

Supplemental Appendix to Persistent Impacts of Improved Apprenticeship Training Quality

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I. Incentive Structure

Table A.1: Pay for Performance Scheme

Group (Decile)	Payment to MCP (Ghana Cedis)
1	200
2	140
3	130
4	120
5	105
6	90
7	80
8	70
9	35
10	25

Notes: The above lists the payouts by apprentice performance decile for each apprentice in the treatment group. In addition, firm owners in the treatment group whose apprentice performed best in the region and craft earned their trainer 250 GhC. Firm owners in the control group received 100 GhC for every apprentice who took the test regardless of performance. Payouts for both control and treatment firms averaged 100 GhC per apprentice, both in expectation and ex-post.

II. Balance Tables

Table A.2: Balance: Apprentice Characteristics (Men and Women)

	Observations (1)	Mean Control (2)	Mean Treatment (3)	Treatment Coefficient (4)	p-value (5)
North	797	0.34	0.35	0.01	0.91
Female	797	0.92	0.96	0.04	0.08*
Age	774	22.87	22.96	0.09	0.81
Married (0/1)	781	0.36	0.34	-0.02	0.55
Number of children	781	0.74	0.79	0.05	0.58
Lives with parent (0/1)	778	0.49	0.45	-0.04	0.30
Household asst score (z-score)	766	-0.28	-0.11	0.16	0.08*
Years of schooling	760	7.50	7.38	-0.11	0.64
Ability index (z-score)	757	-0.22	-0.20	0.02	0.80
Soft skills index (z-score)	778	-0.13	-0.04	0.08	0.28
Food security (z-score)	776	-0.02	-0.06	-0.04	0.63
Self-reported health (z-score)	779	0.03	0.04	0.01	0.84
Mother years of schooling	647	3.28	3.53	0.25	0.54
Father years of schooling	567	5.55	5.66	0.11	0.84
Prior apprenticeship experience (0/1)	781	0.26	0.27	0.01	0.81
Wage-employed (0/1)	781	0.04	0.04	-0.00	0.93
Wage-employment earnings (GhC)	781	1.38	0.98	-0.40	0.57
Self-employed (0/1)	781	0.22	0.18	-0.03	0.26
Self-employment profits (GhC)	781	7.47	8.50	1.03	0.68
Total weekly hours worked	776	8.72	8.38	-0.33	0.83
Desires self-employment (0/1)	781	0.55	0.52	-0.03	0.47

Notes: *North* indicates that the apprentice lives in the the northern regions of the country as of 2015, which are socio-culturally distinct from the 7 southern regions of Ghanas of 2015. The randomization was stratified by district, trade, and a measure of the number of NAP apprentices training at the firm, so we expect garments, north, and program apprentices (including respondent) to be balanced by construction. Errors are clustered at the firm level. *Household Asset* is the first principal component of a set of housing quality (floor material, roof material, wall material, sanitation access, water source, lighting source, primary cooking implement, and number of people who sleep in the same room) and asset measures (mattress, tv, radio, refrigerator, car, motorbike, bicycle, working mobile phones, and shoes). *Ability Index* is the normalized sum of the normalized scores on each of four cognitive tests: Digit Span Recall, four math questions we developed ourselves, Ravens Matrices Group B, and a fifteen word oral English vocabulary recognition test. *Soft Skills Index* is the normalized sum of the normalized scores on each of two (adapted to context) non-cognitive tests: the Rosenberg Self-Esteem scale and the Rotter Locus of Control scale. *Food Security* is the first principal component of two food consumption measures: meals eaten per day and meals per day that included meat (excluding eggs). *Self-Reported Health* is the normalized response to *All in all, how would you describe your state of health these days?* on a four-point Likert scale. The top 0.5% of wage job earnings and self-employment profits have been winsorized; these variables are measured in October 2015 Ghana Cedis. *Desires Self-Employment* is an indicator variable for the respondent reporting that the reason they are interested in apprenticeship training is that it will lead to self-employment. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A.3: Balance: Firm Characteristics (Firms Training Men and Women)

	Observations	Mean Control	Mean Treatment	Treatment Coefficient	Coefficient p-value
	(1)	(2)	(3)	(4)	(5)
Garments	467	0.55	0.56		
North	467	0.31	0.32		
Program Apprentices	467	1.70	1.71	-0.10	(0.16)
Female	467	0.86	0.90	0.03	(0.34)
Age	457	35.47	35.05	-0.29	(0.69)
Years Schooling	462	8.52	8.48	-0.09	(0.78)
Completed Apprenticeship (0/1)	461	0.97	0.97	0.01	(0.62)
Ability Index (z-score)	421	0.00	0.02	0.01	(0.95)
Firm Age (Years)	463	11.22	10.72	-0.37	(0.59)
Revenues Last Month (GhC)	419	372	373.40	11.36	(0.78)
Profits Last Month (GhC)	419	187.70	199.10	21.48	(0.33)
Firm Size (Incl Owner)	421	4.43	4.52	-0.05	(0.86)
Wage Bill (GhC)	421	55.11	56.16	-3.84	(0.72)
Firm Assets (GhC)	421	2,870	3,029	249.05	(0.32)
Trade Association Member (0/1)	421	0.85	0.86	0.00	(0.94)
Past Completed Apprentices	420	12.39	10.29	-1.94	(0.28)
Customer Service Instruction (0/1)	406	0.98	0.97	0.00	(0.98)
Inventory Management Instruction (0/1)	406	0.59	0.65	0.05	(0.38)
Financial Management Instruction (0/1)	406	0.54	0.56	0.01	(0.90)
Business Confidence Instruction (0/1)	406	0.60	0.65	0.00	(0.97)
Provides More Instruction to Slow Apprentices (0/1)	402	0.30	0.30	-0.01	(0.84)
Months Until Apprentices Work with Clients	406	9.96	9.63	-0.14	(0.87)

Notes: *North* indicates that the firm is located in the the northern regions of the country as of 2015, which are socio-culturally distinct from the 7 southern regions of Ghanas of 2015. The randomization was stratified by district, trade, and a measure of the number of NAP apprentices training at the firm, so we expect garments, north, and number of program apprentices to be balanced by construction. This table includes all firms in our sample. Each treatment coefficient in column (4) comes from a separate regression that includes strata fixed effects. *Ability Index* is the normalized sum of the normalized scores on two cognitive tests: Digit Span Recall and four math questions we developed ourselves. All financial variables are in October 2015 GhC. An F test of the joint significance of all 19 covariates (from female to months until apprentices work with clients) in predicting treatment yields of p-value of 0.98. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

III. Winsorized Earnings

As a robustness check, we winsorize the earnings data to address concerns that the results could be driven by outliers. The results are robust.

Table A.4: Earnings (Winsorized)

	Total earnings (GhC) (1)
Panel A: Full sample	
Treatment	21.33* (11.59)
Observations	753
Mean of Dep Variable T=0	82.24

Notes: This table shows the results from estimating equation (1) from the main text for total earnings. Total earnings include earnings from wage employment, self-employment, farming, and apprenticeship. Earnings are winsorized at the 99th percentile and are in October 2015 Ghana Cedis. The specification includes strata fixed effects and controls for apprentice gender, an apprentice baseline household asset index, and a dummy for missing baseline household asset data. Standard errors, clustered at the firm level, are in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$