StatsSA)	0.58***	0.63***

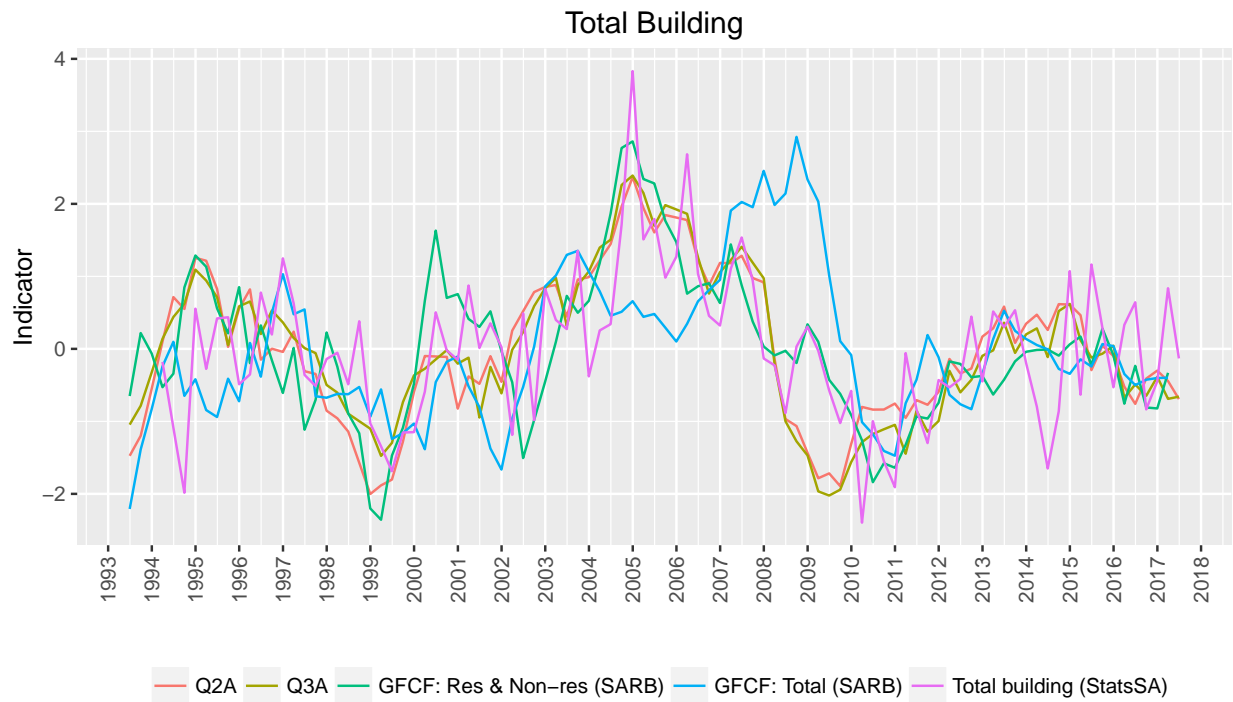


Figure 12: Total results compared to the reference series

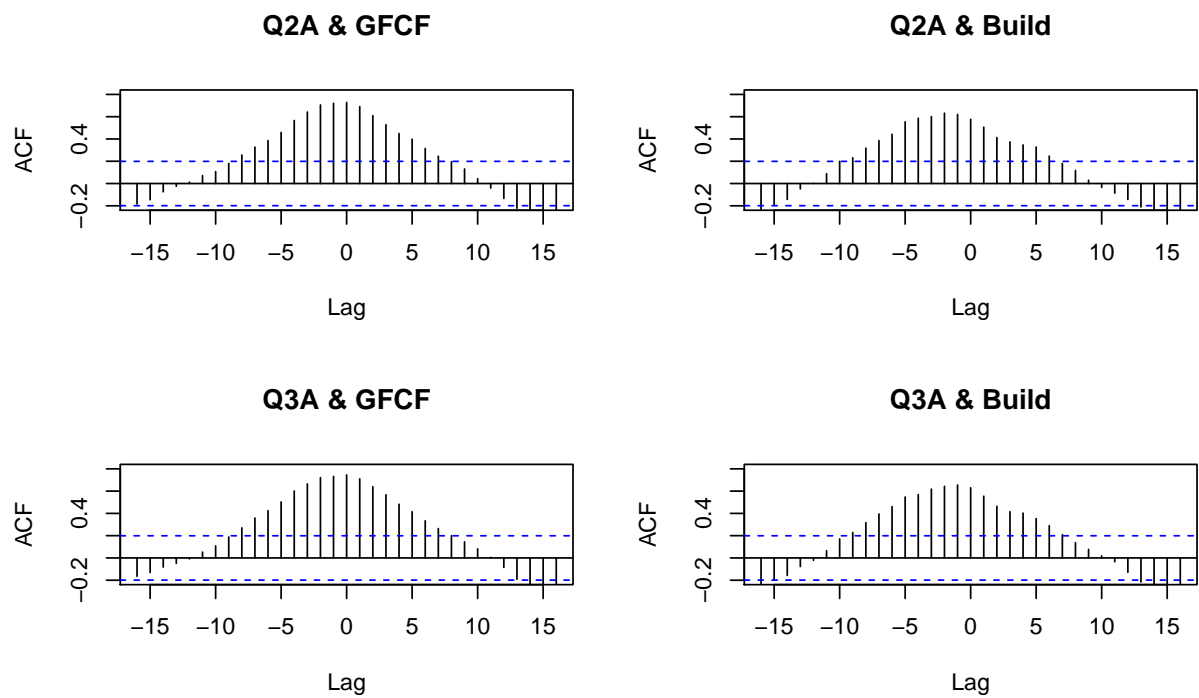


Figure 13: Total series cross-correlations

2.13 Total Building Cross-correlations

2.14 Regional Activity

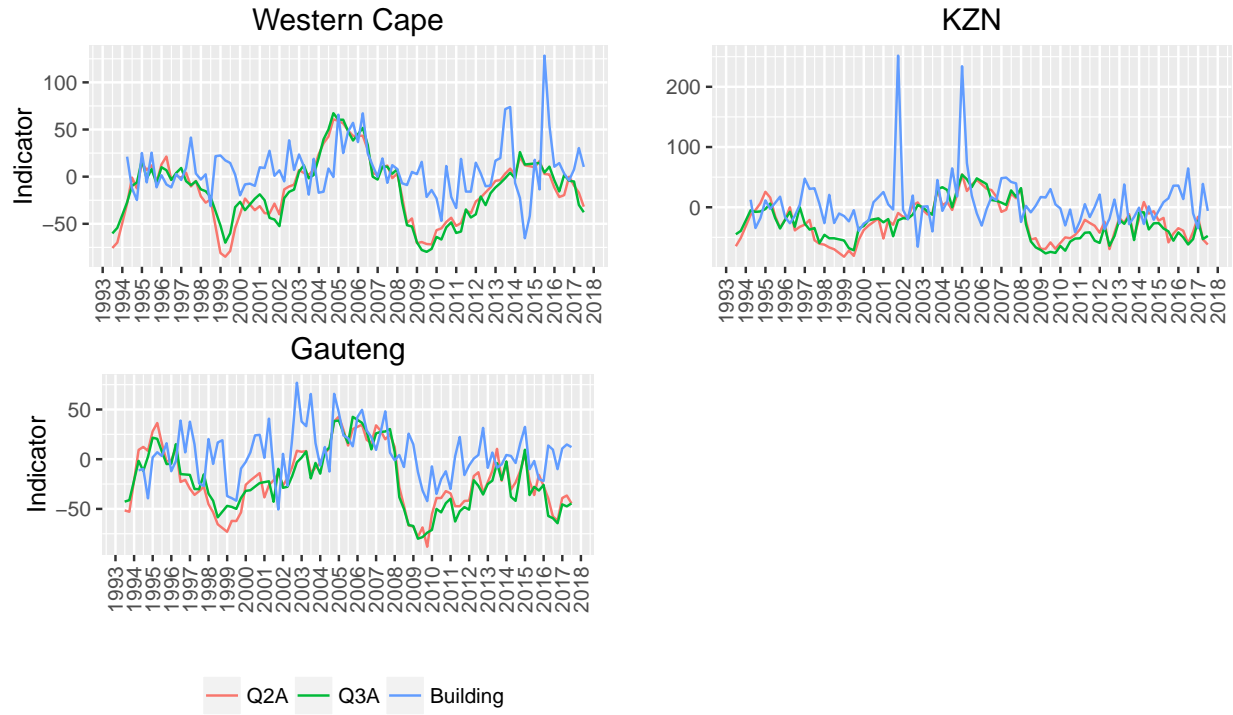


Figure 14: Regional results compared to the reference series

2.15 Regional Correlations

Table 5: Regional series correlations

	Building
WC.Q2A	0.27***
WC.Q3A	0.30***
KZN.Q2A	0.21**
KZN.Q3A	0.21**
GP.Q2A	0.43***
GP.Q3A	0.44***

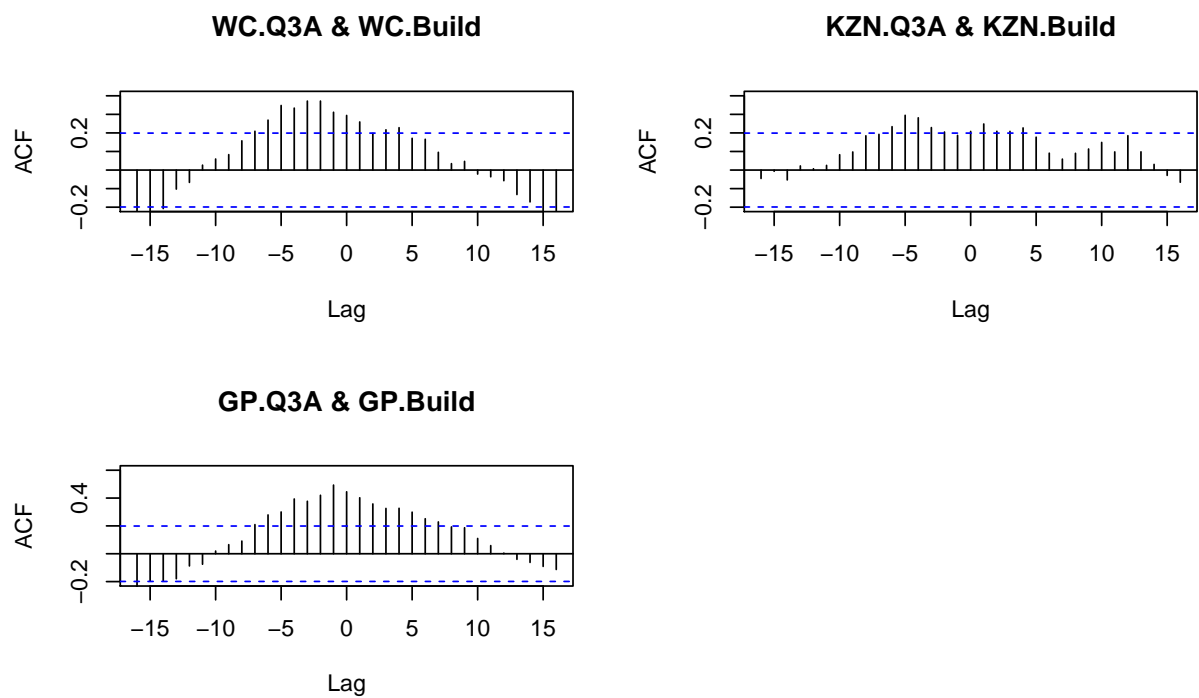


Figure 15: Regional series cross-correlations

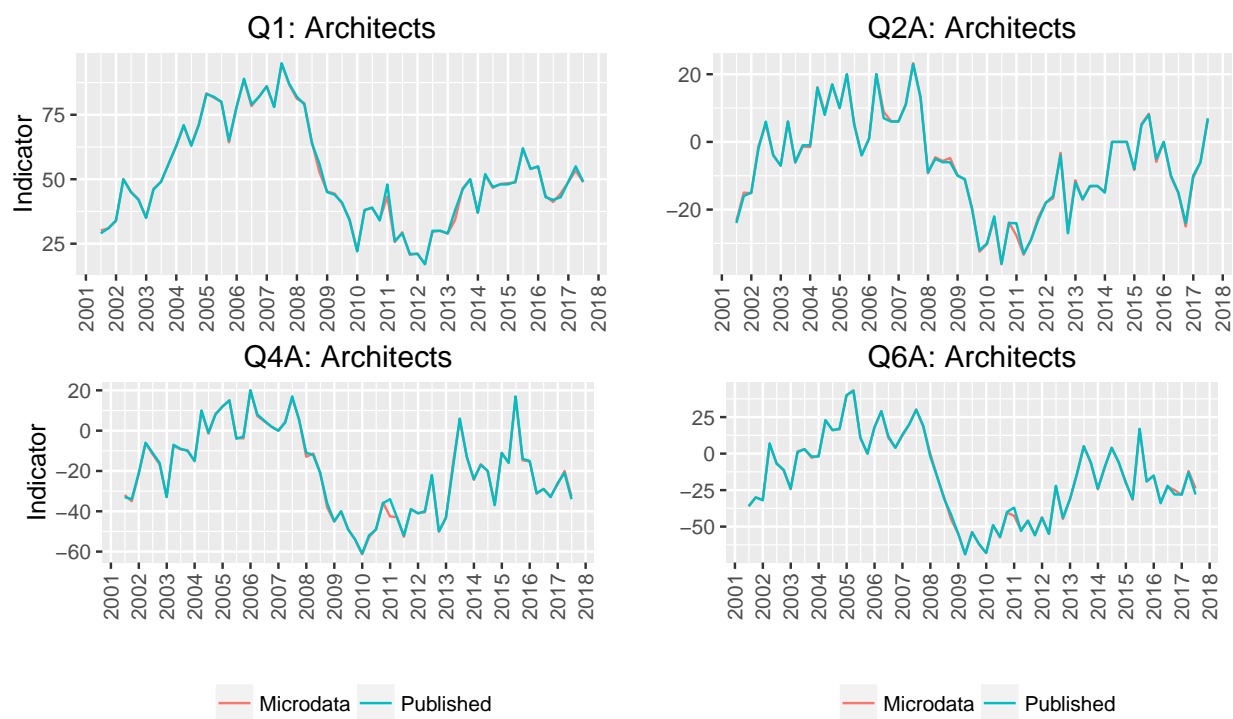


Figure 16: Architect results compared to the published results

2.16 Regional Cross-correlations

2.17 Architects, QSs and CEs

2.17.1 Architects

2.17.2 Quantity Surveyors

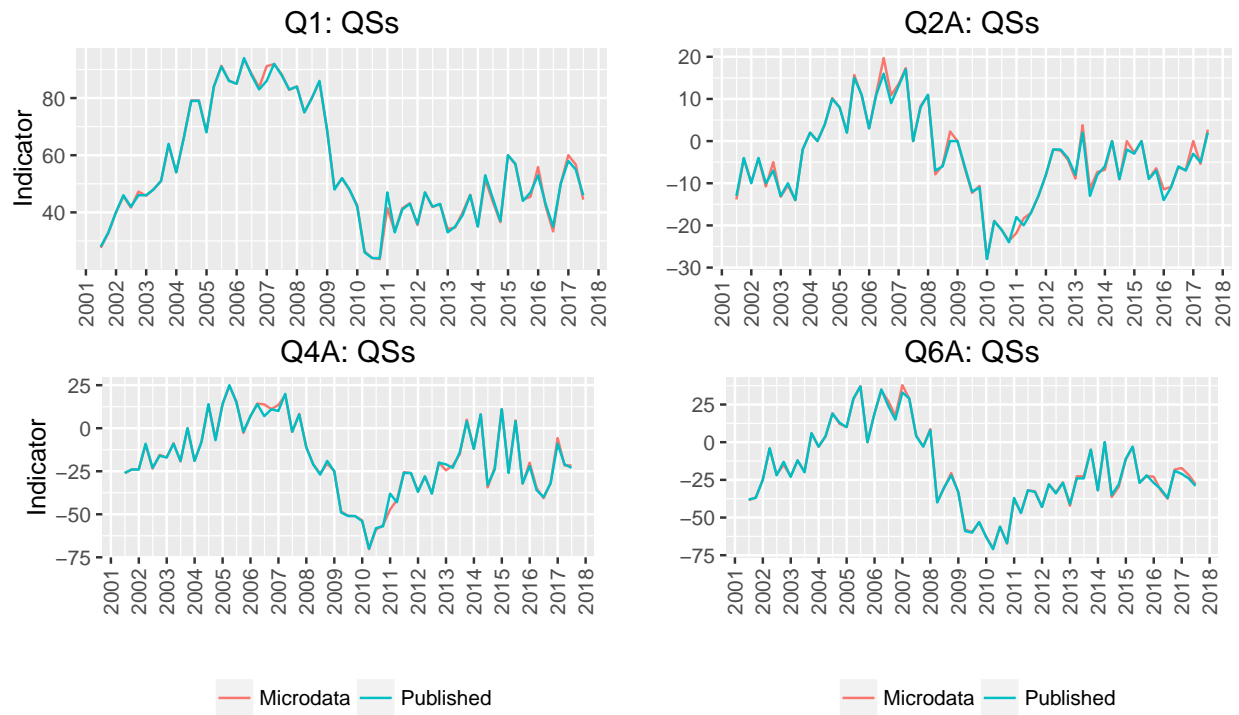


Figure 17: Quantity Surveyor results compared to the published results

2.17.3 Civil Engineers

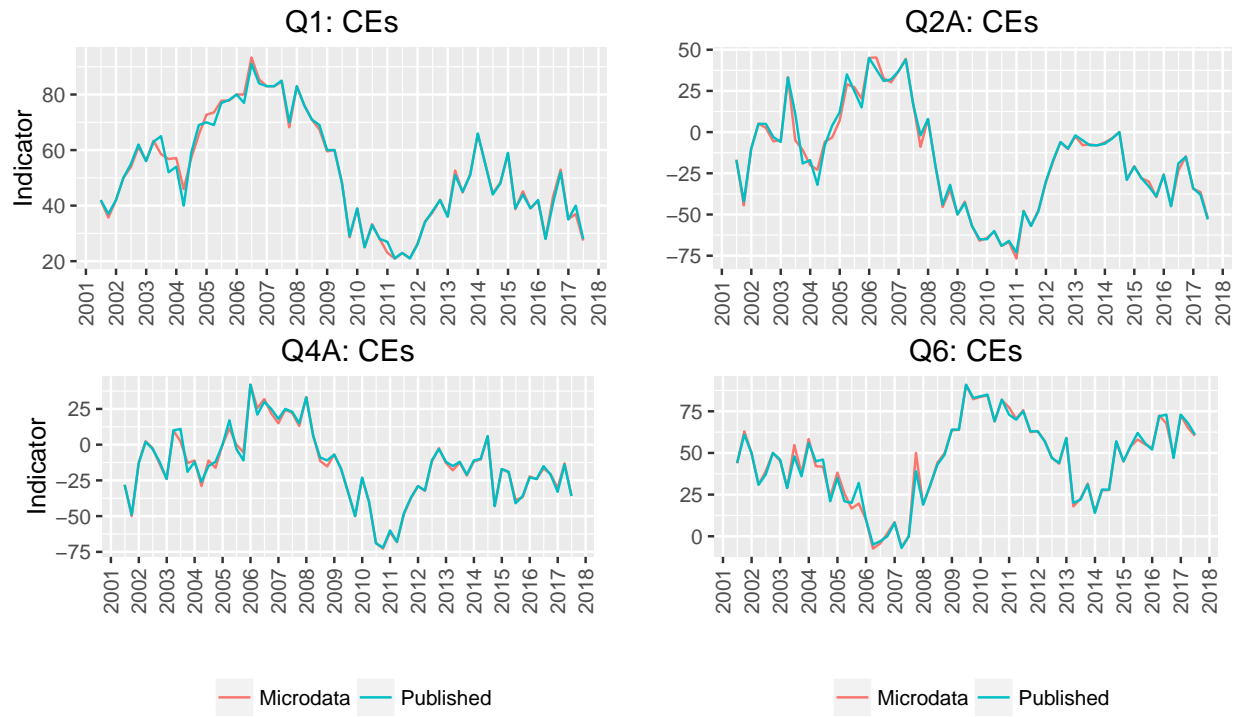


Figure 18: Civil Engineer results compared to the published results

Table 6: Manufacturing subsector weights

New BER classification	Old BER classification	Sectors
Food & beverages	Food	1010, 1011, 1013, 1019
	Beverages	1020, 1021
Textiles, clothing, leather & footwear	Leather	1120
	Textiles	1040, 1049
	Clothing	1042, 1060
	Footwear	1070
Wood, paper, printing and publishing	Paper & prod	1109
	Print & publishing	1110
	Wood	1080, 1081
Petroleum, chemical products, rubber & plastic	Rubber	1130
	Chemicals	1140, 1149
	Plastics	1219
	Petroleum	Missing (1220)
Glass and non-metallic mineral products	Non-metal minerals	1153, 1159
Basic metal, metal products and machinery	Basic metals	1160, 1161
	Metal products	1170, 1179
	Machinery (excl. electrical machinery)	1181, 1182, 1189
Electrical machinery	Electrical machinery	1190, 1191, 1199
Radio, TV and professional equipment		1192, 1194
Motor vehicles, parts and accessories & transport equipment	Transport equipment	1200, 1201, 1209
Furniture and other, incl. tobacco	Furniture	1090, 1099

Table 7: Main industrial groupings

Main Industrial Group	BER code	Description
Consumer Goods	1010	Meat, fish, fruit, vegetables, oils
	1011	Dairy products
	1019	Other food
	1049	Other textiles
	1060	Wearing apparel & articles of fur
	1070	Footwear
	1090	Furniture
	1099	Other (incl. tobacco)
	1110	Printing & reproduction of recorded media
	1120	Leather & leather products
	1149	Other chemical products
	1189	Domestic appliances
	1192	Radio, TV & communication apparatus
	1020, 1021	Beverages
Intermediate Goods	1013	Grain mill products
	1040	Spinning, weaving, yarns
	1042	Knitted & crocheted articles
	1080	Wood & wood products
	1081	Sawmilling
	1109	Paper & paper products
	1130	Rubber
	1140	Chemical products
	1153	Glass
	1159	Other non-metallic mineral products
	1160	Basic iron & steel & castings thereof
	1161	Basic precious & non-ferrous metal products
	1179	Other fabricated metal products
	1191	Electricity distribution apparatus
	1199	Batteries
Capital Goods	1219	Plastic
	1170	Structural metal products
	1181	Special purpose machinery
	1182	General purpose machinery
	1189	Office machinery, computers
	1190	Electrical motors, generators, transformers
	1194	Medical appliances, photographic equipment, watches
	1200	Motor cars
	1201	Parts & accessories for motor vehicles
	1209	Other transport equipment

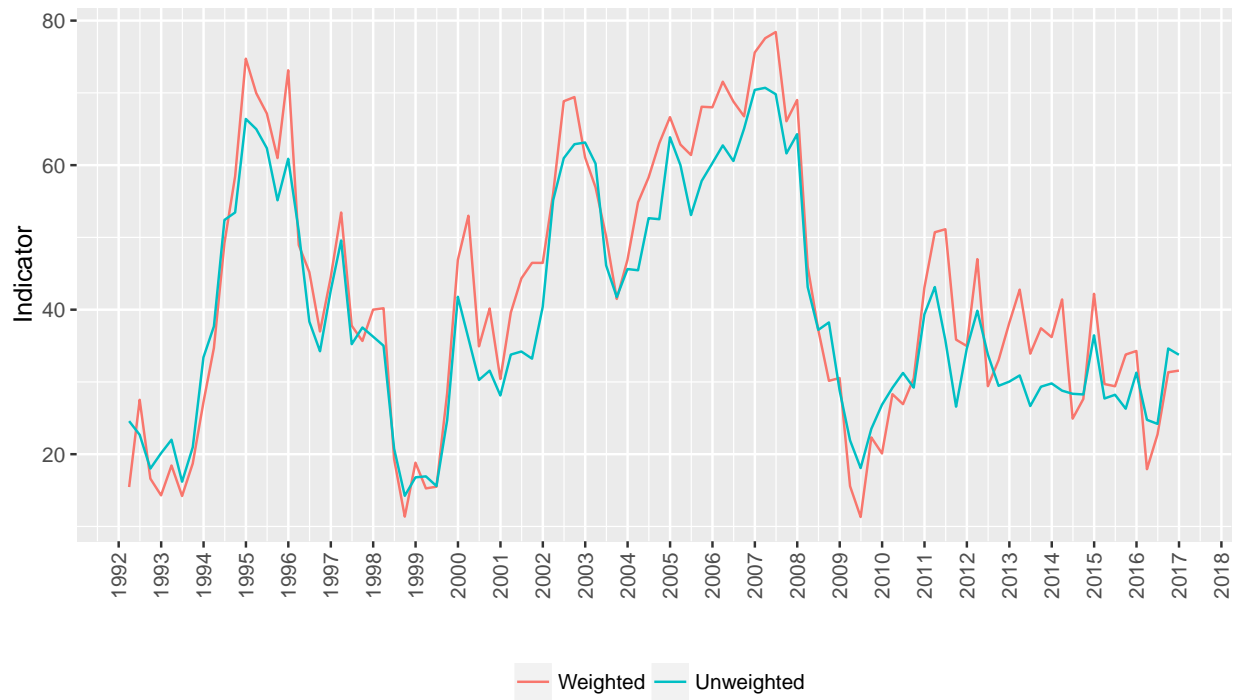


Figure 19: results

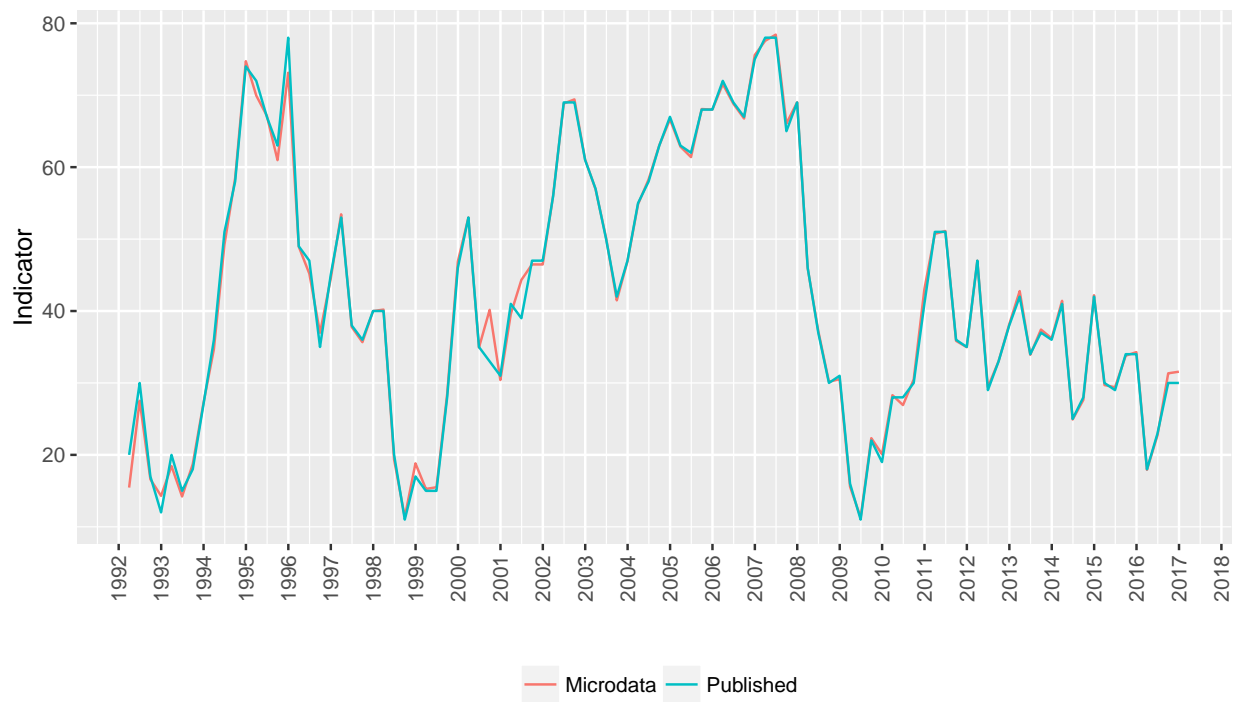


Figure 20: results

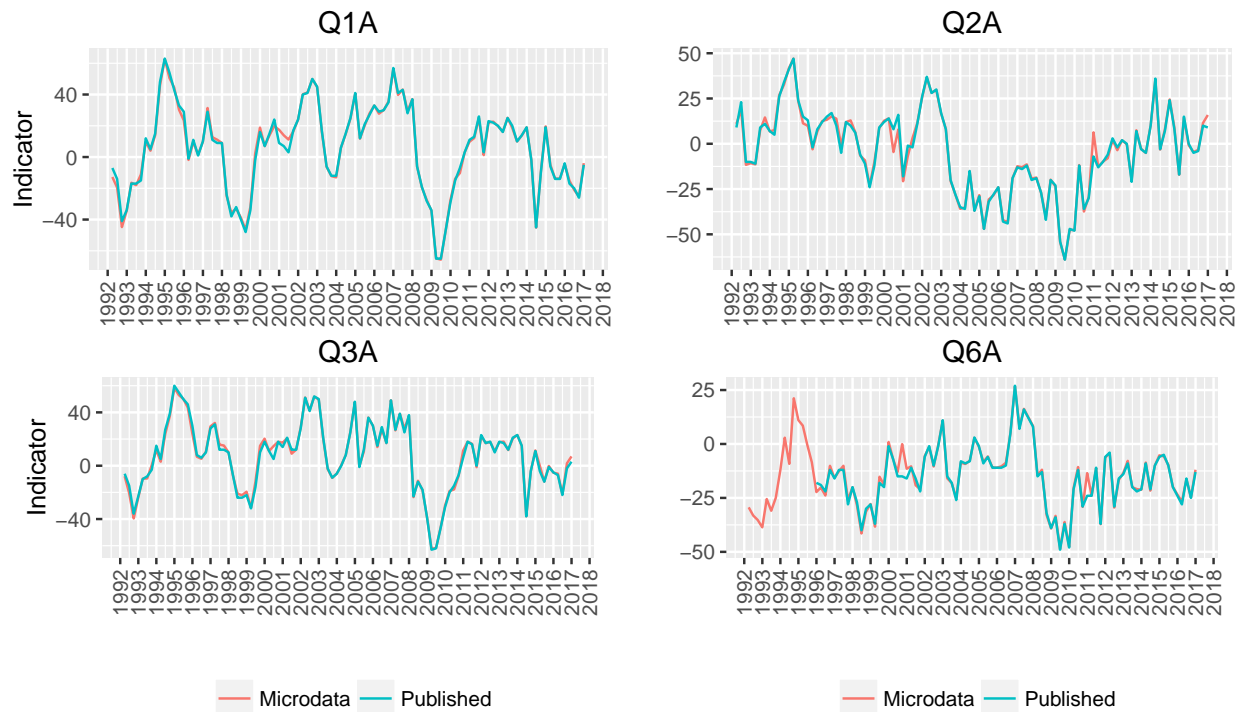


Figure 21: results

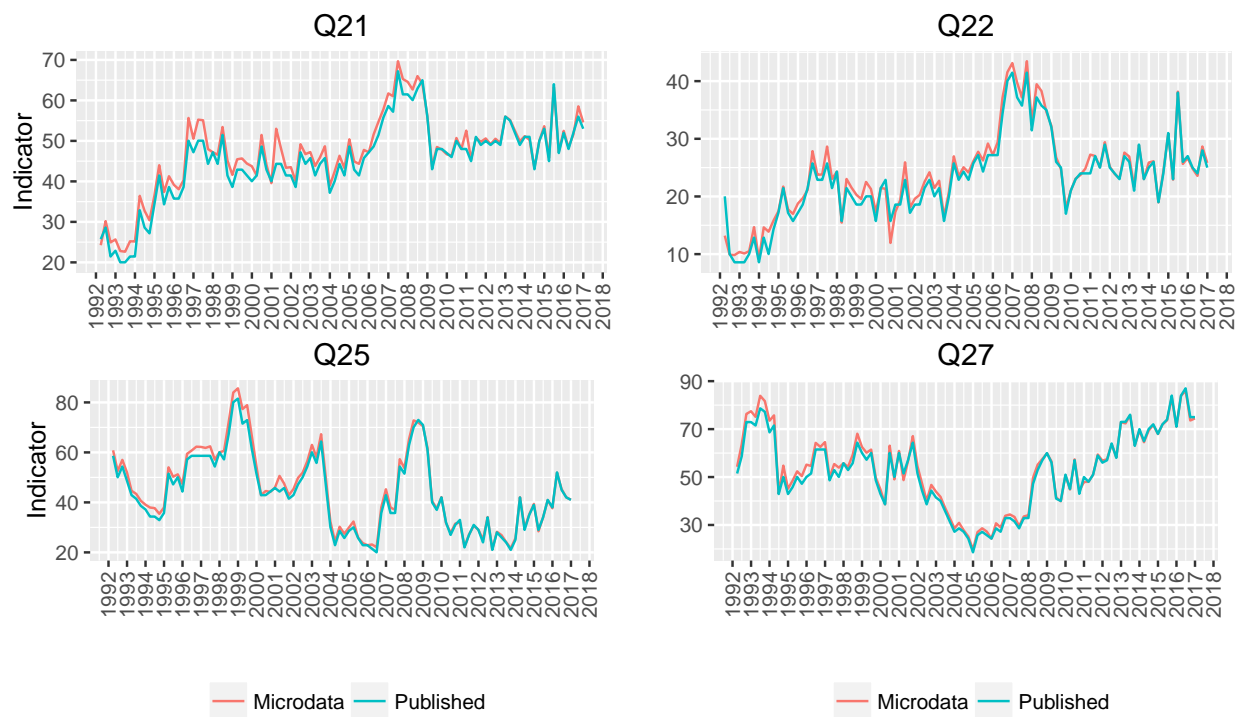


Figure 22: results

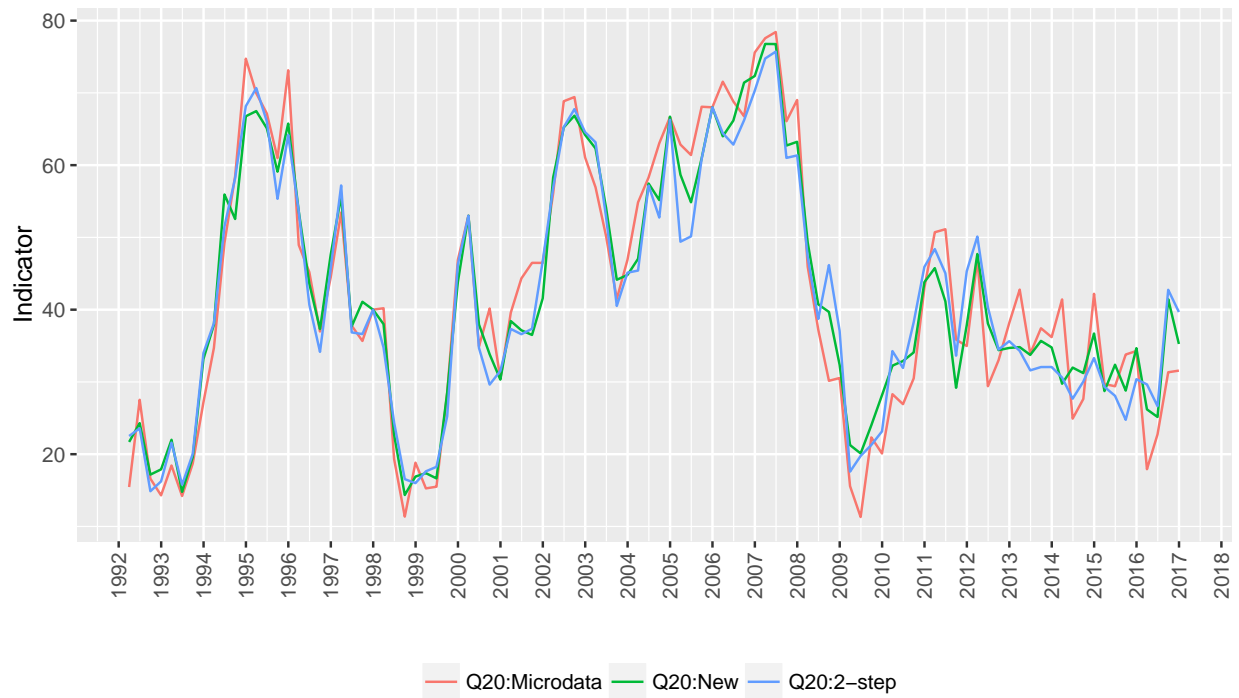


Figure 23: results

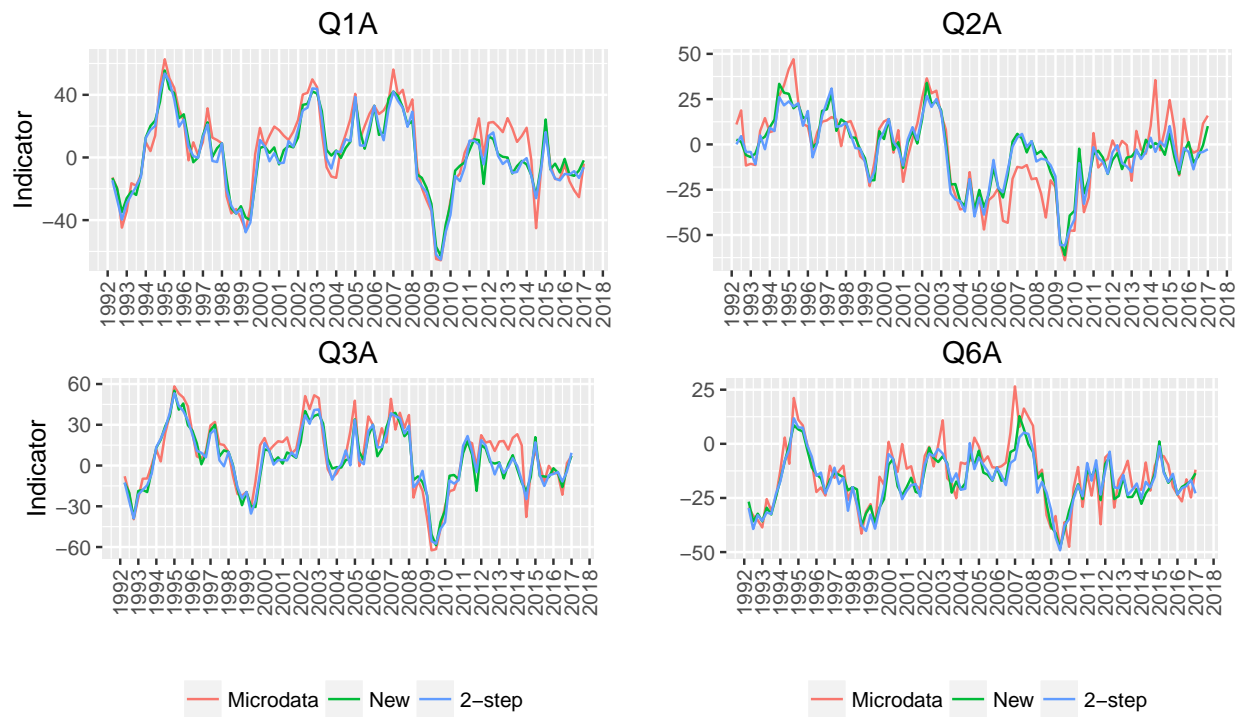


Figure 24: results

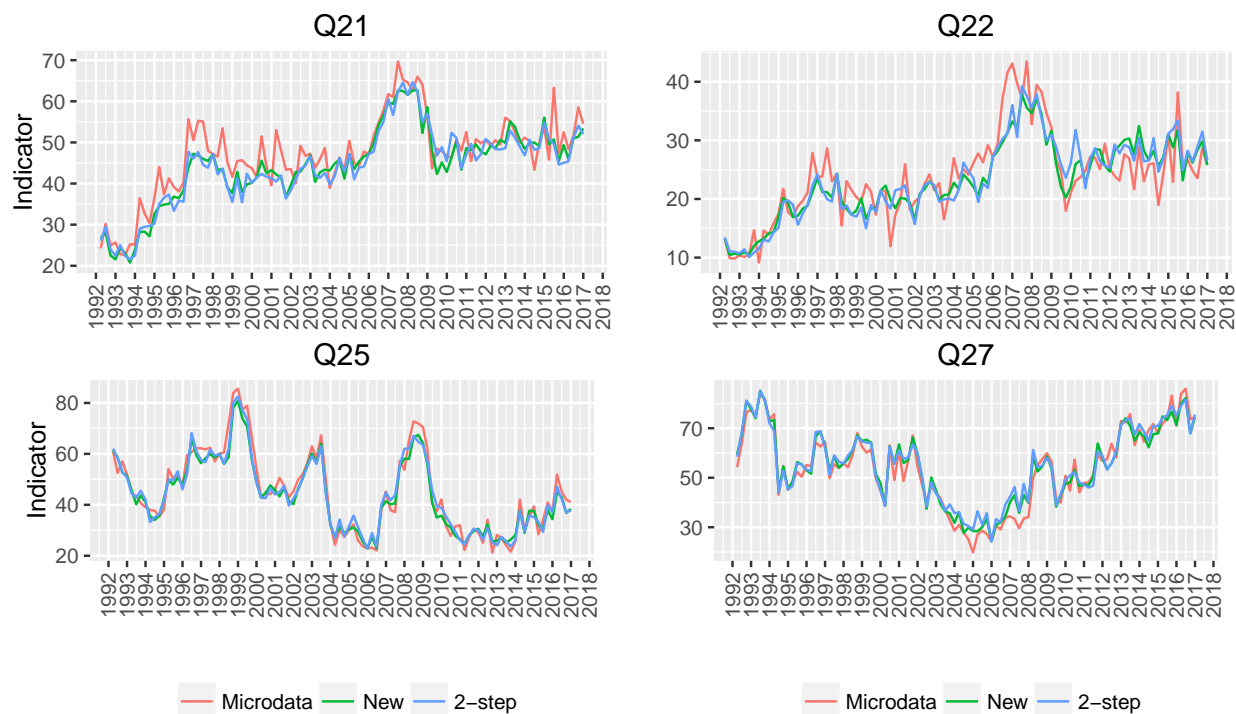


Figure 25: results

3 Manufacturing Survey

3.1 Weighted and Unweighted Results for Q20 (Confidence)

4 Published Results

4.1 Results for Q20 (Confidence)

4.2 Microdata vs. Published Results

4.3 Microdata vs. Published Results (Constraints)

5 New weightings

5.1 New factors weightings

5.2 Other questions

5.3 Constraints

6 Sectors

6.1 New BER classification: Q20 (Confidence)

6.2 Sectors2

6.3 Main industrial groups: Q20 (Confidence)

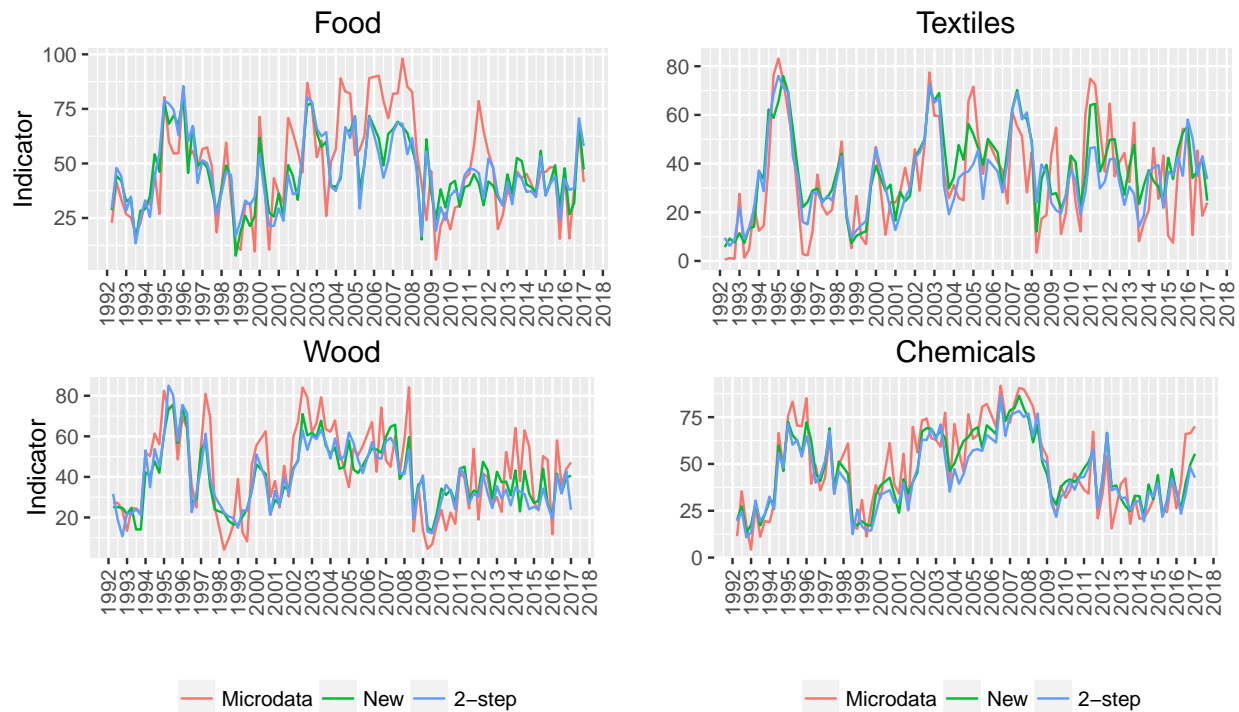


Figure 26: results

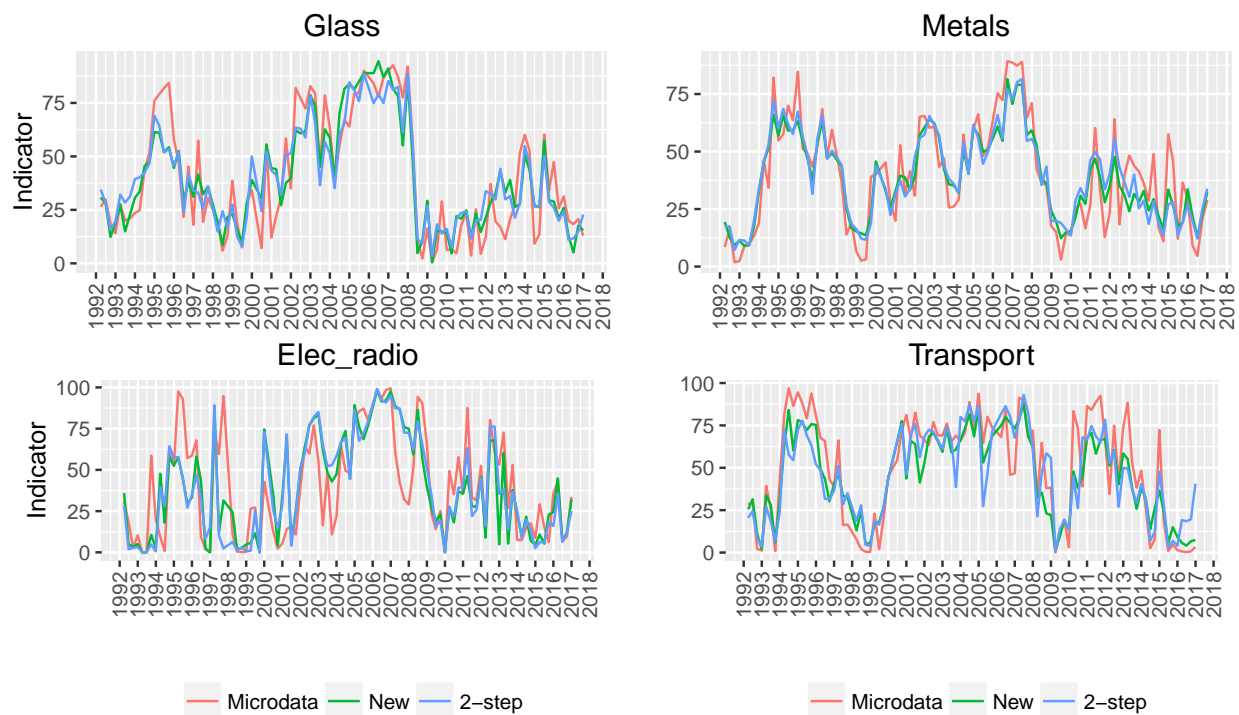


Figure 27: results

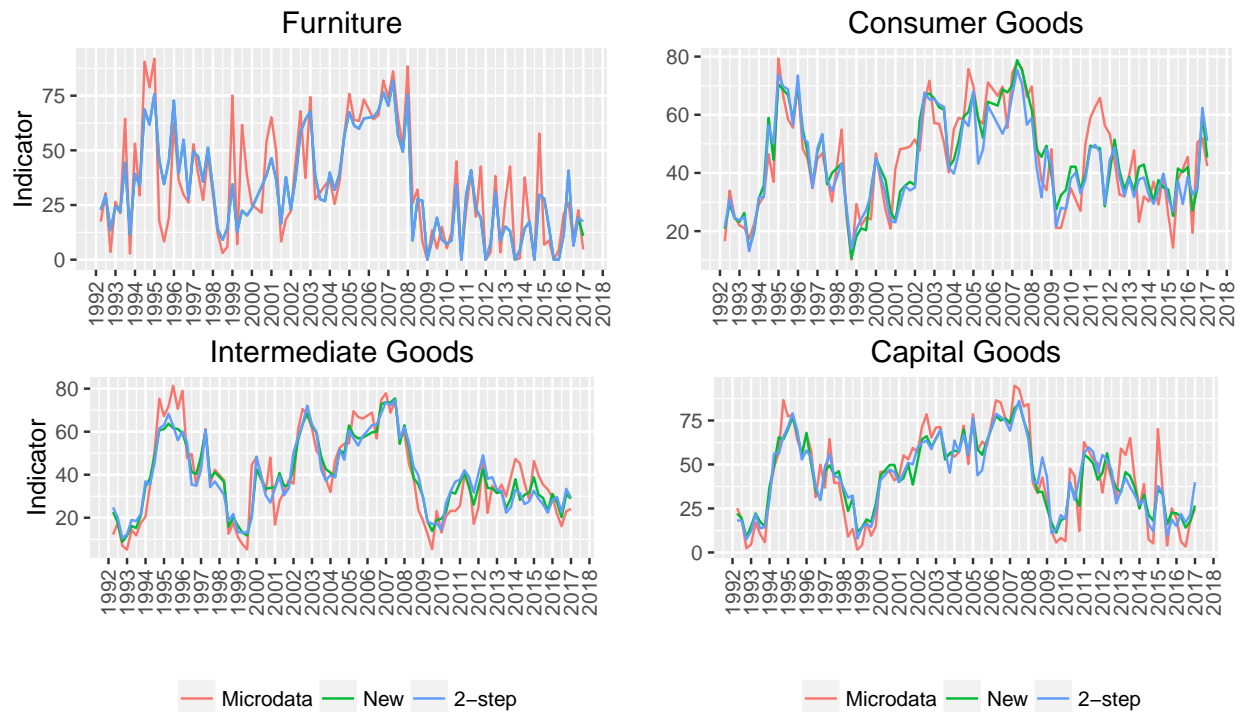


Figure 28: results

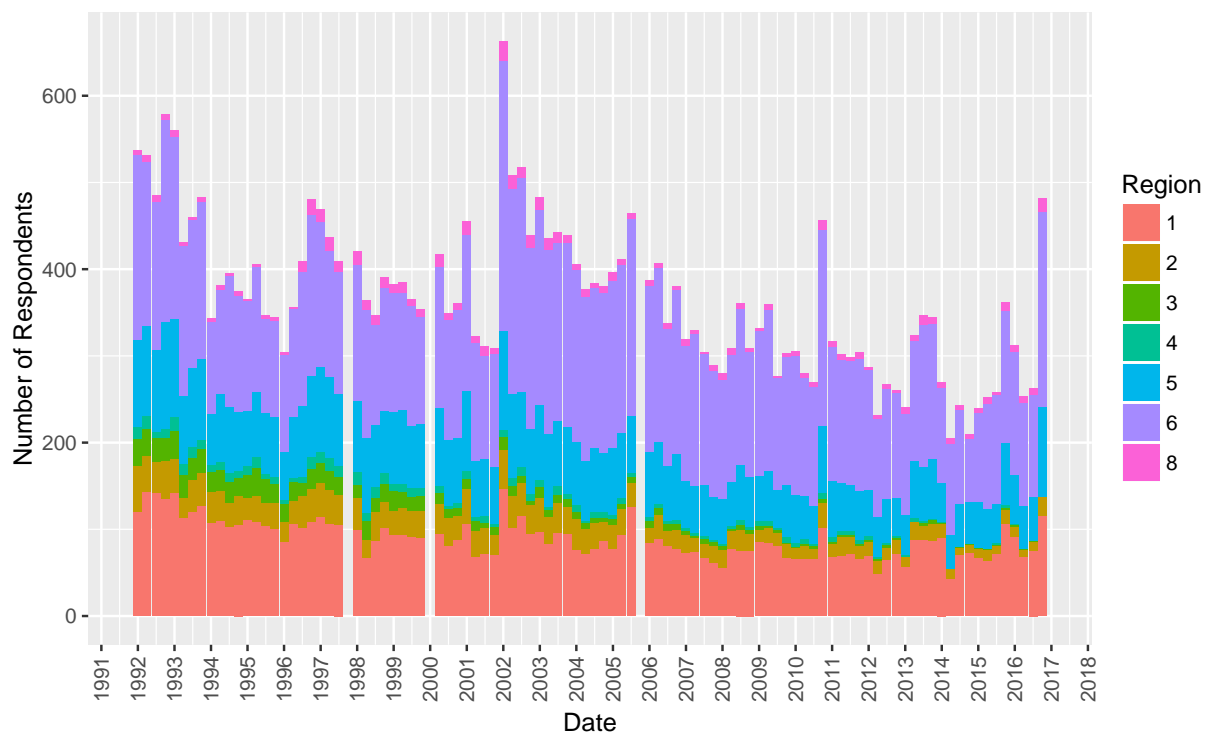


Figure 29: results

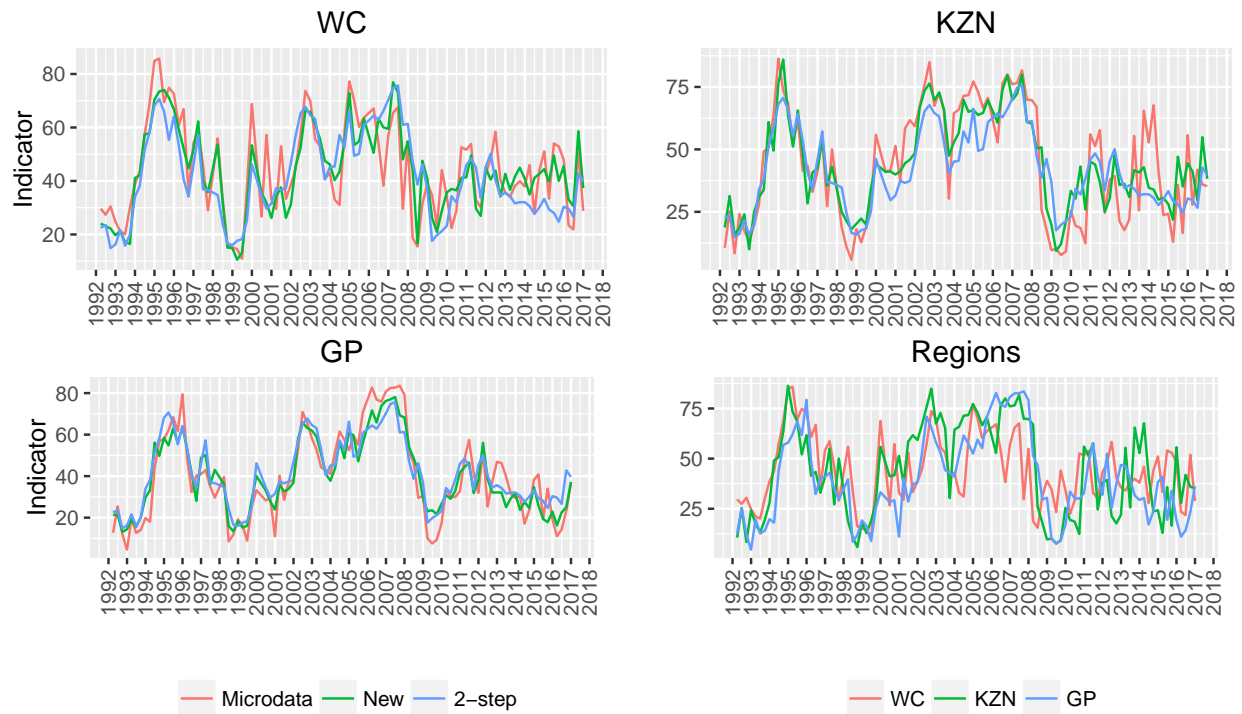


Figure 30: results

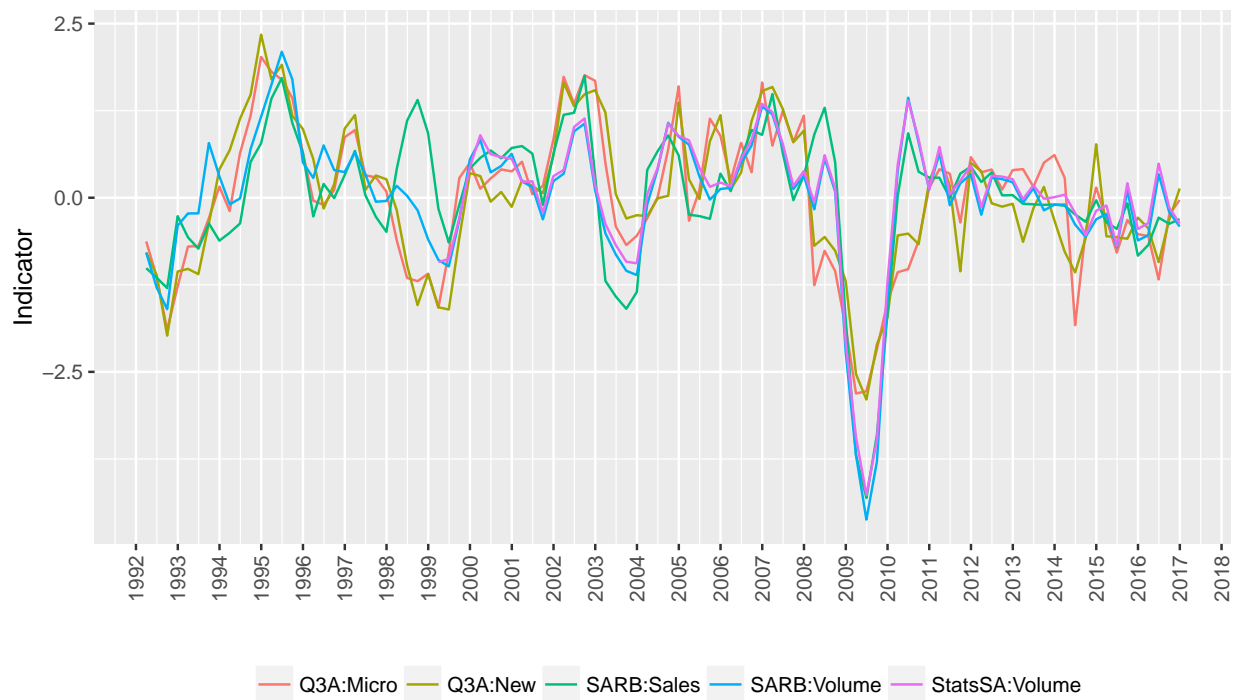


Figure 31: results

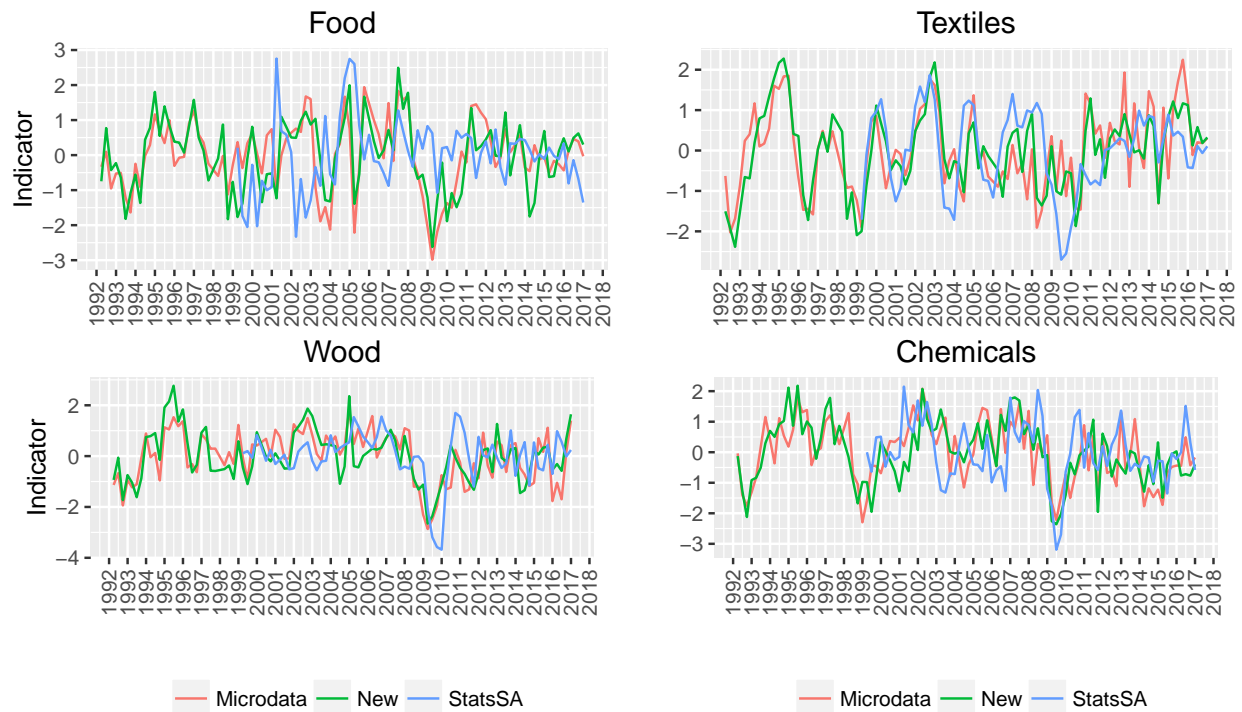


Figure 32: results

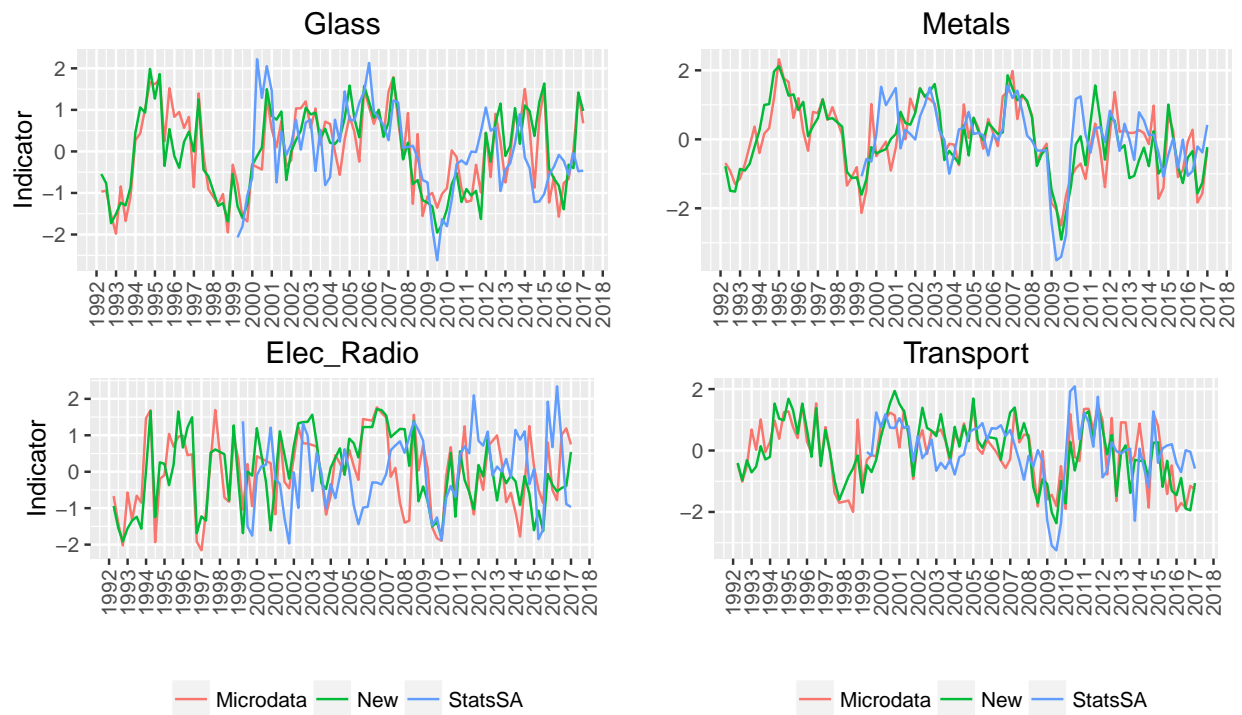


Figure 33: results

	Q1A	Q3A	Q1A_u	Q3A_u	Q1A_new	Q3A_new	Q1A_2s	Q3A_2s
SARB:Sales	0.62***	0.65***	0.57***	0.60***	0.58***	0.61***	0.60***	0.64***
SARB:Volume	0.72***	0.74***	0.70***	0.71***	0.71***	0.72***	0.71***	0.73***
StatsSA:Volume	0.74***	0.71***	0.70***	0.70***	0.72***	0.71***	0.72***	0.72***

	Q1A	Q3A	Q1A_u	Q3A_u	Q1A_new	Q3A_new	Q1A_2s	Q3A_2s
Vol	27.18	24.98	22.74	21.35	23.21	21.71	24.18	22.27

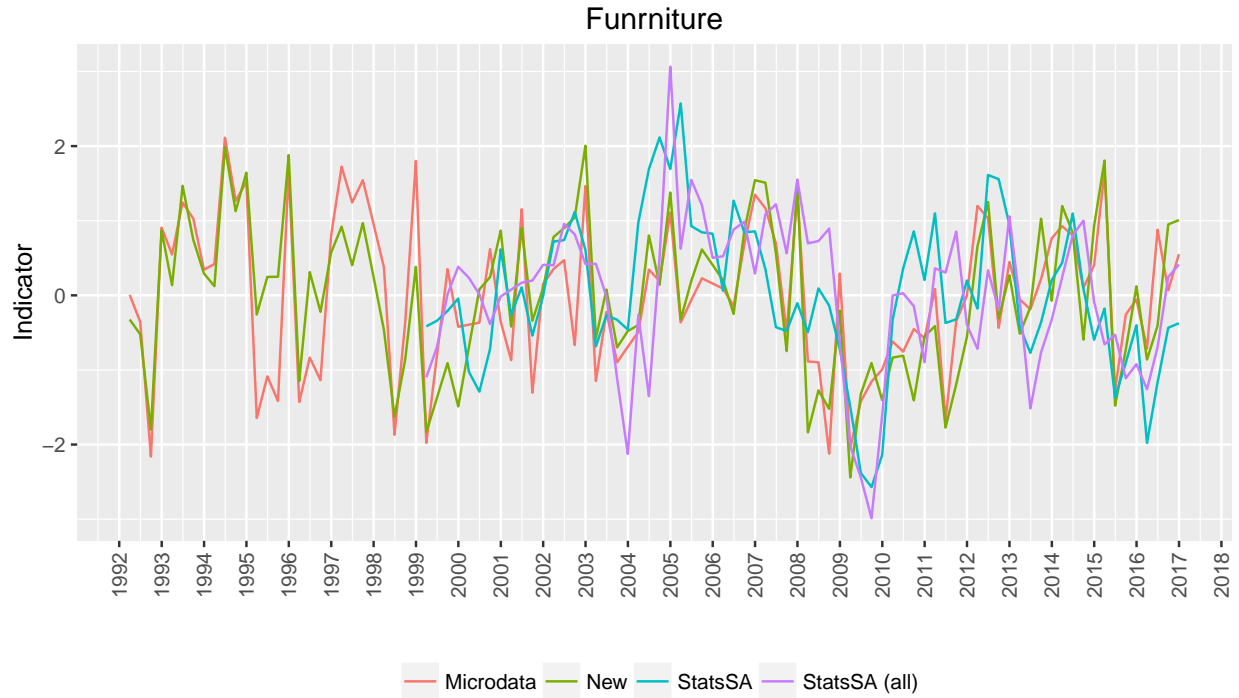


Figure 34: results

	Q1A	Q3A	Q1A_U	Q3A_U	Q1A_New	Q3A_New	Q1A_2s	Q3A_2s
Food	-0.08	-0.14	0.05	0.05	0.02	-0.01	0.00	-0.05
Textiles	0.29**	0.30**	0.63***	0.65***	0.50***	0.51***	0.63***	0.61***
Wood	0.41***	0.41***	0.53***	0.49***	0.47***	0.42***	0.46***	0.39***
Chemicals	0.31***	0.37***	0.30**	0.34***	0.33***	0.38***	0.35***	0.41***
Glass	0.57***	0.47***	0.59***	0.56***	0.60***	0.54***	0.61***	0.52***
Metals	0.62***	0.57***	0.68***	0.69***	0.69***	0.68***	0.66***	0.65***
Elec_radio	0.01	0.04	0.22*	0.24**	0.01	0.06	0.05	0.10
Transport	0.43***	0.49***	0.48***	0.47***	0.48***	0.49***	0.51***	0.55***
Furniture	0.45***	0.38***	0.48***	0.41***	0.48***	0.39***	0.48***	0.39***

	Q1A	Q3A	Q1A_U	Q3A_U	Q1A_New	Q3A_New	Q1A_2s	Q3A_2s
Food	35.81	35.76	22.77	20.65	23.98	23.21	26.00	24.40
Textiles	36.12	36.62	26.12	26.24	27.02	27.27	27.60	28.67
Wood	36.86	33.28	25.63	24.45	25.98	24.82	27.38	25.20
Chemicals	32.16	30.83	23.39	22.37	24.13	22.58	24.79	22.99
Glass	46.02	43.94	31.72	28.72	36.65	32.16	34.99	30.87
Metals	37.79	34.96	28.06	27.29	29.60	28.19	30.41	28.94
Elec_radio	50.29	49.30	33.03	33.03	48.65	49.27	45.93	48.97
Transport	55.88	52.29	32.70	32.52	39.21	38.48	43.57	42.21
Furniture	44.71	43.07	31.50	30.42	35.39	34.05	35.29	34.10