

BER Trade Surveys

Preliminary Results

Laurie Binge

12 February 2018

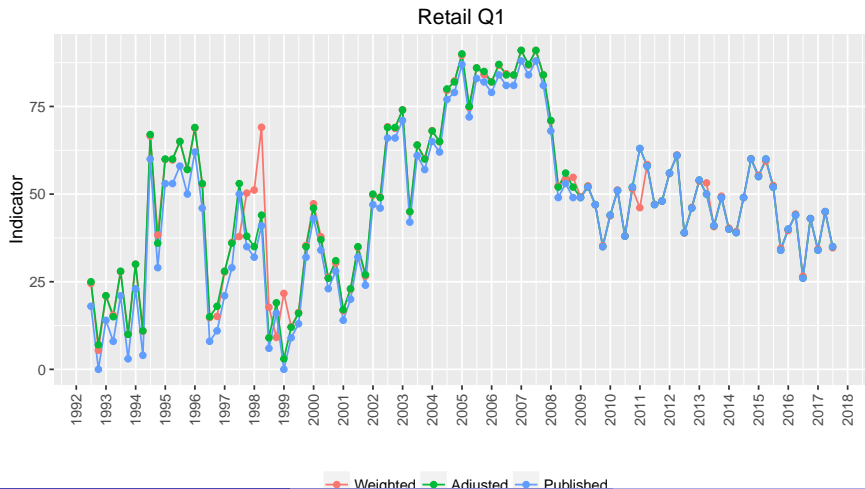
- 1 Retail Survey Results**
- 2 Wholesale Survey Results**
- 3 Motor Vehicle Survey Results**

Retail Survey Results

Comparing the Microdata to the Published Series

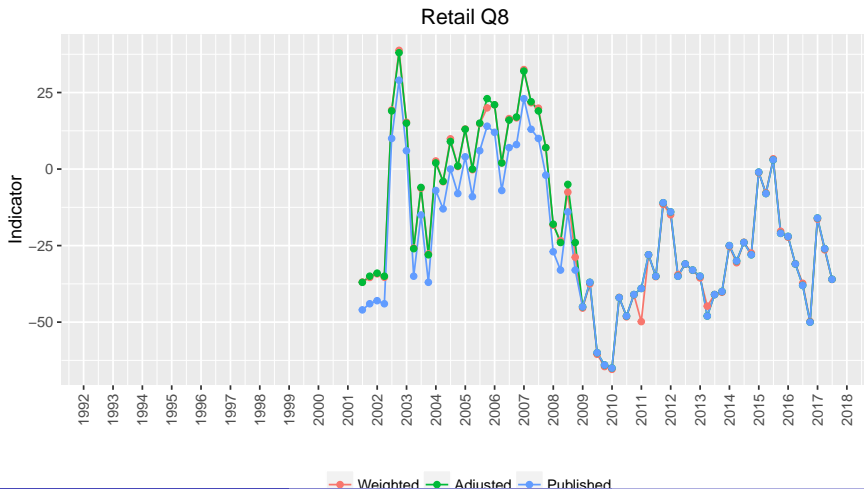
Retail Survey Results: Q1

An adjustment factor is added to the published series for comparison to the microdata



Retail Survey Results: Q8

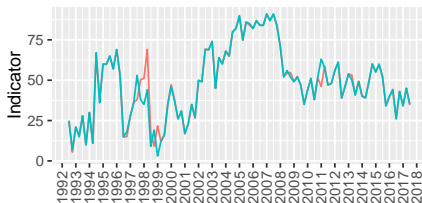
An adjustment factor is added to the published series for comparison to the microdata



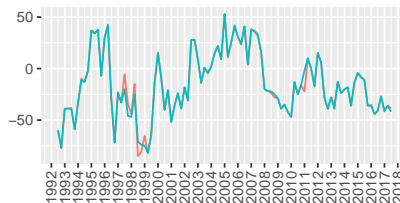
Total Retail Results

The series are similar, except for 1997Q2-1998Q2 and 2010Q4

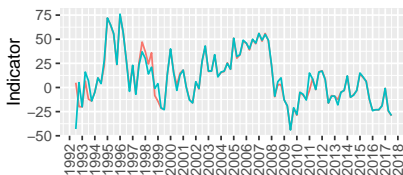
Retail: Q1



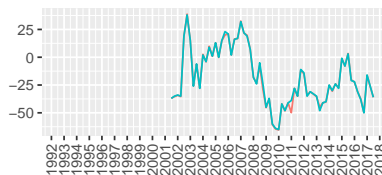
Retail: Q2A



Retail: Q3A



Retail: Q8

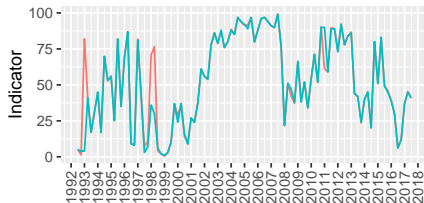


Weighted Adjusted

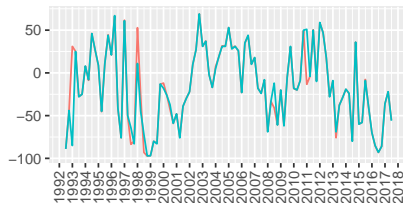
Weighted Adjusted

Semi-Durable Retail Results

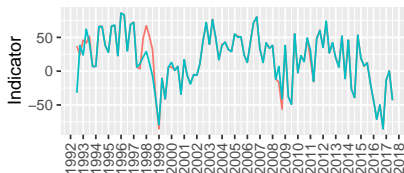
Retail Semi-Durable: Q1



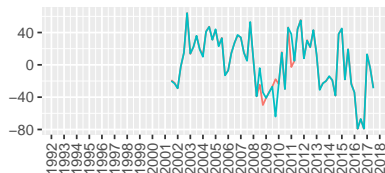
Retail Semi-Durable: Q2A



Retail Semi-Durable: Q3A



Retail Semi-Durable: Q8

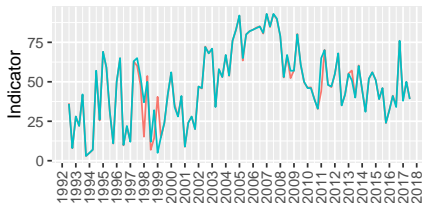


Weighted Adjusted

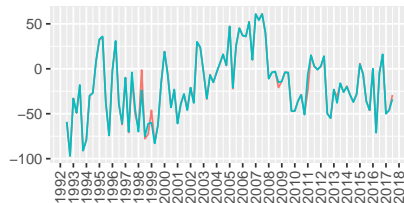
Weighted Adjusted

Non-Durable Retail Results

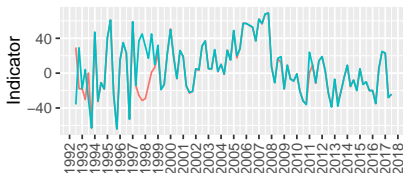
Retail: Q1



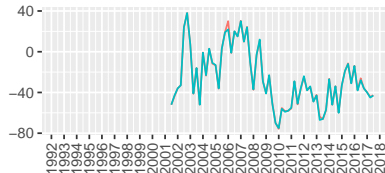
Retail: Q2A



Retail: Q3A



Retail: Q8

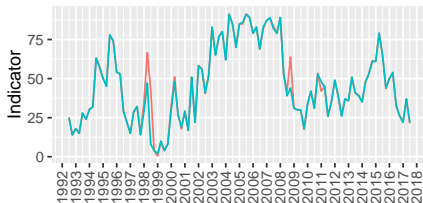


Weighted Adjusted

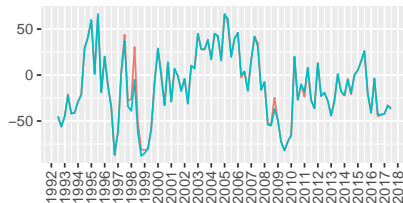
Weighted Adjusted

Durable Retail Results

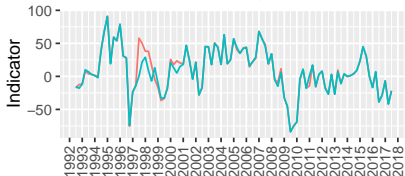
Retail: Q1



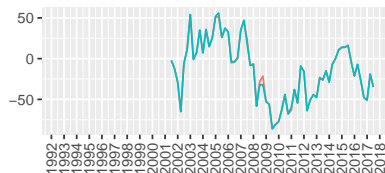
Retail: Q2A



Retail: Q3A



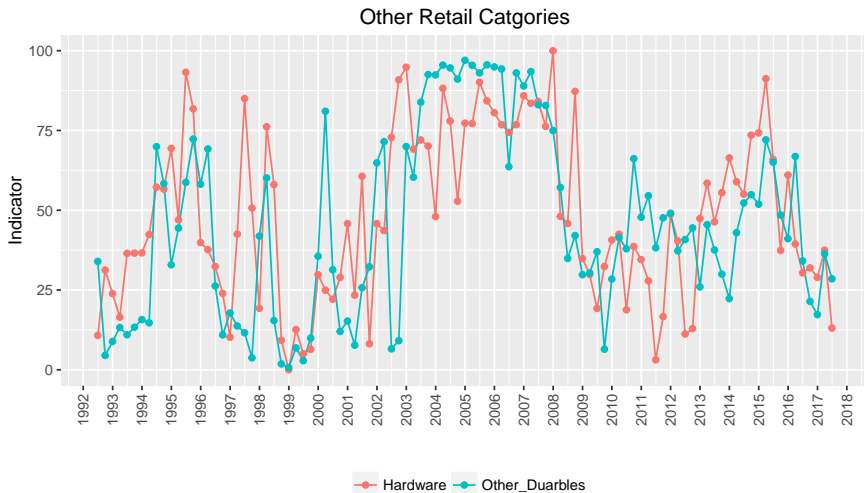
Retail: Q8



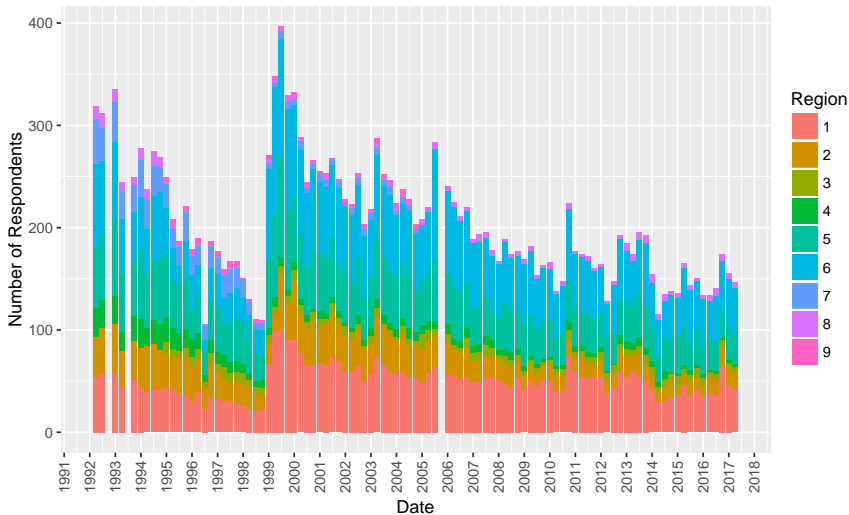
Weighted Adjusted

Weighted Adjusted

Durable Retail Categories



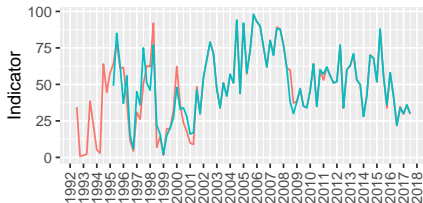
Regional Responses



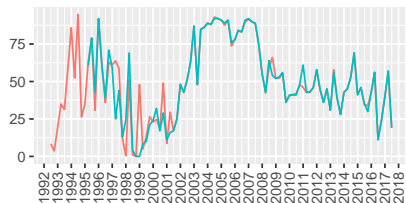
Regional Results: Q1

The series are less similar before 2001

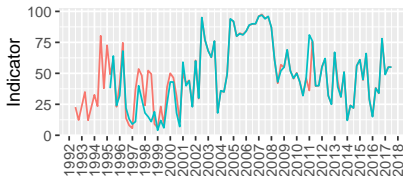
WC: Q1



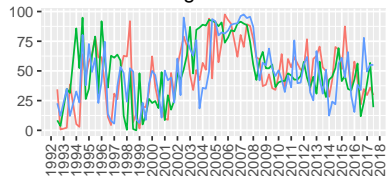
GP: Q1



KZN: Q1



Regions: Q1

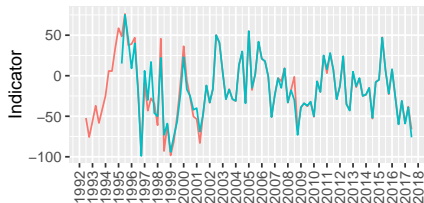


Microdata Adjusted

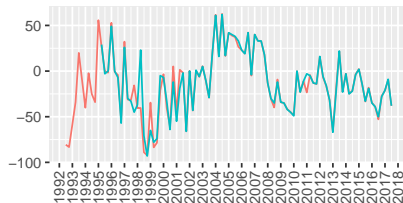
WC GP KZN

Regional Results: Q2A

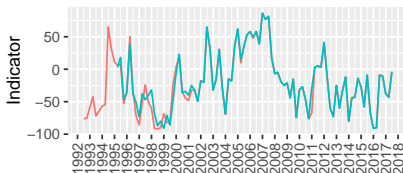
WC: Q2A



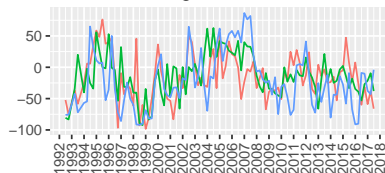
GP: Q2A



KZN: Q2A



Regions: Q2A



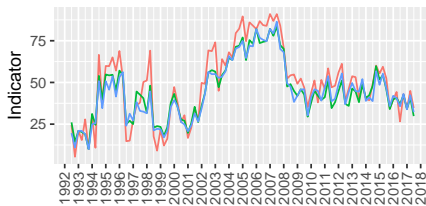
Microdata Adjusted

WC GP KZN

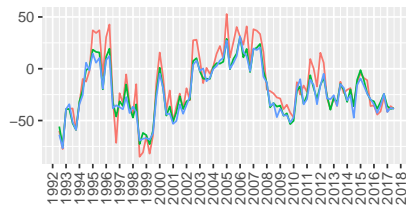
New Weights

New Weights: Total Retail

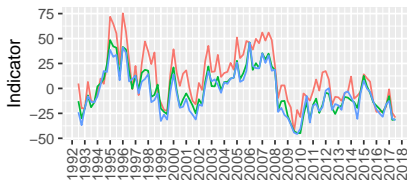
Q1



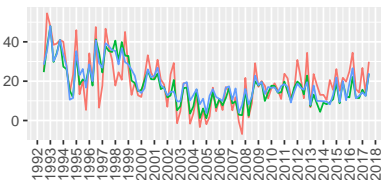
Q2A



Q3A



Q9

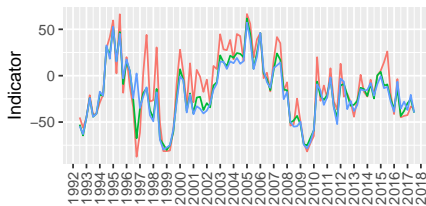


Microdata New 2-step

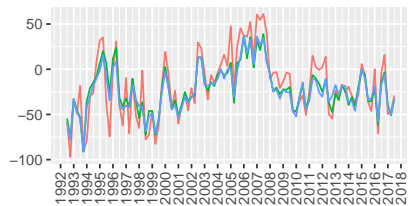
Microdata New 2-step

New Weights: Retail Subsectors

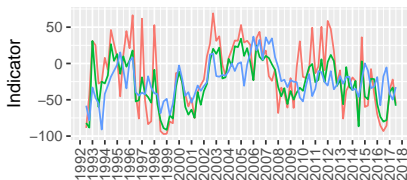
Q2A: Durable



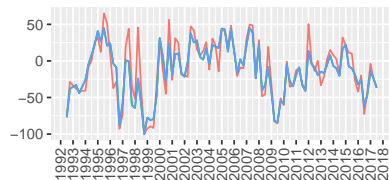
Q2A: Non-Durable



Q2A: Semi-Durable



Q2A: Hardware

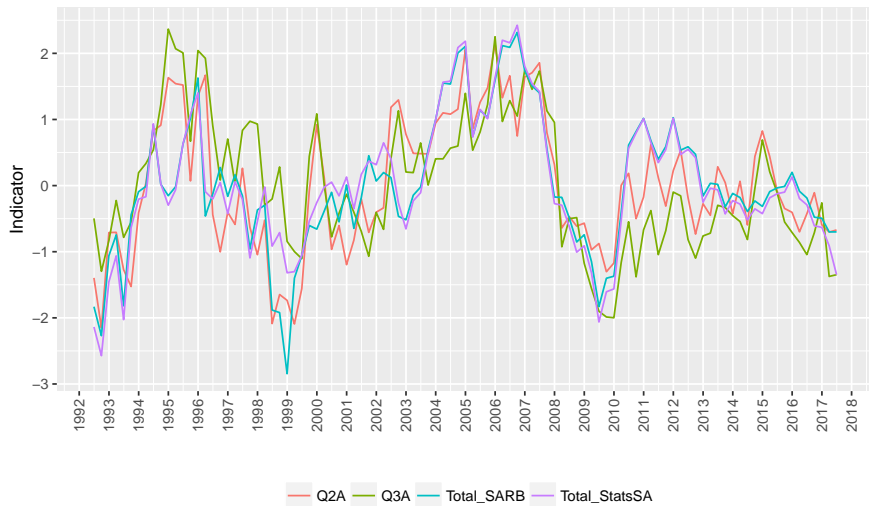


Microdata New 2-step

Microdata New 2-step

References Series

Total Retail Reference Series



Correlations with Reference Series

Contemporaneous correlations are relatively high

Table 1: Correlations of retail series

	Q2A	Q2A_u	Q2A_new	Q2A_2s	Q3A	Q3A_u	Q3A_new	Q3A_2s
Total_SARB	0.71***	0.76***	0.74***	0.77***	0.51***	0.57***	0.52***	0.59***
Total_StatsA	0.69***	0.74***	0.73***	0.75***	0.56***	0.57***	0.55***	0.60***

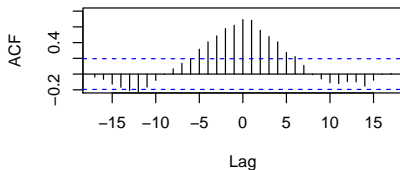
Table 2: Volatility of retail series

	Q2A	Q2A_u	Q2A_new	Q2A_2s	Q3A	Q3A_u	Q3A_new	Q3A_2s
Volatility	31.16	20.51	24.51	24.43	25.78	18.19	21.40	21.01

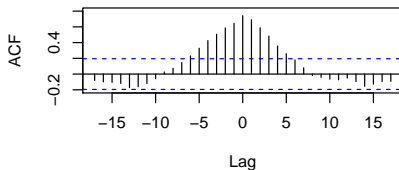
Cross-Correlograms

Correlations are highest with one lag

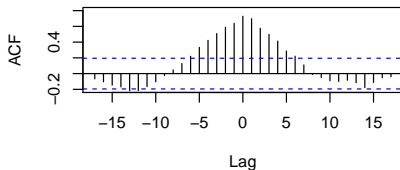
Q2A & Sales_StatsSA



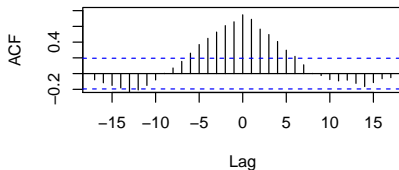
Q2A_u & Sales_StatsSA



Q2A_n & Sales_StatsSA

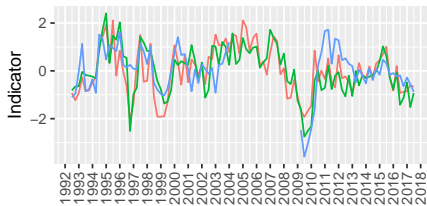


Q2A_2s & Sales_StatsSA

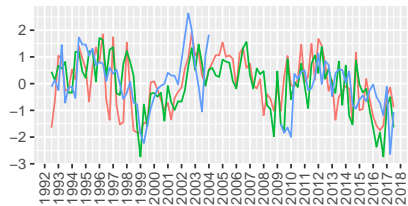


Retail Subsector Reference Series

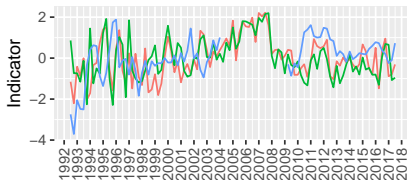
Durable Goods



Semi-Durable Goods



Non-Durable Goods



Q2A Q3A StatsSA

Correlations with Subsector Reference Series

Contemporaneous correlations are relatively low - but the reference series are very patchy

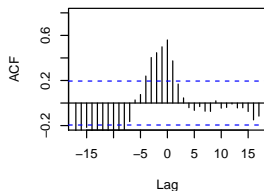
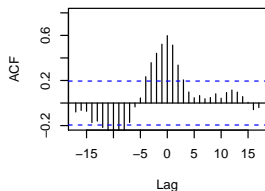
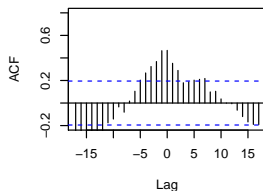
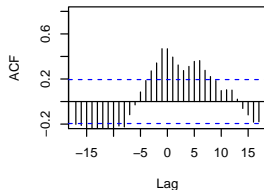
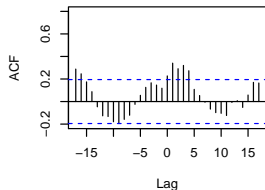
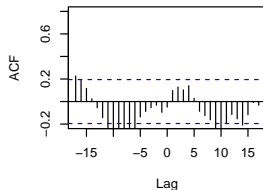
Table 3: Correlations of subsector series

	Q2A	Q2A_n	Q2A_2s	Q3A	Q3A_n	Q3A_2s
Durable Goods	0.57***	0.60***	0.61***	0.61***	0.61***	0.61***
Semi-Durable Goods	0.43***	0.51***	0.49***	0.46***	0.49***	0.47***
Non-Durable Goods	0.13	0.25**	0.28**	-0.14	-0.09	-0.06

Table 4: Volatility of subsector series

	Q2A	Q2A_New	Q2A_2s	Q3A	Q3A_New	Q3A_2s
Total Retail	31.16	24.51	24.43	25.78	21.40	21.01
Durable Goods	36.66	30.79	30.07	33.91	27.55	27.90
Semi-Durable Goods	44.38	32.17	31.26	38.55	29.68	29.30
Non-Durable Goods	35.68	25.20	24.73	29.65	21.86	21.18

Cross-Correlograms for Subsector Series (2-step weighting)

D_Q2A & D_Sales_StatsSA**D_Q3A & D_Sales_StatsSA****SD_Q2A & SD_Sales_StatsSA****SD_Q3A & SD_Sales_StatsSA****ND_Q2A & ND_Sales_StatsSA****ND_Q3A & ND_Sales_StatsSA**

Optimal Subsector Weights

Combining the subsector series

We can combine the individual subsector series in a number of ways to try to improve the correlations with the reference series:

- ❶ Averages of the subsector series
- ❷ First Principal Component (PCA)
- ❸ Regression fitted values

From the regression:

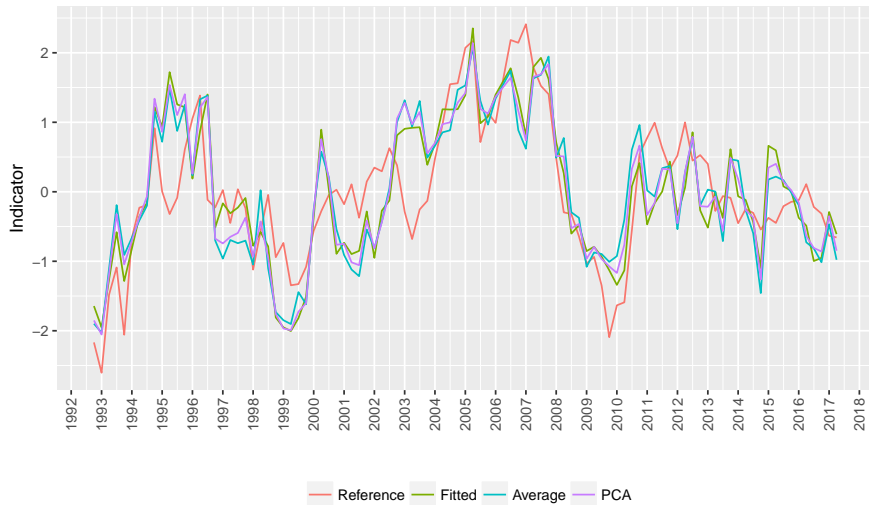
- 3160 and 3230 receive largest weights
- one sector (3130) has slightly negative weight
- most contemporaneous sector series are not significant (high standard errors)

Regression output

Table 5: Regression output

<i>Dependent variable:</i>	
	Retail_ref
'3310'	0.015 (0.012)
'3160'	0.023** (0.012)
'3230'	0.027 (0.017)
'3120'	0.007 (0.008)
'3330'	0.011 (0.012)
'3130'	-0.0002 (0.006)
'3140'	0.005 (0.009)
'3220'	0.003 (0.017)
'3370'	0.003 (0.010)
'3210'	0.008 (0.007)
'3110'	0.011 (0.012)
Constant	6.257*** (0.504)
Observations	99
R ²	0.576
Adjusted R ²	0.523
Residual Std. Error	2.815 (df = 87)
F Statistic	10.759*** (df = 11; 87)
Note: *p<0.1; **p<0.05; ***p<0.01	

Combined and reference series



Correlations

The three methods give very similar results

Similar correlations to the 'correct' weights

Table 6: Volatility of subsector series

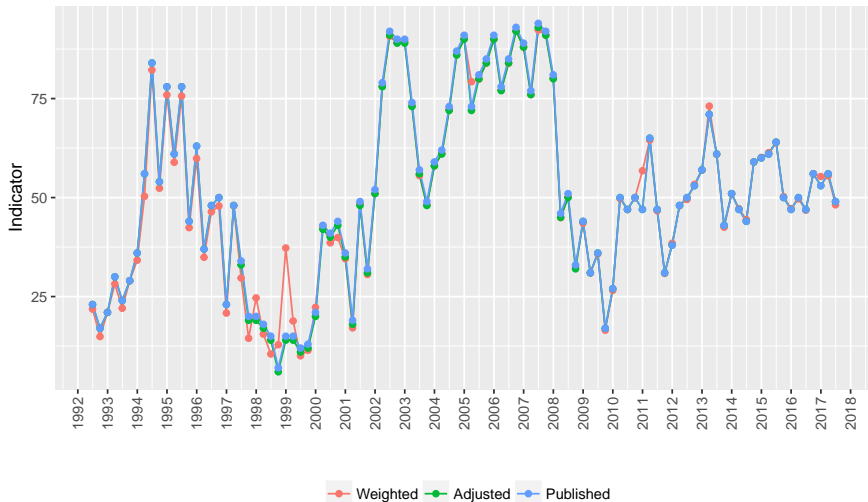
	Reference	Fitted	Average
Fitted	0.76***		
Average	0.73***	0.96***	
PCA	0.75***	0.98***	0.99***

Wholesale Survey Results

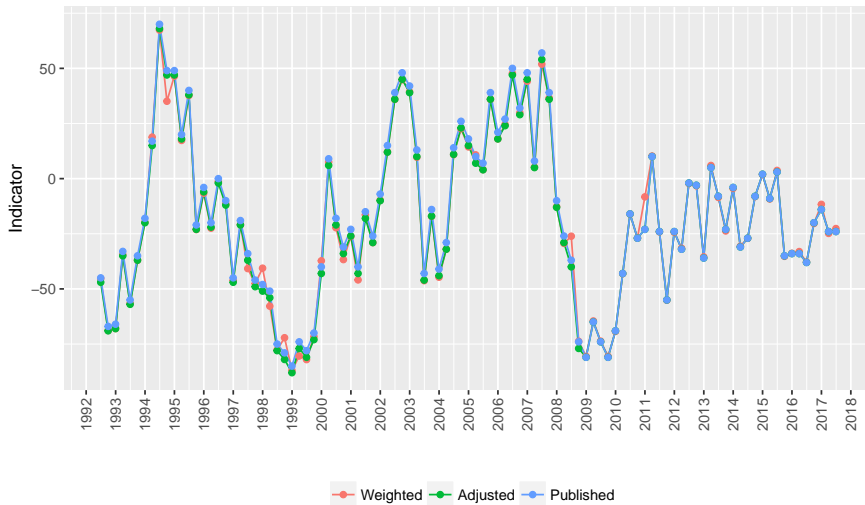
Comparing the Microdata to the Published Series

Wholesale Survey Results: Q1

Adjustment factor added to the published series for comparison



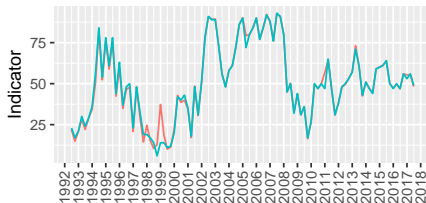
Wholesale Survey Results: Q2A



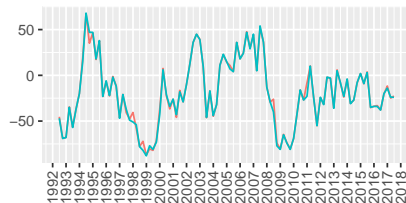
Total Wholesale Results

Results are similar, except for the period around 1998

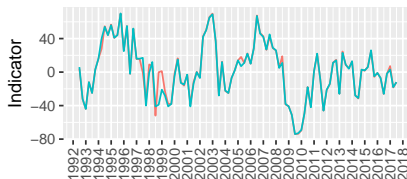
Wholesale: Q1



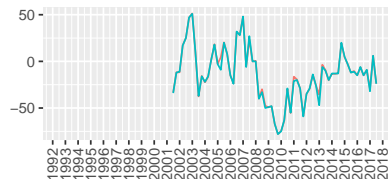
Wholesale: Q2A



Wholesale: Q3A



Wholesale: Q8

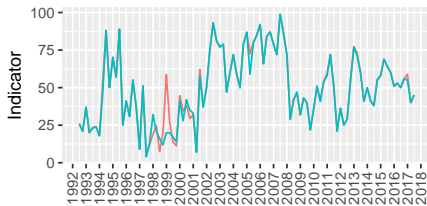


— Weighted — Adjusted

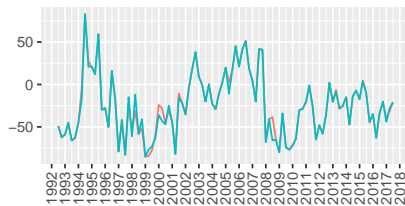
— Weighted — Adjusted

Wholesale Consumer Goods

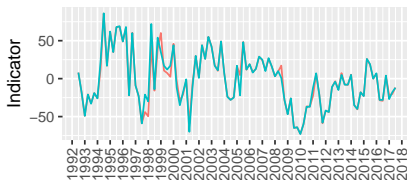
Wholesale Consumer Goods: Q1



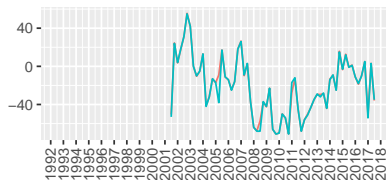
Wholesale Consumer Goods: Q2A



Wholesale Consumer Goods: Q3A



Wholesale Consumer Goods: Q8

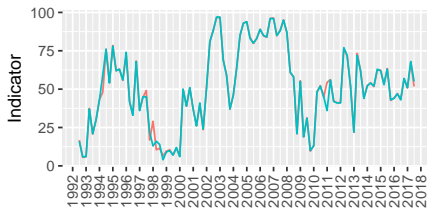


Weighted Adjusted

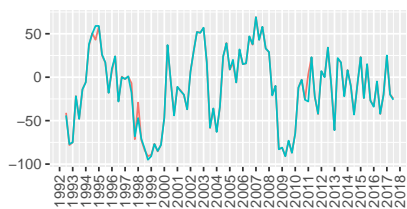
Weighted Adjusted

Wholesale Non-Consumer Goods

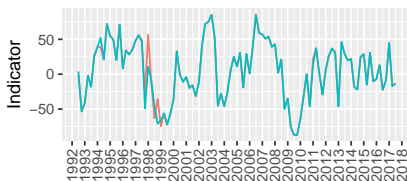
Non-Consumer Goods: Q1



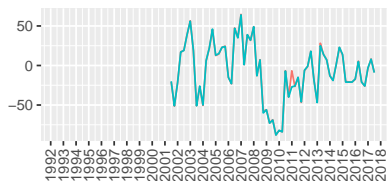
Non-Consumer Goods: Q2A



Non-Consumer Goods: Q3A



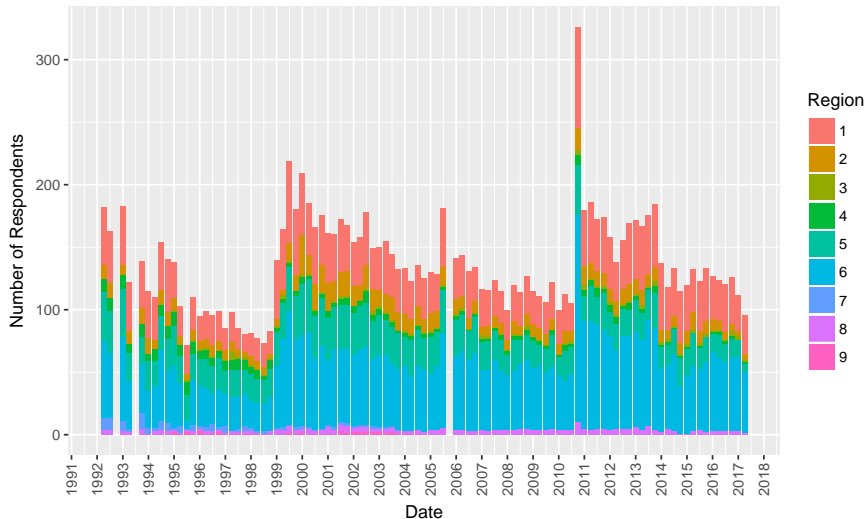
Non-Consumer Goods: Q8



Weighted Adjusted

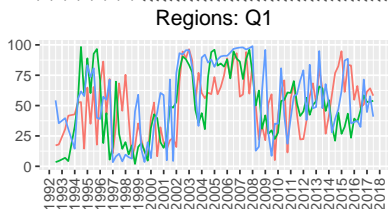
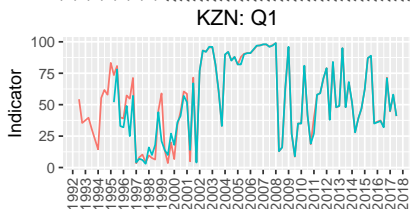
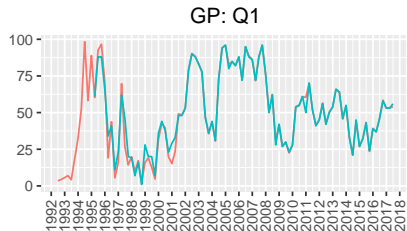
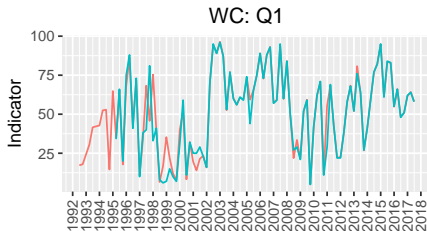
Weighted Adjusted

Regional Wholesale Results



Regional Wholesale Results: Q1

Gauteng and KZN adjustments are idiosyncratic (wrong sign)



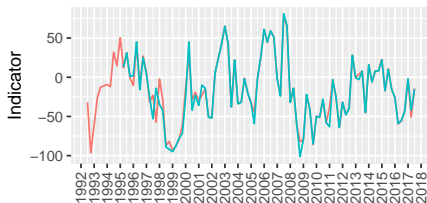
Microdata Adjusted

WC GP KZN

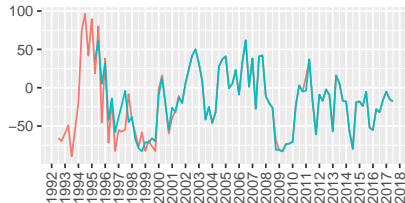
Regional Wholesale Results: Q2A

Gauteng and KZN adjustments are idiosyncratic (wrong sign)

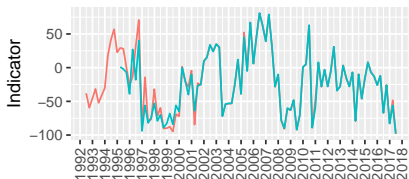
WC: Q2A



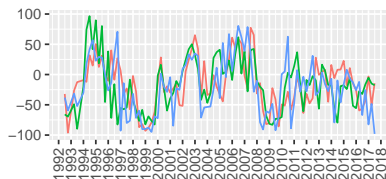
GP: Q2A



KZN: Q2A



Regions: Q2A



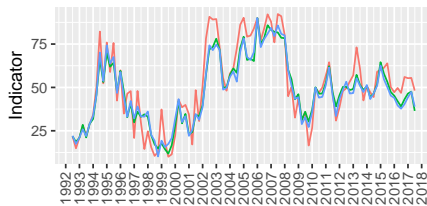
Microdata Adjusted

WC GP KZN

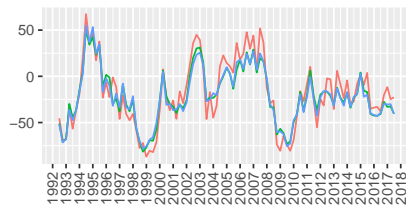
New Weights

New Weights

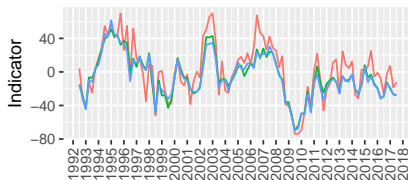
Q1



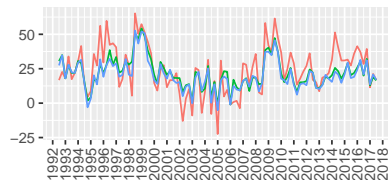
Q2A



Q3A



Q9

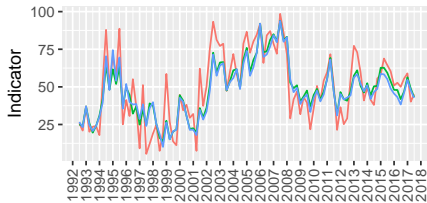


— Microdata — New — 2-step

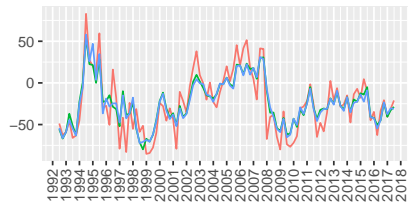
— Microdata — New — 2-step

New weights

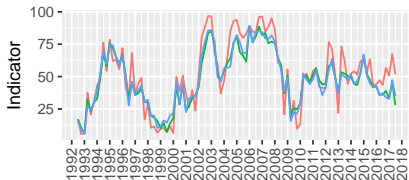
Q1: Wholesale (c)



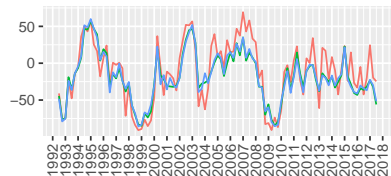
Q2A: Wholesale (c)



Q1: Wholesale (nc)



Q2A: Wholesale (nc)



Microdata New 2-step

Microdata New 2-step

Reference Series

Reference Series

We still need to add reference series

Compare the results in terms of

- Tracking record
- Volatility

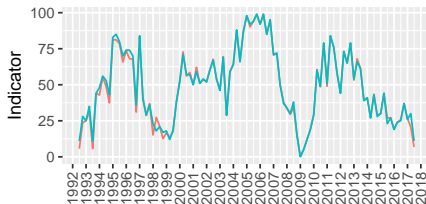
Motor Vehicle Survey Results

Comparing the Microdata to the Published Series

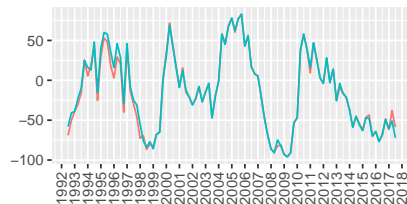
New Vehicle Survey Results

Clearly there were adjustment factors at the start of the period

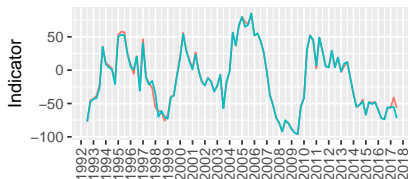
New Vehicles: Q1



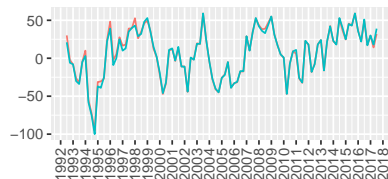
New Vehicles: Q2A



New Vehicles: Q3A



New Vehicles: Q5



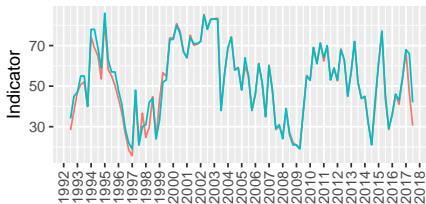
Weighted Published

Weighted Published

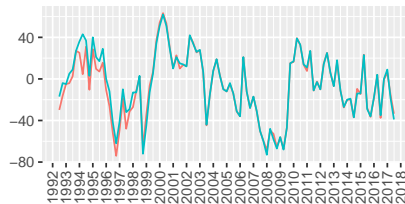
Used Vehicle Survey Results

Clearly there were adjustment factors at the start of the period

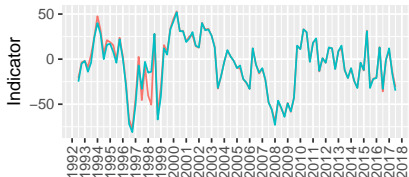
Used Vehicles: Q1



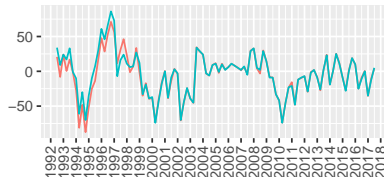
Used Vehicles: Q2A



Used Vehicles: Q3A



Used Vehicles: Q5



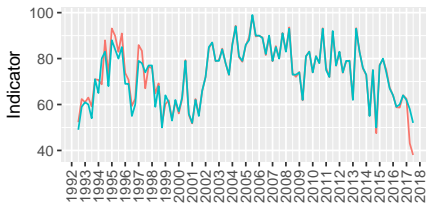
— Weighted — Published

— Weighted — Published

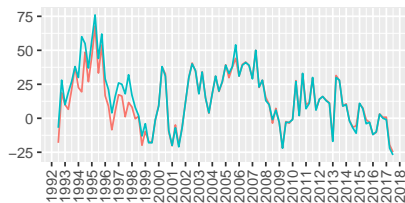
Spare Parts Survey Results

Clearly there were adjustment factors at the start of the period

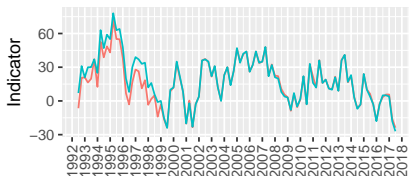
Spare Parts: Q1



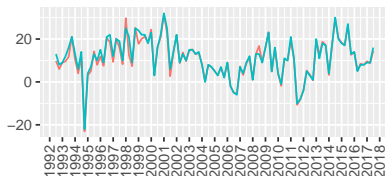
Spare Parts: Q2A



Spare Parts: Q3A



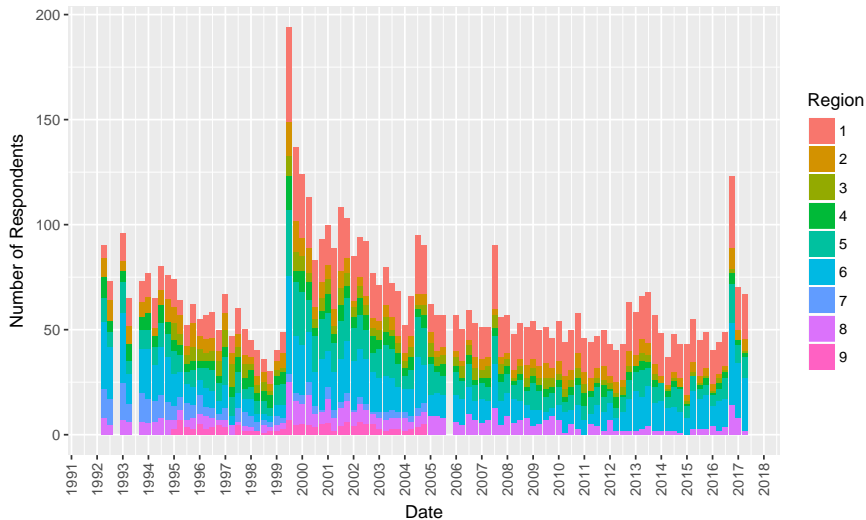
Spare Parts: Q5



— Weighted — Published

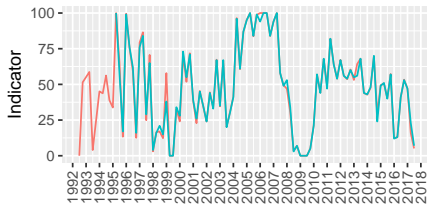
— Weighted — Published

Regional Motor Vehicle Results

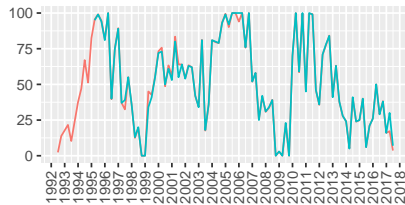


Regional Motor Vehicle Results: Q1

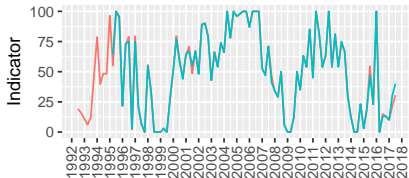
WC: Q1



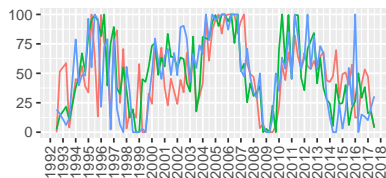
GP: Q1



KZN: Q1



Regions: Q1

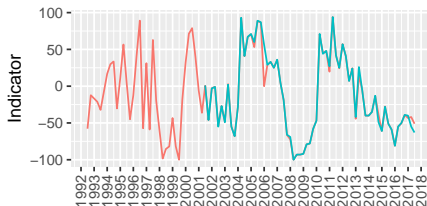


— Microdata — Published

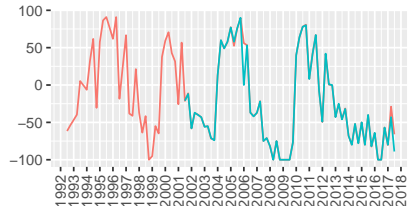
— WC — GP — KZN

Regional Motor Vehicle Results: Q2A

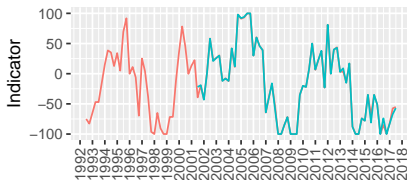
WC: Q2A



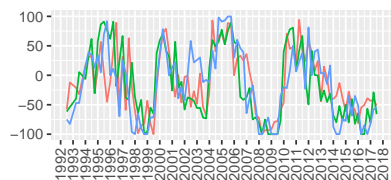
GP: Q2A



KZN: Q2A



Regions: Q2A



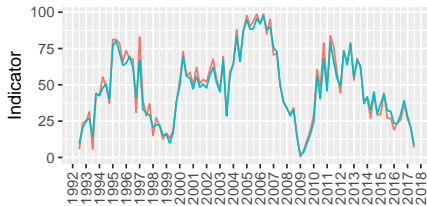
Microdata Published

WC GP KZN

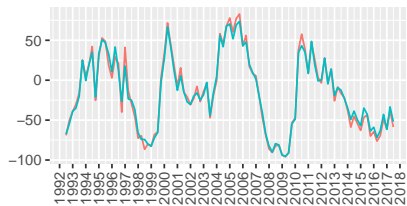
New Weights

New Weights

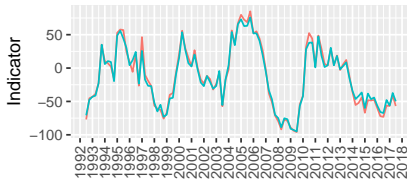
New Vehicles: Q1



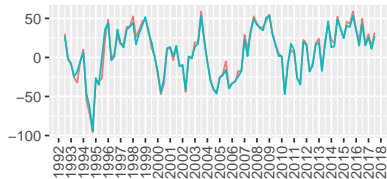
New Vehicles: Q2A



New Vehicles: Q3A



New Vehicles: Q5

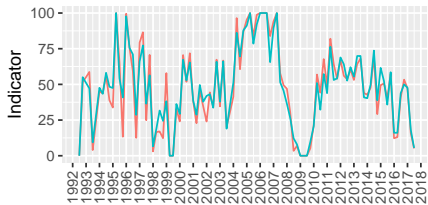


Microdata New Weights

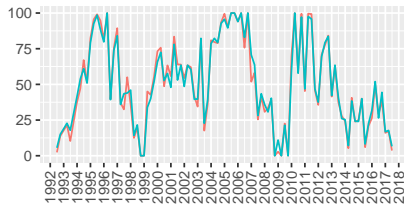
Microdata New Weights

New weights

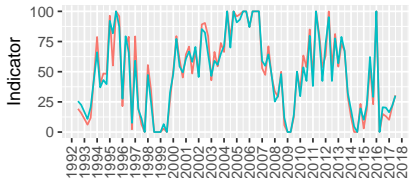
WC: Q1



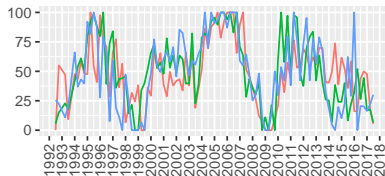
GP: Q1



KZN: Q1



Regions: Q1

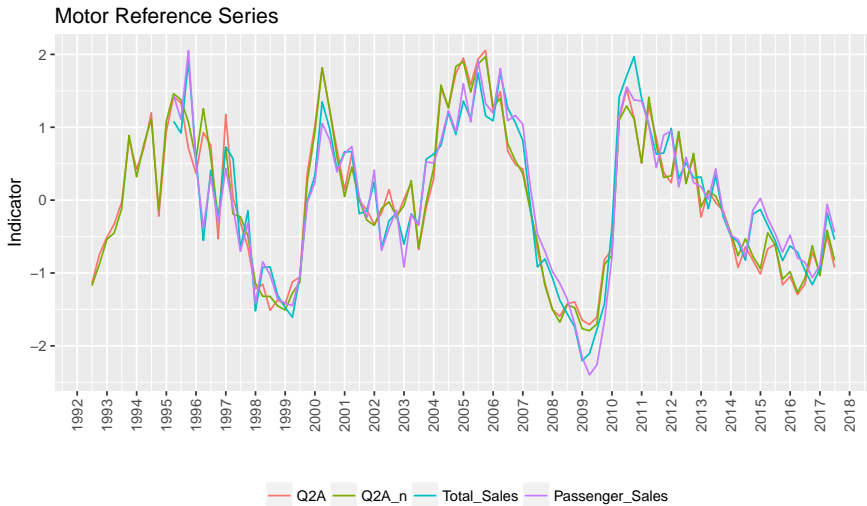


— Microdata — New Weights

— WC — GP — KZN

Reference Series

Reference Series: New Vehicles



Contemporaneous correlations

Table 7: Correlations with reference series

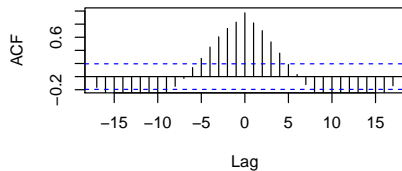
	Q2A	Q2A_u	Q2A_n	Q3A	Q3A_u	Q3A_n
Total_Sales	0.89***	0.90***	0.90***	0.89***	0.90***	0.90***
Passenger_Sales	0.88***	0.90***	0.89***	0.89***	0.90***	0.90***

Table 8: Volatility of motor vehicle series

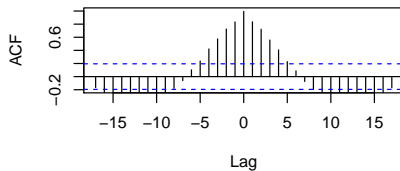
	Q2A	Q2A_u	Q2A_n	Q3A	Q3A_u	Q3A_n
Volatility	47.50	43.13	44.92	46.15	41.53	43.35

Cross-correlations

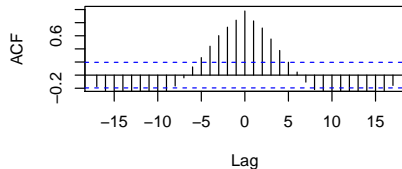
Q2A & Passenger_Sales



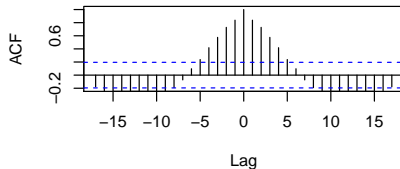
Q3A & Passenger_Sales



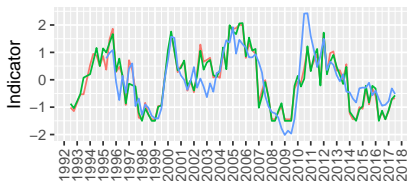
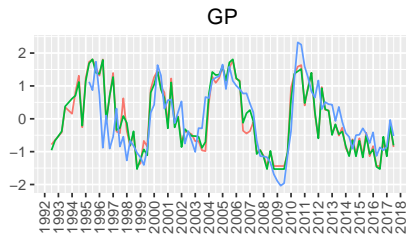
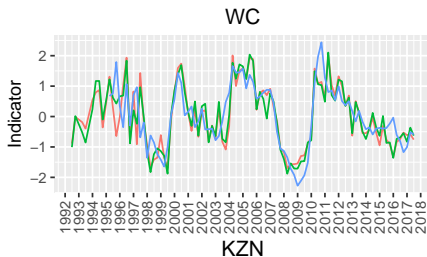
Q2A_n & Passenger_Sales



Q3A_n & Passenger_Sales



Regional Reference Series



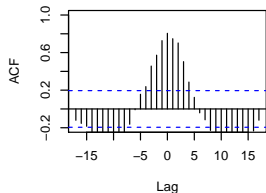
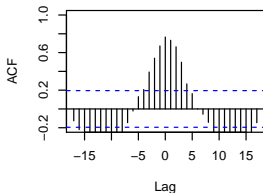
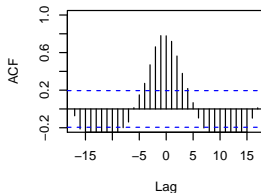
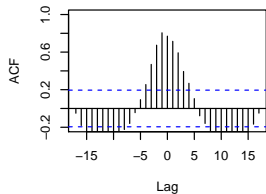
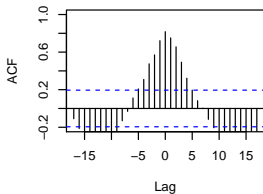
Q2A Q2A_n Passenger_Sales

Regional contemporaneous correlations

Table 9: Regional correlations with reference series

	WC_Q2A	WC_Q2A_n	WC_Q3A	WC_Q3A_n
Total Sales	0.77***	0.83***	0.75***	0.81***
Passenger Sales	0.77***	0.82***	0.75***	0.80***
	GP_Q2A	GP_Q2A_n	GP_Q3A	GP_Q3A_n
Total Sales	0.74***	0.77***	0.73***	0.76***
Passenger Sales	0.76***	0.78***	0.75***	0.78***
	KZN_Q2A	KZN_Q2A_n	KZN_Q3A	KZN_Q3A_n
Total Sales	0.80***	0.80***	0.77***	0.78***
Passenger Sales	0.80***	0.78***	0.76***	0.76***

Regional cross-correlations

WC_Q2A & WC_Sales**WC_Q3A & WC_Sales****GP_Q2A & GP_Sales****GP_Q3A & GP_Sales****KZN_Q2A & KZN_Sales****KZN_Q3A & KZN_Sales**