Appendix (for online publication only)

A Instructions

[English translation of the German instructions, 4-firm treatment. 2-firm treatment was modified in the obvious way.]

Welcome to our experiment. Please read these instructions carefully.

Turn off your mobile phone, don't talk to your neighbors, and remain quiet throughout the experiment. If you have any questions, please raise your hand, and someone will come over.

You will receive your payoff individually and privately right at the end of the experiment.

The experiment's payoffs will be calculated in Taler (T). At the end of the experiment your payoffs will be converted into euros, with 20,000 T = 1 euro.

The first experiment comprises 1200 periods, each of them lasting 4 seconds. Only the first period is different, as it lasts 10 seconds.

During the whole experiment you will be interacting with three participants in this room. These three participants will remain the same over all 1200 periods. No one will learn as to who interacted with whom.

Each of you represents a firm that produces and sells a product. So there are, in addition to you, three competitors who produce and sell the same product.

During each of the 1200 periods you can decide what quantity of your product you want to produce. The higher the total quantity of the product offered on the market, the lower the market price.

Although you have no precise information on the profits' structure, the following important rules apply:

- Your profit in each period exclusively depends on your decision and on the competitors‘ decisions in the current period.
- The profit function will not change over time. If your and your competitors' decision in a given period is the same as in the previous period, all companies will make the same profit as in the previous period.

At the end all profits realized during the periods will be added up and paid out.

Starting from the second period you will receive the following information in each period:

Your own quantity and the resulting profit of the previous period as well as the competitors' quantities and profits will be shown in following figure.

[here a figure like Figure 5 was displayed]

In the upper left corner you will be shown the number of remaining periods, the quantity you selected in the previous period, and the resulting profit.

Below this information you have a time indicator. The green bar indicates your time remaining in the current period for selecting a quantity. The more time has passed, the shorter the bar.

Your quantity/profit combination will be indicated by a red dot. Your competitors' combinations will be displayed in different colors as shown in the upper right corner.

To select a quantity, click on the screen. The slider on the x-axis shows the decision you have made. You are free to change your decision during a period.

Unless you choose a different quantity for a period, the same quantity as in the previous period will be produced.

To be sure, everything described above applies to the three other firms as well. All four of you are reading exactly the same instruction.

Have fun!

Figure 5: z-tree Interface. By clicking anywhere on the plot, subjects could choose a quantity for the current period. When clicking, the x value of the cursor location was updated as the current quantity choice. The y-axis displayed profits for all firms

B Additional figures

Figure 6: Mean quantities over the first 25 periods

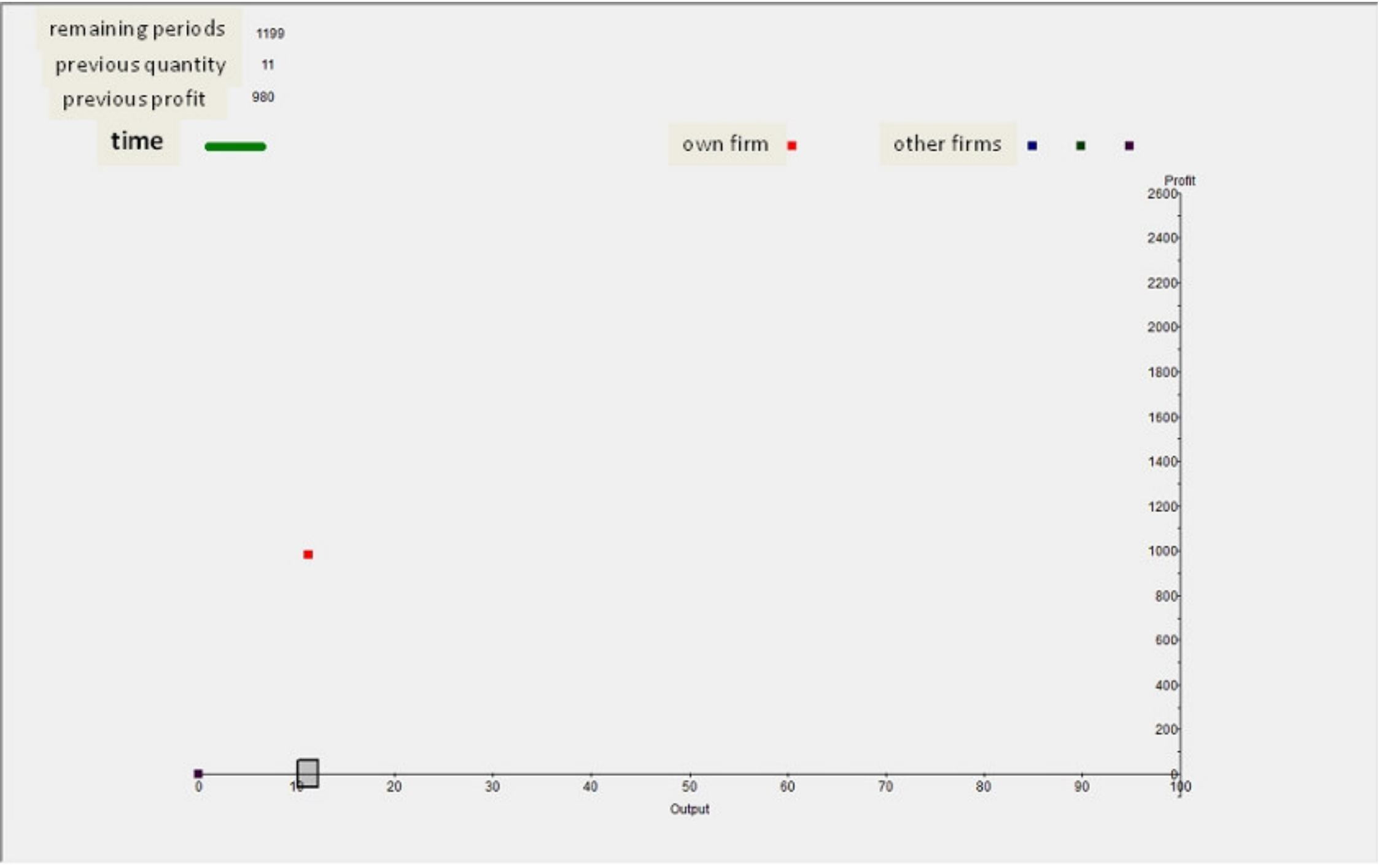
Figure 7: Mean quantities over all periods, plotted in bins of 25 periods

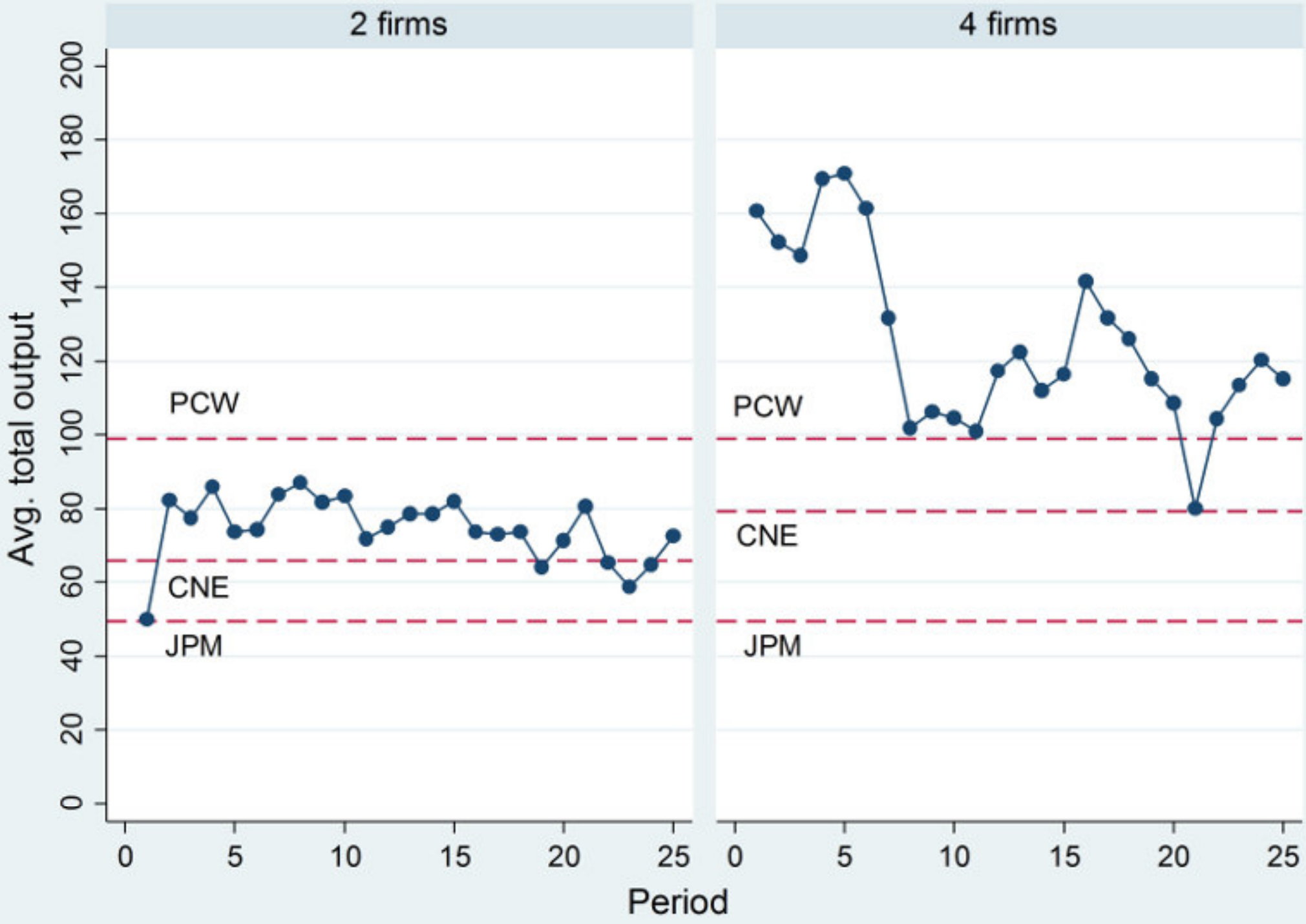
Figure 8: Mean total output for the 6 individual markets in treatment 4-firms: Only market 3 ever comes close to the JPM

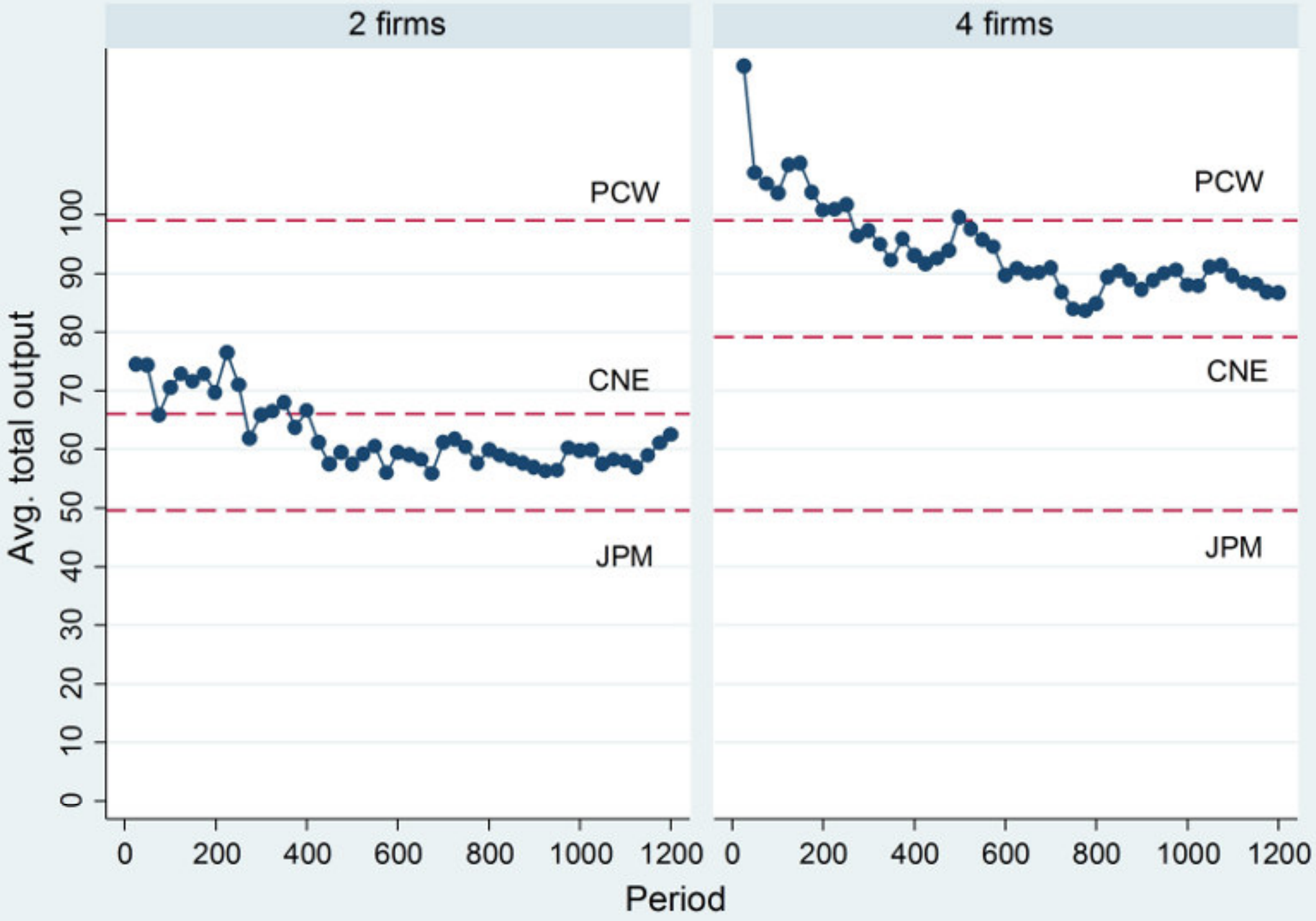
Figure 9: Mean total output for the 6 individual markets in treatment 2-firms

Figure 10: Standard deviations of firms' quantities within markets for the 2-firm treatment.
In each period, standard deviations of quantities in a market are calculated and then averaged across all 6 markets.

Figure 11: Standard deviations of firms' quantities within markets for the 4-firm treatment.
In each period, standard deviations of quantities in a market are calculated and then averaged across all 6 markets.


remaining periods
1199
previous quantity
11
previous profit
980
time
own firm
other firms
Profit
2600
2400
2200
2000
1800
1600
1400
1200
1000
800
600
400
200
0
0
10
20
30
40
50
60
70
80
90
100
Output


2 firms
4 firms
Avg. total output
0
20
40
60
80
100
120
140
160
180
200
PCW
CNE
JPM
0
5
10
15
20
25
Period


2 firms
4 firms
PCW
CNE
JPM
PCW
CNE
JPM
Avg. total output
0
10
20
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40
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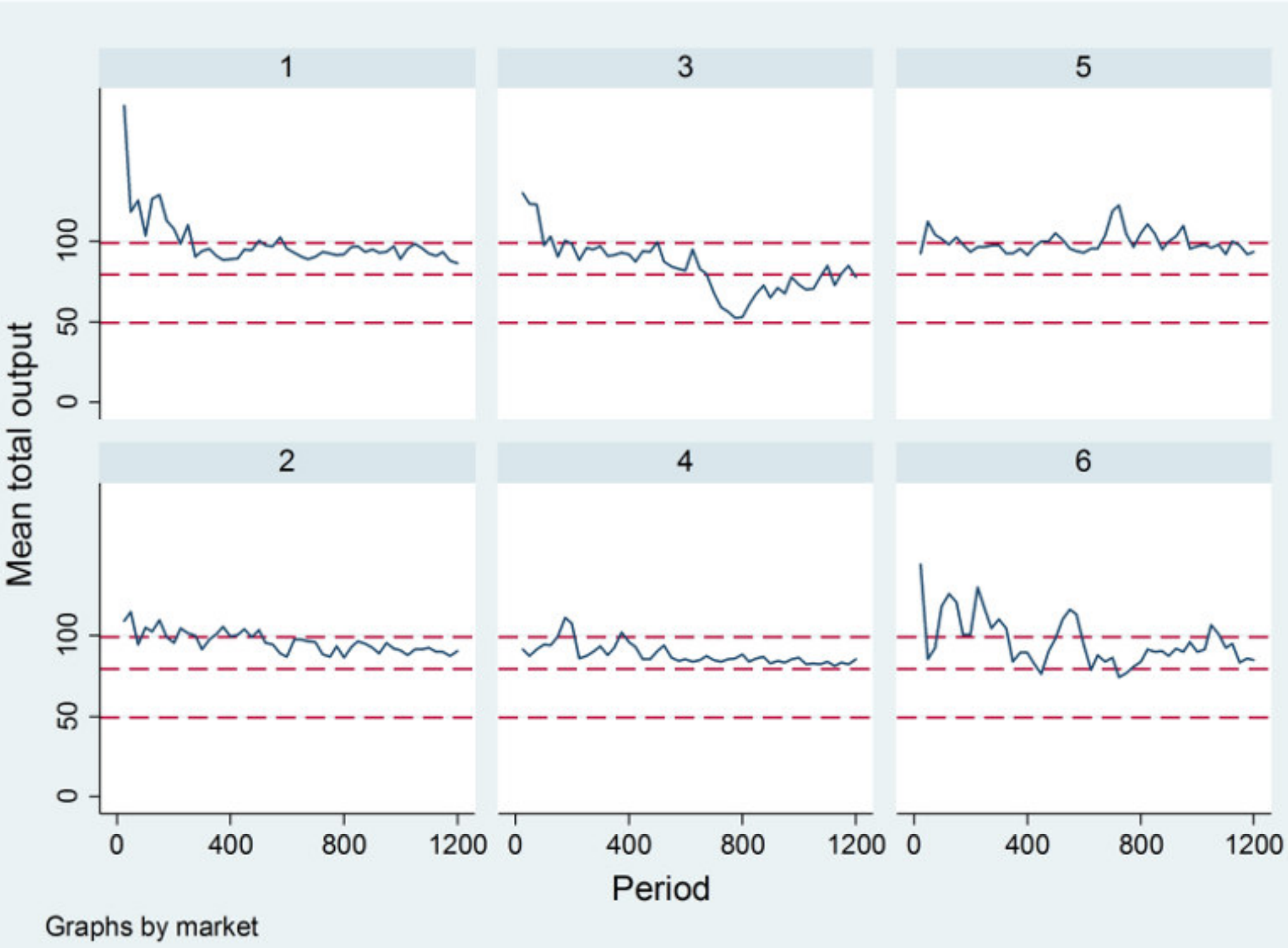
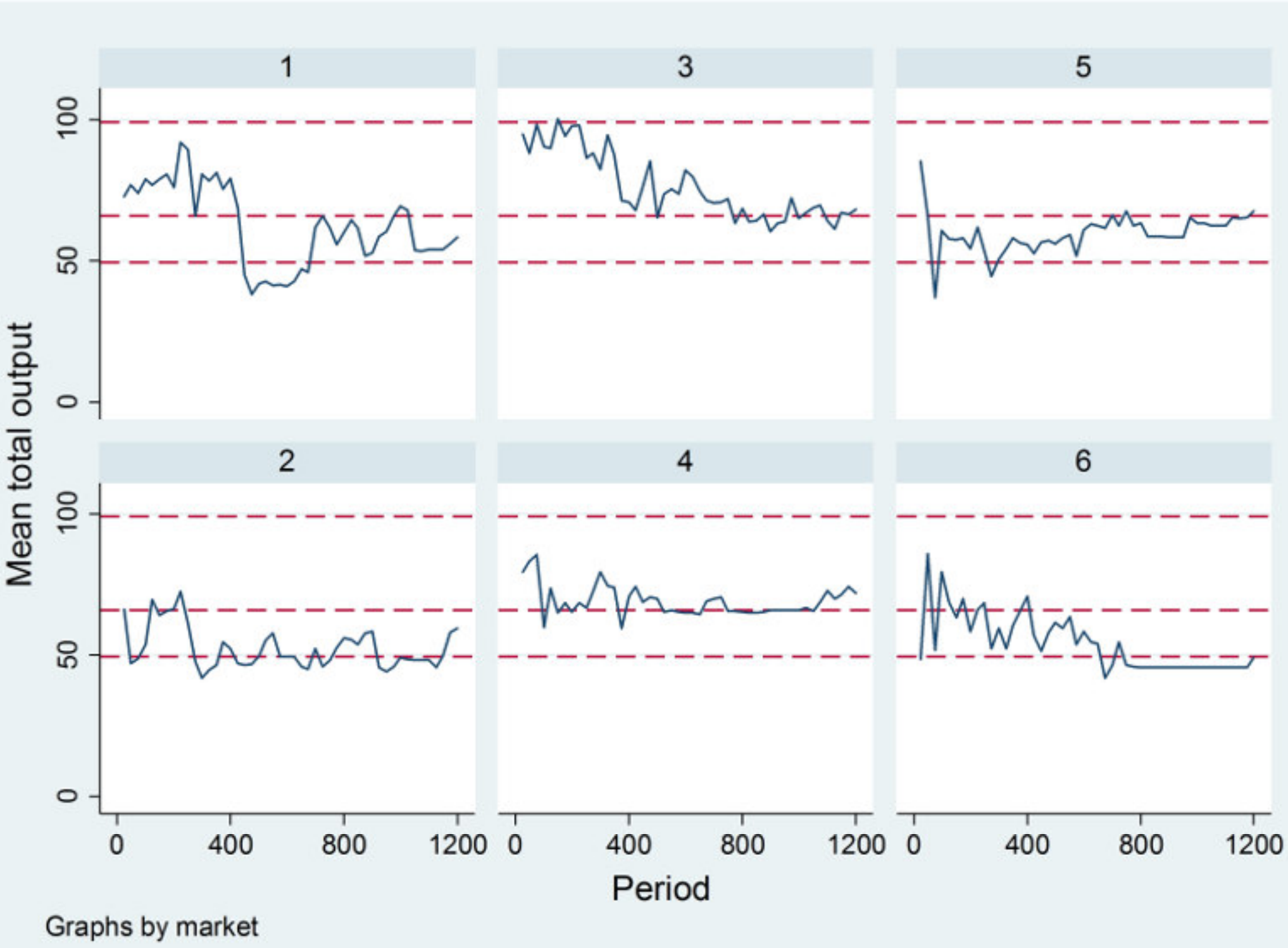
60
70
80
90
100
0
200
400
600
800
1000
1200
Period


1
3
5
2
4
6
Mean total output
0
50
100
0
400
800
1200
Period
Graphs by market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Mean total output
0
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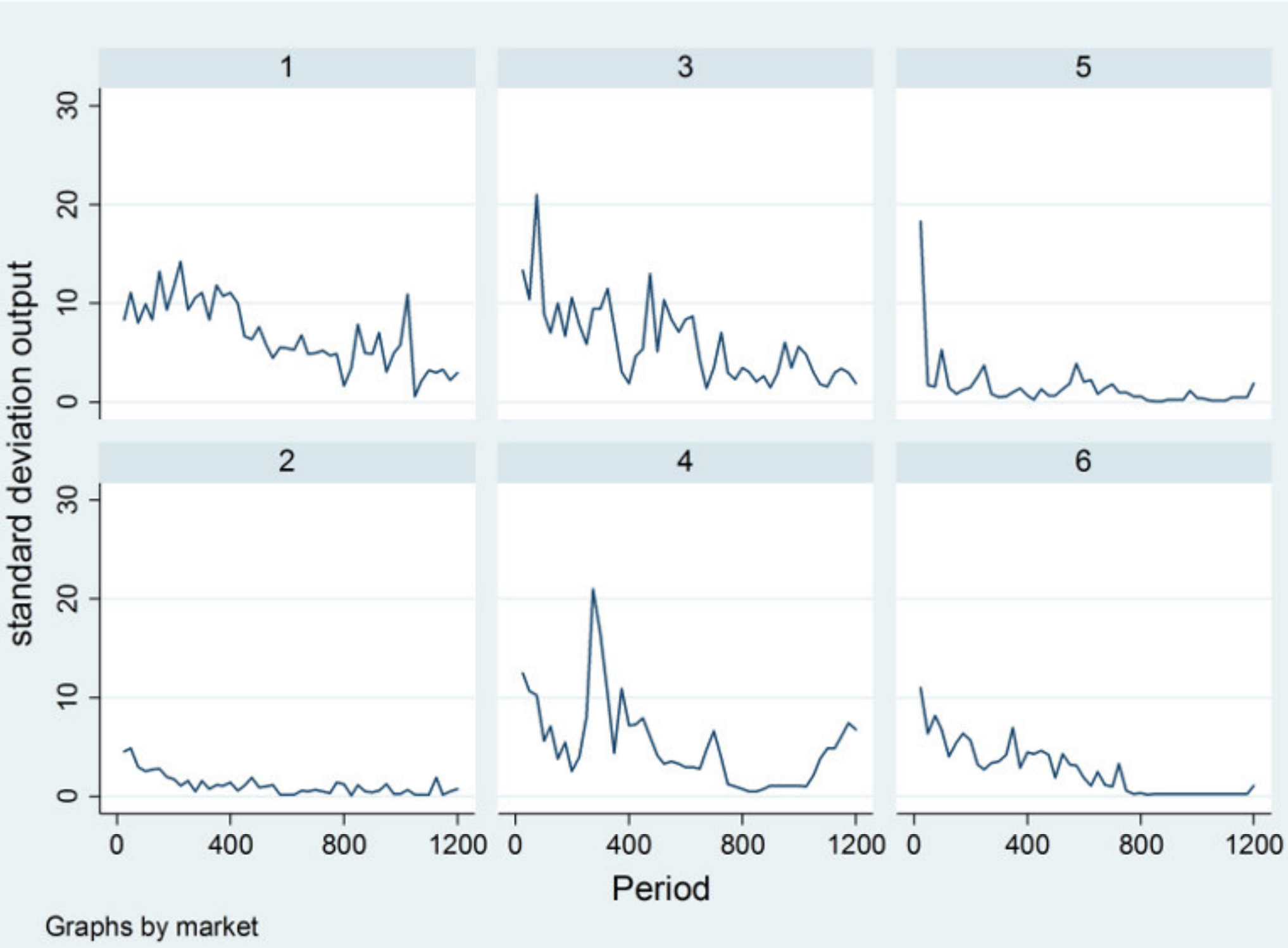
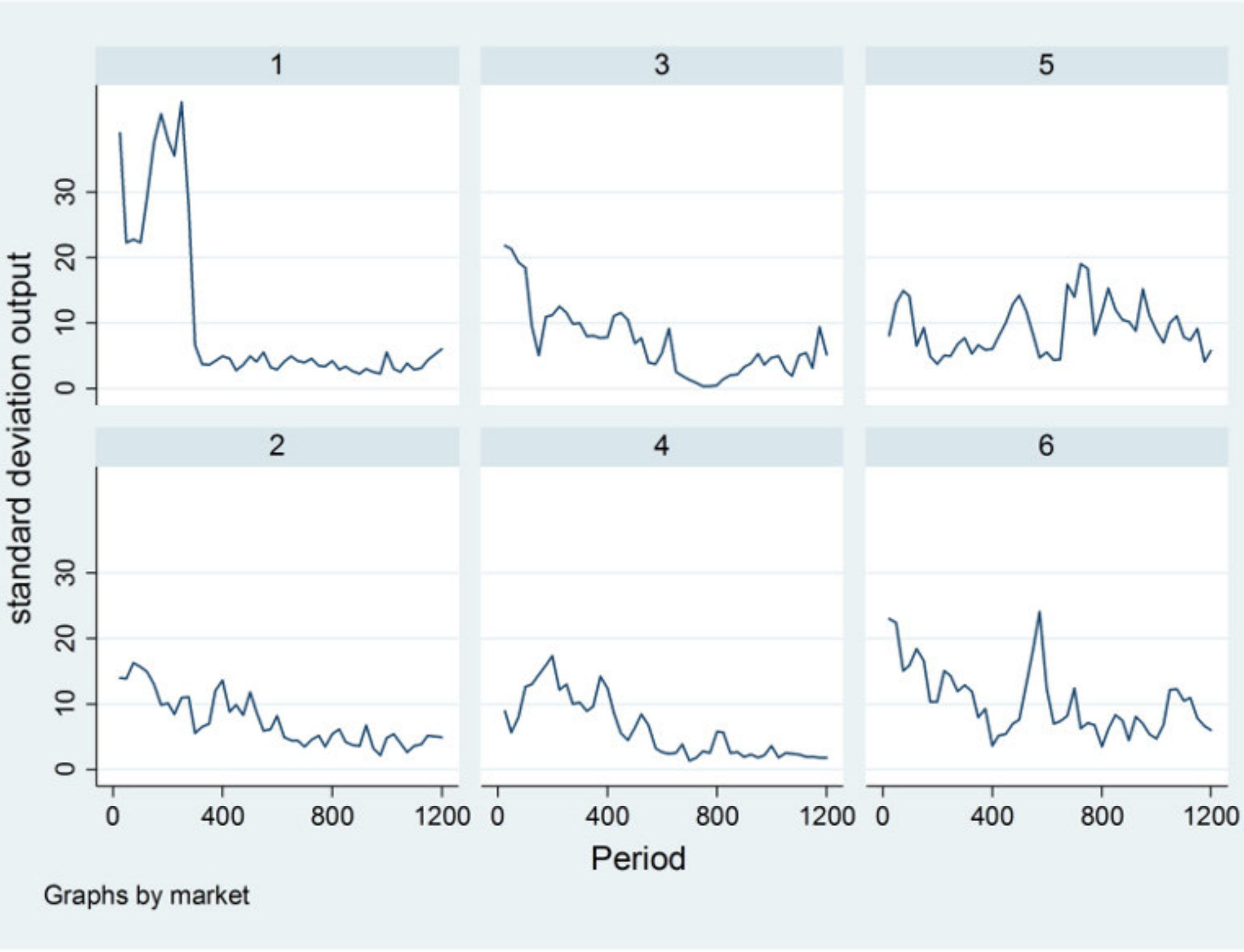
400
800
1200
Period
Graphs by market


1
3
5
2
4
6
standard deviation output
0
10
20
30
0
400
800
1200
Period
Graphs by market


1
3
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2
4
6
standard deviation output
0
10
20
30
0
400
800
1200
Period
Graphs by market