

# Problem Set 1

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## Productivity Estimation

### Question 1

Table 1: Summary Statistics for the Full Sample

	Mean	SD	Min	Perc. 25	Median	Perc. 75	Max	N
Log of Output	13.49	1.7	5.91	12.42	13.59	14.66	19.16	39,569
Log of Labor	5.00	1.0	0.62	4.33	5.01	5.68	8.86	39,569
Log of Investment	5.03	1.0	1.13	4.37	5.03	5.71	9.34	39,569
Log of Capital	8.99	1.9	2.09	7.99	9.29	10.29	14.57	39,569
Age of the firm	8.54	3.2	1.00	6.00	9.00	11.00	17.00	39,569

Table 2: Summary Statistics for the Balanced Sample

	Mean	SD	Min	Perc. 25	Median	Perc. 75	Max	N
Log of Output	13.41	1.7	5.91	12.36	13.52	14.57	18.87	21,800
Log of Labor	4.99	1.0	1.10	4.32	5.00	5.67	8.86	21,800
Log of Investment	5.04	1.0	1.13	4.37	5.04	5.73	9.34	21,800
Log of Capital	9.16	1.8	2.24	8.26	9.43	10.39	14.34	21,800
Age of the firm	7.32	3.2	1.00	5.00	7.00	10.00	16.00	21,800

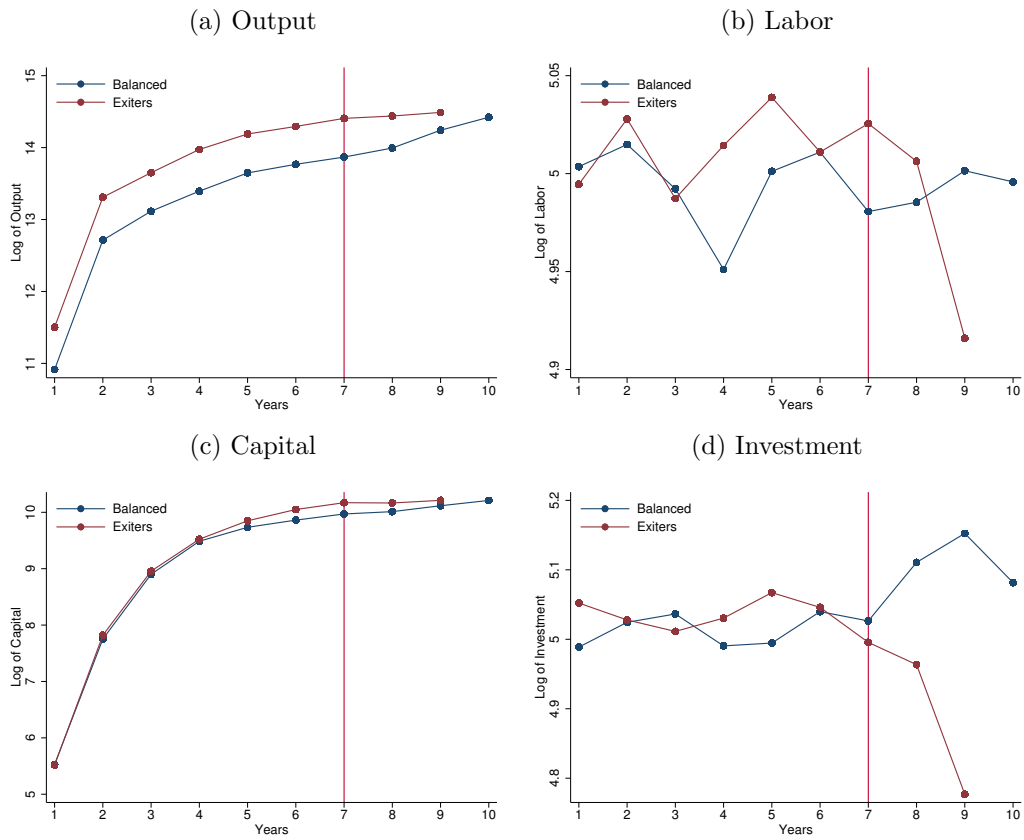
Table 3: Summary Statistics for the Exiters Sample

	Mean	SD	Min	Perc. 25	Median	Perc. 75	Max	N
Log of Output	13.59	1.7	6.71	12.51	13.69	14.77	19.16	17,769
Log of Labor	5.01	1.0	0.62	4.34	5.01	5.69	8.60	17,769
Log of Investment	5.02	1.0	1.34	4.37	5.02	5.70	8.87	17,769
Log of Capital	8.78	1.9	2.09	7.66	9.11	10.15	14.57	17,769
Age of the firm	10.03	2.5	1.00	8.00	10.00	12.00	17.00	17,769

Firms that exit the market are, on average, 2.7 years older than the firms that stay in the market. As can be seen in [Table 3](#), the differences in distribution suggests that firms that leave the market have less capital and investment, similar labor, and higher output.

The fact that exiting firms have higher output is puzzling. However, as can be seen in [Figure 1](#), after

Figure 1: Time series by samples



Time series of average by year for both exiters and firms that stay. Half of the exiters leave the market after year 7.

year three, exiter firms seem to have tried to compensate for a bad productivity draw by increasing labor and investment. However, this overspending drove them to leave the market.

## Question 2

Table 4: Total, Between, Within and Random Effects Estimators

	(1) Pooled	(2) Between	(3) Within	(4) Random Effects
Age of the firm	0.133*** (0.005)	0.128*** (0.006)	0.188*** (0.006)	0.133*** (0.006)
Log of Capital	0.431*** (0.007)	0.555*** (0.016)	0.388*** (0.008)	0.421*** (0.007)
Log of Labor	0.594*** (0.008)	0.613*** (0.030)	0.592*** (0.008)	0.594*** (0.008)
Observations	21800	21800	21800	21800