For Online Publication

Appendix 1: Timeline

April 2008 Round 1 - Screening Survey and Baseline I

October 2008: Round 2- Booster Sample and Baseline II

April 2009: Round 3

August 2009: Wage Subsidies Begin

October 2009: Round 4 (During Intervention)

April 2010: Round 5 (During Intervention)

May 2010: Wage Subsidies End

October 2010: Round 6

April 2011: Round 7

October 2011: Round 8

April 2012: Round 9

October 2012: Round 10

April 2013: Round 11

April 2014: Round 12

Supplementary Treatments:

Savings Treatment began November 2008, ended August 2009

Business Training Treatment: June-July 2009

Appendix 2: Further Details on Sampling

About half of our sample for this project comes from a larger panel survey which is representative of all urban areas in Sri Lanka outside the northern province. From this panel survey, we selected 717 male self employed workers with 2 or fewer paid employees in urban areas in Sri Lanka: Colombo, Kandy and the Galle-Matara area. This part of the sample was constructed through a listing exercise conducted in early 2008. We selected a total of 18 Division Secretariat (D.S.) Divisions in the three urban areas. Within each D.S. Division we then selected 10 (in Colombo and Kandy) or 5 (in Galle/ Matara) Grama Niladhara (GN) divisions and listed

50 households starting from a random point.[16] Because we needed a larger sample for the interventions, in October 2008 we selected a set of GNs neighboring those in the original panel survey. We used a similar screening survey to identify male self-employed workers with fewer than 2 paid employees, boosting the sample by 816 individuals. Because of the way they are constructed, both subsamples are representative of the areas from which they are taken. However, there are some differences in the manner of constructing them, so we add a control for the enterprises in the booster sample in each of the regressions.[17]

Appendix 3: Details of Supplementary Interventions

Savings Intervention: In November 2008 we notified those assigned to the savings treatment that they had been selected to participate in a program designed to encourage them to build savings balances. The participants were not told about the other two interventions in November even if they had been assigned to one of the other two treatments. As a part of the savings incentive program, we offered to make the initial deposit in a savings account at the National Savings Bank (NSB) and then to match deposits made into that account up to a certain limit each month and at a pre-announced match rate. The account would remain 'locked' until 1 August 2009. The initial match rate was set at 50 percent for deposits of up to 1000 Sri Lankan Rupees (LKR)[18] made by the end of December. The match rate was kept at 50 percent through July, but the maximum amount we would match was increased to 2000 LKR in January and to 4000 LKR in May, 2009. In July, we raised the match rate to 100% and the maximum to 5000 LKR. Finally, just before the accounts were unlocked, we added 5000 LKR to every account, regardless of previous deposit patterns. The participants received regular passbooks for the accounts, and deposits could be made at any NSB branch. But the accounts were all opened through a single branch in Gampola so that the branch manager there was able to ensure that money was withdrawn before 1 August only if the participant faced an emergency situation. After the accounts were unlocked on 1 August, the participants were free to move the accounts to any

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[16] The G.N. Division is the smallest of the four administrative levels in Sri Lanka: Provinces (9), Districts (25), Divisional Secretariat (DS) Divisions (324), and Grama Niladhari (GN) Divisions (14,008).

[17] We find no differences in the operating characteristics of the enterprises (sales, profits, etc.) but the owners in the original sample have about a half year less schooling and have been in business for about three-quarters of a year longer.

[18] 1000 LKR was approximately US$8.75 in mid-2009, $8.85 in mid-2010, $9.14 in mid-2011, and $7.49 in mid-2012.

NSB branch, or to withdraw the money. At that point, we lost access the administrative data, and hence are unable to track when money was withdrawn.

Training Intervention: This treatment was a training program based on the International Labor Organization's *Improve Your Business* (IYB) program. IYB is a five day program intended to generate growth in microenterprises. The modules covered are marketing, buying, costing, stock control, record keeping, and financial planning. We asked that the training also include additional material on hiring and managing employees, as employment generation is a key outcome of interest in the project. The training was provided by the Sri Lankan Business Development Centre (SLBDC),[19] a Sri Lankan non-profit training institution established in 1984. SLBDC is the most experienced provider of ILO entrepreneurship programs in Sri Lanka, having offered the first training on the island in 2001. All of the SLBDC training staff involved in the project were university qualified and trained under the national-level SIYB training programs conducted by the ILO. Each had a minimum of five years experience delivering SIYB training. Therefore, any failure to find impacts should not be due to low quality trainers or inexperience with the materials. Those selected for training were offered a stipend of 1000 LKR and an additional bonus of 1500 LKR paid at the end if they attended all five days. The stipend was meant to cover transport and the opportunity cost of not working in the business on the training days.

Appendix Table 3 shows that assignment to these supplementary interventions is balanced compared to the control group and wage subsidy only groups in terms of baseline observable characteristics.

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[19] http://www.slbdc-lk.org/

Appendix Table 3: Balance for Supplementary Treatments

	Control Group	Wage Subsidy	Wage Subsidy & Savings	Wage Subsidy & Training	Training Only	Savings Only	F-test p-value
Re-randomized Variables							
Number of Paid Workers	0.19	0.16	0.20	0.15	0.23	0.25	0.507
Education (Years)	10.35	10.25	10.32	10.54	10.52	10.43	0.659
Raven Test Score	3.34	3.34	3.32	3.12	3.28	3.35	0.687
Digitspan Recall Score	6.42	6.36	6.35	6.39	6.27	6.21	0.681
Total Assets	239893	250563	232635	203654	236665	258261	0.430
Total Assets<1500LKR	0.06	0.02	0.03	0.03	0.01	0.05	0.135
Total Assets>935000LKR	0.05	0.06	0.04	0.03	0.04	0.05	0.743
Monthly Profits	13862	14552	14010	12947	13282	13861	0.491
Profit Data Missing	0.03	0.02	0.03	0.03	0.02	0.02	0.624
Monthly Profits<2000LKR	0.06	0.03	0.03	0.04	0.03	0.04	0.896
Monthly Profits>30000LKR	0.04	0.06	0.06	0.04	0.06	0.01	0.002
Business Practices Score	8.27	8.76	8.24	8.59	9.24	8.35	0.440
From booster sample	0.52	0.53	0.54	0.56	0.54	0.46	0.435
Stratification Variables							
Retail Sector	0.39	0.38	0.38	0.38	0.38	0.38	1.000
Colombo	0.47	0.44	0.47	0.46	0.49	0.47	0.898
Kandy	0.47	0.48	0.47	0.47	0.48	0.47	1.000
Additional Variables							
Any paid worker at baseline	0.12	0.10	0.13	0.09	0.15	0.12	0.385
Monthly Sales	41175	52435	49142	41785	46768	34496	0.013
Owner's Age	35.43	35.16	36.19	34.91	34.28	34.38	0.049
Business is Registered for Taxes	0.31	0.32	0.32	0.31	0.31	0.40	0.478
Weekly hours worked	57.94	59.31	60.77	60.41	57.20	59.78	0.496
Sample Size	286	250	297	298	141	112	

Appendix Table 3: Balance for Supplementary Treatments

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Sample Size	286	250	297	298	141	112	

Appendix 4: Measurement of Key Variables

Our key outcomes are measured as follows:

Survival: we examine survival in terms of whether the individual is self-employed at the time of the survey. This includes those who have shut down their business and started a new one. It is directly measured by asking whether they are engaged in self-employment on the survey, and through direct observation and asking family and neighbors for those firms which attrit. Where the original respondent cannot be located, beginning in round 7 (April 2011) we ask family members or neighbors whether the individual still operates the business they previously operated. When the alternative respondent says no, we ask what them what the initial respondent is presently doing. In our baseline specifications, we use responses from the first but not the second to define the survival variable. We do this because we believe the information on whether the original business is still operating is likely to be more reliable. An alternative approach would be to use both responses to define whether the individual still operates any business. The results from this approach are qualitatively similar, though the treatment effect in the second year after treatment is slightly larger in magnitude. Regressions using this alternative definition are available from the authors on request.

Number of Paid Workers: this is the number of permanent workers plus the number of casual and daily workers reported on the survey. It is truncated at 5 workers (the 99th percentile) to reduce the influence of outliers, and coded as 0 for firms that do not survive.

Any paid worker: defined as having at least one paid worker.

Added a worker between survey rounds: defined as the number of paid workers in round t exceeding that in round $t-1$. It therefore measures net, rather than gross, worker flows.

Subtracted a worker between survey rounds: defined as the number of paid workers in round t being less than in round $t-1$.

Own hours reported in the business: the number of hours worked in the business in the last week, truncated at the 99th percentile, and coded as 0 for individuals not self-employed.

Number of unpaid workers in the business: Number of unpaid workers reported by the firm owner.

Firm profits: these are monthly, and were asked directly of the owner as "the total income of the business during each of the last month after paying all expenses including wages of employees, but not including any income you paid yourself". This follows the wording and recommendation of De Mel et al. (2009).[20] We consider several transforms of profits to deal with outliers and firm closure. This includes unconditional profits (which put zeroes in for closed firms) truncated at the 99th percentile, the inverse hyperbolic sine of profits, truncated profits conditional on the business operating, and log profits conditional on operation. Nominal values were deflated to real values using the Consumer Price Index for Colombo, gathered by the Sri Lankan Department of Census and Statistics.

Firm sales: these are firm sales in the past month, deflated into real terms using the CPI. As with profits, we consider several transforms of the raw data to account for outliers and firm closure, with the variables defined analogously to profits.

Business Practices score:

The *total score* – the composite business practice score -- ranges from a minimum of -1 to a maximum of 29. The total is the sum of the following component scores: the *marketing score*, the *stock score*, the *records score*, and the *financial planning score*.

The *marketing score* ranges from 0 to 7, and it is calculated by adding one point for each of the following that the business has done in the last 3 months:

- Visited at least one of its competitor's businesses to see what prices its competitors are charging
- Visited at least one of its competitor's businesses to see what products its competitors have available for sale
- Asked existing customers whether there are any other products the customers would like the business to sell or produce
- Talked with at least one former customer to find out why former customers have stopped buying from this business
- Asked a supplier about which products are selling well in this business' industry
- Attracted customers with a special offer
- Advertised in any form (last 6 months)

The *stock score* ranges from -1 to 2, and it is calculated by subtracting one point

- If the business runs out of stock once a month or more

And adding one point for each of the following that the business has done in the last 3 months

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[20] De Mel, Suresh, David McKenzie and Christopher Woodruff (2009) "Measuring Microenterprise Profits: Must We Ask How the Sausage Is Made?",*Journal of Development Economics*, 88(1): 19-31.

- Attempted to negotiate with a supplier for a lower price on raw material
- Compared the prices or quality offered by alternate suppliers or sources of raw materials to the business' current suppliers or sources of raw material

The *records score* ranges from 0 to 8, and it is calculated by adding one point for each of the following that the business does

- Keeps written business records
- Records every purchase and sale made by the business
- Able to use records to see how much cash the business has on hand at any point in time
- Uses records regularly to know whether sales of a particular product are increasing or decreasing from one month to another
- Works out the cost to the business of each main product it sells
- Knows which goods you make the most profit per item selling
- Has a written budget, which states how much is owed each month for rent, electricity, equipment maintenance, transport, advertising, and other indirect costs to business
- Has records documenting that there exists enough money each month after paying business expenses to repay a loan in the hypothetical situation that this business wants a bank loan

The *financial planning score* ranges from 0-12, and it is calculated by adding up to three points for each of the following two questions

- How frequently do you review the financial performance of your business and analyze where there are areas for improvement
- How frequently do you compare performance to your target
    - o Zero points for "Never"
    - o One point for "Once a year or less"
    - o Two points for "Two or three times a year"
    - o Three points for "Monthly or more often"

And adding one point for each of the following that the business has

- A target set for sales over the next year
- A budget of the likely costs your business will have to face over the next year
- An annual profit and loss statement
- An annual statement of cash flow
- An annual balance sheet
- An annual income/expenditure sheet

Wage worker and SME surveys

We also make use of data from surveys of wage workers and larger firms. The wage worker survey was conducted in all urban areas in Sri Lanka at annual intervals from 2008-2011. The

initial sample was drawn from a listing of households in randomly selected Grama Niladhari divisions. The SME survey of larger firm owners selected surveyed firms with between 5 and 250 workers (including the owner). This sample was drawn from a listing of visible enterprises conducted for other purposes by the Sri Lanka office of AC Nielsen. We surveyed owners first in April 2008, and resurveyed in April 2009 and April 2010. The questions from the wage worker and SME surveys that we used in the analysis for this paper are described in the text.

Appendix 5: Round by Round Survey Attrition Rate

Appendix Figure 5 shows the attrition rate by round, in terms of whether we have information on whether the business is still open/the owner is self-employed, and in terms of whether we can measure whether the enterprise has paid workers. Starting in round 7 we added a module which collected information from relatives, friends, and neighboring businesses if the business was not able to be interviewed, resulting in a reduction in attrition at that time. The attrition rate averages 5.6 percent for data on whether the business is operating, and 9 percent for data on whether the business has paid workers. Attrition rates are balanced for treatment and control in most waves, and in the last round we have data on employment for all but 8 percent of firms.

Attrition rate on self-employment data
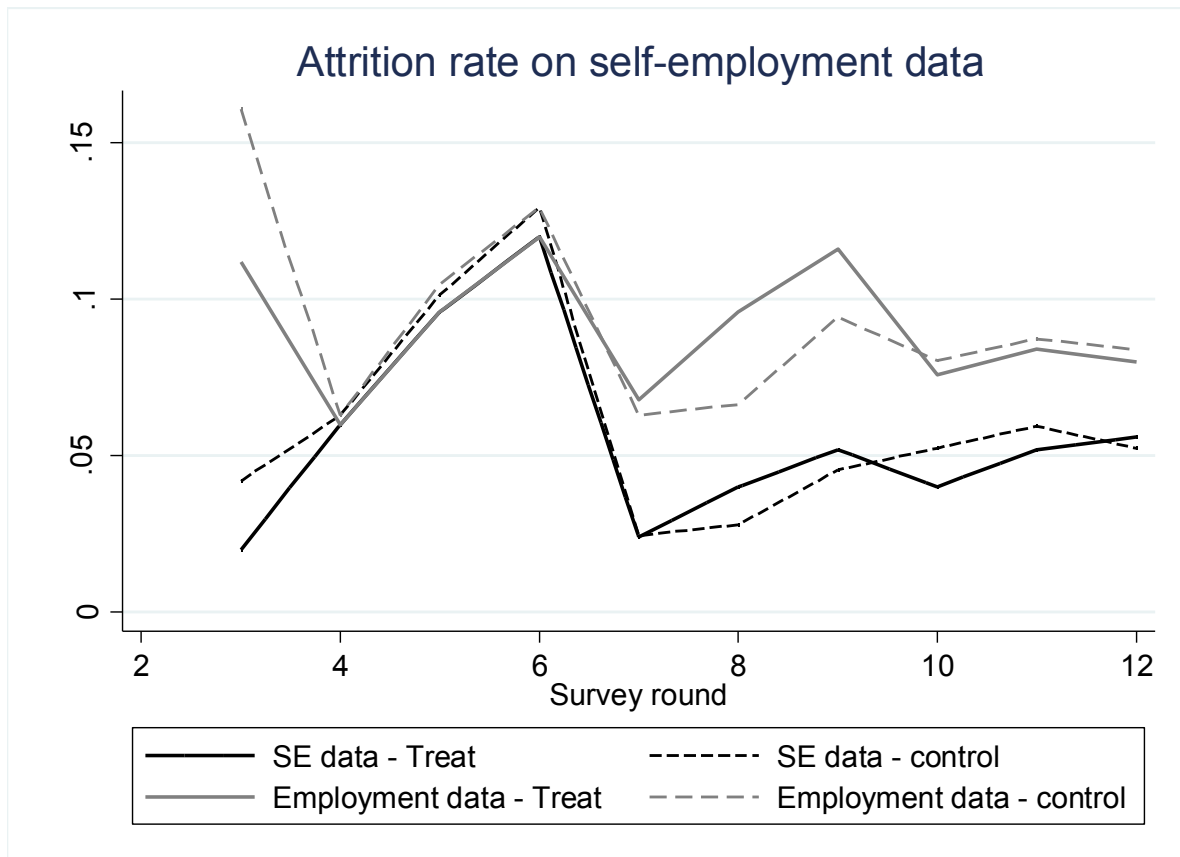
Appendix 6: Does treatment change which firms have workers?

Appendix Table 6.1 compares the baseline characteristics of the subsample of treatment and control firms which have a paid employee in round 4 (during the intervention), and in round 12 (the last survey round). This comparison allows us to see the extent to which the wage subsidy changes which firms have paid workers. We see little selectivity in terms of owner's education, raven, and digit span scores. During the intervention, the firms hiring workers who would not have done so if they were in the control group appear to be smaller (lower profits, lower total assets) and outside of Colombo. However, by the time of the last survey, the profit difference has disappeared, and only the geographic difference remains.

Appendix Table 6.1: Does Treatment Change Which Firms Have Workers?

	Have a Worker in Round 4			Have a Worker in Round 12		
	Control	Treatment	p-value	Control	Treatment	p-value
Number of Paid Workers	0.43	0.27	0.157	0.47	0.30	0.213
Education (Years)	10.17	10.33	0.682	10.60	10.63	0.943
Raven Test Score	3.19	3.23	0.891	3.08	3.08	0.985
Digitspan Recall Score	6.51	6.55	0.858	6.56	6.50	0.816
Total Assets	332819	280911	0.483	320187	349938	0.752
Total Assets<1500LKR	0.01	0.02	0.750	0.03	0.02	0.633
Total Assets>935000LKR	0.09	0.06	0.584	0.10	0.13	0.609
Monthly Profits	20500	15473	0.029	17927	17759	0.953
Profit Data Missing	0.01	0.02	0.750	0.03	0.02	0.633
Monthly Profits<2000LKR	0.03	0.01	0.394	0.07	0.02	0.129
Monthly Profits>30000LKR	0.09	0.07	0.778	0.06	0.08	0.600
Business Practices Score	8.79	10.19	0.146	9.64	10.30	0.541
From booster sample	0.53	0.58	0.523	0.49	0.53	0.602
Retail Sector	0.31	0.34	0.762	0.36	0.28	0.324
Colombo	0.50	0.33	0.024	0.47	0.30	0.037
Kandy	0.46	0.56	0.203	0.44	0.61	0.055
Any paid worker at baseline	0.29	0.18	0.105	0.29	0.17	0.102
Monthly Sales	57161	67089	0.414	49053	61765	0.276
Owner's Age	36.93	35.01	0.046	36.65	35.00	0.122
Business is Registered for Tax	0.37	0.26	0.139	0.35	0.27	0.307
Weekly hours worked	59.20	60.07	0.741	56.83	57.13	0.916

Notes: characteristics are baseline characteristics. P-value compares whether characteristics of firms
having a paid worker in round 4 (during the intervention), and in round 12 (last survey) are similar
for the treatment and control groups using a t-test of equality of means.

Appendix Figure 6 explores further how the baseline profitability of those hiring workers during the intervention period compares in the treatment and control groups, and to those who already had workers and those who never hired a worker amongst the treatment group. We see the treatment brings into hiring workers firms with lower profits than those hiring workers in the control group, and than those who already had workers in the treatment group. Those hiring workers in the treatment group have a similar baseline profits distribution to those who never hire a worker during the intervention period.

Appendix Figure 6: Treated Firms Hiring Workers During Intervention Were Lower Profit Firms

Firms with Workers in Round 4 — Among treated, who hires workers?

Appendix Table 6.2 then looks within the treatment group to see how the baseline characteristics of those who hire a worker during the intervention period and then reduce employment again compare to those who hire a worker and maintain this new employment level for at least a year after. The same is done for the control group, although only 8 control firms hire a worker and then don't reduce employment again afterwards. We see few significant differences, suggesting that those who keep the worker look quite similar on observable baseline characteristics to those which do not. The one difference is again in terms of geography: although firms in Colombo were less likely to respond to the wage subsidy, those that did hire workers were more likely to keep them on afterwards than those in the other cities.

Appendix Table 6.2: Do the characteristics of firms which hire and keep workers differ from those which hire and let go?

	Wage Subsidy Treatment Group			Control Group		
	Hire and Let Go	Hire and Keep	p-value	Hire and Let Go	Hire and Keep	p-value
Number of Paid Workers	0.23	0.43	0.309	0.36	0.38	0.944
Education (Years)	10.38	9.87	0.434	10.00	10.38	0.683
Raven Test Score	3.11	2.91	0.694	2.91	3.88	0.202
Digitspan Recall Score	6.50	6.17	0.339	6.16	6.88	0.164
Total Assets	287603	244850	0.651	240620	571325	0.132
Total Assets<1500LKR	0.02	0.09	0.110	0.00	0.00	.
Total Assets>935000LKR	0.06	0.04	0.740	0.07	0.13	0.574
Monthly Profits	15167	15036	0.969	17197	19921	0.618
Profit Data Missing	0.02	0.04	0.450	0.00	0.00	.
Monthly Profits<2000LKR	0.02	0.00	0.552	0.04	0.00	0.552
Monthly Profits>30000LKR	0.06	0.04	0.740	0.04	0.00	0.552
Business Practices Score	9.81	8.17	0.315	8.22	10.88	0.227
From booster sample	0.59	0.65	0.627	0.53	0.50	0.865
Retail Sector	0.36	0.17	0.101	0.27	0.63	0.046
Colombo	0.31	0.57	0.032	0.49	0.63	0.487
Kandy	0.58	0.30	0.024	0.44	0.38	0.721
Any paid worker at baseline	0.16	0.13	0.769	0.22	0.25	0.866
Monthly Sales	56787	57263	0.981	49618	61307	0.552
Owner's Age	35.41	34.30	0.509	35.60	38.38	0.250
Business is Registered for Taxes	0.31	0.22	0.393	0.29	0.25	0.826
Weekly hours worked	59.94	58.74	0.770	57.51	62.50	0.482
Sample Size	64	23		45	8	

Notes: Hire and Let go indicates the firm hired a worker during the intervention period (rounds 4 and 5), but then lowered the number of employees compared to the previous round in one of round 4, 5, or 6. Hire and Keep indicates they hired a worker and did not then reduce their number of employees in the first year after the intervention.

Appendix 7: Heterogeneity in Survival Impact

We estimate equation (5), adding treatment interactions, the baseline value of the interacting variable, and the interactions between this interacting variable and survey round. We do this for the outcome of business survival, and report the results in Appendix Table 7. The first column shows no heterogeneity in the treatment effect on survival with respect to baseline business practices. The second column shows that firms with initially low capital have a higher treatment effect for survival. The interactions of treatment with above median baseline capital are significant at the 10 percent levels in years 2, and years 3 and 4. The magnitude of the coefficients is almost enough to entirely offset the treatment effect, suggesting the treatment effect only occurs for low capital firms. Appendix Figure 7 shows this graphically: the control group sample with low baseline assets dies at a faster rate over time than the control group sample with high baseline assets, whereas the death rates for the low asset treated are similar to

those of the high asset treated and the high asset control. Nevertheless, a joint test that all interactions are zero cannot reject the null hypothesis. Column 3 likewise shows higher point estimates for the treatment effect on survival for firms with initially low profitability, with negative, but not statistically significant, interaction effects with having above median profit.

Appendix Table 7: Heterogeneity in Survival

Before Subsidy	-0.011	0.017	-0.023
	(0.046)	(0.038)	(0.034)
During Subsidy	0.006	-0.012	-0.012
	(0.031)	(0.030)	(0.028)
Year 1 After	0.052	0.075**	0.069**
	(0.038)	(0.032)	(0.030)
Year 2 After	0.083*	0.114***	0.097**
	(0.046)	(0.038)	(0.038)
Years 3-4 After	0.065	0.104***	0.059
	(0.049)	(0.040)	(0.040)
Interaction with	*business practices*	*above median capital*	*above median profit*
Before Subsidy*Interaction	0.001	-0.051	0.033
	(0.004)	(0.046)	(0.048)
During Subsidy*Interaction	-0.002	0.005	0.006
	(0.003)	(0.035)	(0.037)
Year 1 After*Interaction	0.000	-0.042	-0.026
	(0.004)	(0.041)	(0.043)
Year 2 After*Interaction	-0.001	-0.085*	-0.045
	(0.004)	(0.049)	(0.051)
Years 3-4 After*Interaction	-0.001	-0.097*	-0.000
	(0.005)	(0.052)	(0.054)
Sample Size	5005	5005	5005
P-value	0.962	0.368	0.785

Notes: robust standard errors in parentheses, clustered at the firm level.
All regressions control for randomization strata, variables used for re-randomization, survey round, baseline value of interacting variable and interaction between this interacting variable and survey round.
*, **, *** indicate significance at the 10,5, and 1 percent levels respectively.

Appendix Figure 7: Heterogeneous Survival Effects by Baseline Capital
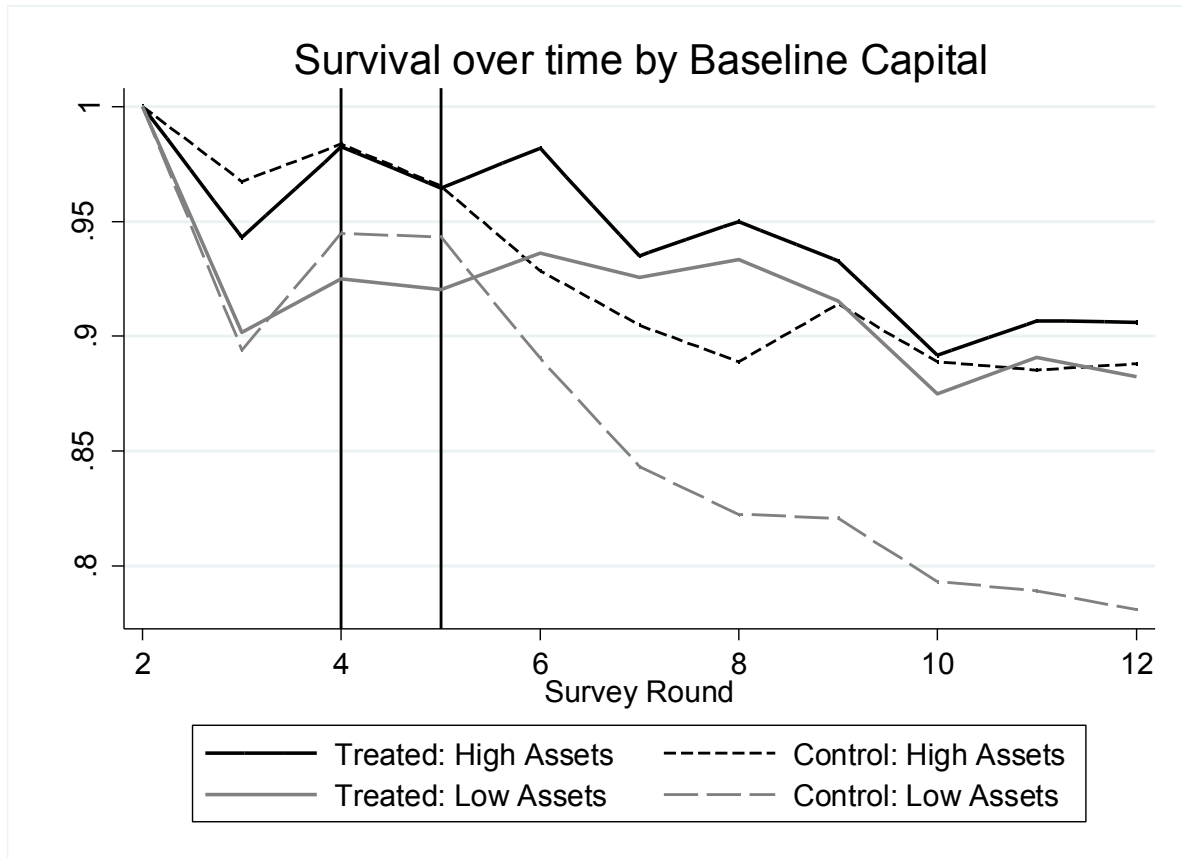
Note: High Asset and Low Asset are defined as having above and below the baseline median capital stock level respectively.