Appendix C: Data on Organic Tea Producer Companies

The statistical analysis in chapter 5 is based on data drawn from the Organic Tea Producer Survey (OTPS) that I conducted with support from researchers at the Tea Research Institute of the Chinese Academy of Agricultural Sciences from December 2017 to June 2018. The survey focuses on a subgroup of producers who are the most likely adopters of transnational eco-certification but have not yet complied with the relevant standards, namely, those who have knowledge of the Chinese organic certification scheme. The rationale for this sampling strategy is that most Chinese producers who have no experience of eco-certification lack the capacity to adopt transnational rules originating in the Global North; accordingly, to explore the potential of sustainable tea certification in China in the near future, we first studied those companies that have the capacity to pursue certification. I therefore constructed a sample of tea producing companies that have been certified to the Chinese organic scheme across different production regions. Today, most Chinese tea companies have integrated their production chains from farms to processing factories. Thus, it makes more sense to survey these companies rather than the farmers to understand the potential for sustainable tea certification in China, as the former play a central role in organizing production and, in most cases, are the agents making the decision on certification.

The survey questionnaire was edited on an online survey platform (www.wjx.cn) and then sent via Chinese social media applications by local collaborators to owners or senior managers of more than 300 tea producing companies.[1] In total, 215 tea producing companies of different sizes and ownership, located in 18 provinces, participated in the survey. To protect anonymity, respondents did not reveal their company's name. To build

a representative sample of producers in each production region, I implemented a quota on company location. The geographical distribution of the participating companies (by number) shows that the sample covers producers in all major tea producing provinces except Hunan, and the sample generally represents the production size of each province (see the sample representativeness in table C.1). In the survey, respondents were asked around 30 questions on various sorts of company information, including data on production, sales, interaction with other stakeholders (such as environmental NGOs), experience with organic certification, certification programs they have joined, and the challenges and expectations of sustainable production. The median completion time for the survey was 10 minutes. Companies that had not been certified to any transnational standards were asked to indicate their interest in joining the relevant programs on a five-point Likert scale from "very uninterested" to "very interested." The answer to this question was used as the outcome variable in my quantitative analysis.

Table C.1
Geographic distribution of companies participating in the OTPS

Province	Production volume as a share of the national total in 2016 (%)	Share of companies in each province participating in the OTPS (%)
Fujian	17.75	12.56
Yunan	15.99	3.72
Hubei	12.31	22.79
Sichuan	11.13	11.63
Hunan	7.73	0.00
Zhejiang	7.16	23.72
Guizhou	5.88	1.40
Anhui	4.66	4.65
Guangdong	3.61	3.26
Henan	2.85	1.40
Guangxi	2.83	2.79
Shaanxi	2.58	1.40
Jiangxi	2.39	2.79
Chongqing	1.54	0.47
Shandong	0.90	1.40
Jiangsu	0.58	4.65
Gansu	0.05	0.00
Hainan	0.04	0.47

As discussed in chapter 5, to better disentangle the effects of the potential demand of foreign markets and support from state actors on firms' incentives to support transnational private governance, I conducted a framing experiment in the survey. In the experiment, respondents were randomly assigned to one of three groups and asked to read a text before they indicated their interest in joining sustainable tea certification. The texts vary across groups to provide different interpretations of sustainable tea certification. In the first group, respondents received a frame that indicates government support for certification and advocates the adoption of relevant standards to help the Chinese state achieve its policy goal on sustainable development. In the second group, the frame emphasizes demand for sustainable agriculture in the global tea market and suggests that joining the relevant programs can help companies expand their international markets. The third group was a placebo control group, where respondents only read a simple introduction of sustainable agriculture (see the framing texts below).

C.1 Frames Used in the Survey Experiment

Boxes C.1–C.3 are English translations of the frames; the words shown in bold in these boxes were also bold in the original text of the survey.

Box C.1
Frame on benefits for the state's policy goals on sustainable development

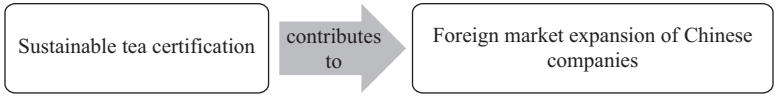
Sustainable agriculture aims to reasonably use and protect natural resources, reduce pollution from the production process, and protect farmers and workers' rights and improve their livelihood. It has a broader definition than organic agriculture.

In the past decade or so, sustainable agriculture certifications like Rainforest Alliance, UTZ, and Fairtrade have continuously grown. Their standards are **in line with the Chinese state's development goal**. Accordingly, governments at different levels have adopted supportive policies. Adopting these standards can **react to the government's call for sustainable development** and show companies' social responsibility.

Box C.2
Frame on benefits for foreign market expansion

Sustainable agriculture aims to reasonably use and protect natural resources, reduce pollution from the production process, and protect farmers and workers' rights and improve their livelihoods. It has a broader definition than organic agriculture.

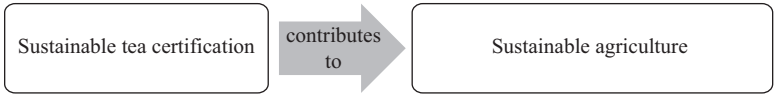
In the past decade or so, sustainable agriculture certifications like Rainforest Alliance, UTZ, and Fairtrade have continuously grown. Their standards have been **recognized and required in the global market, especially Europe and North America**. Adopting these standards can effectively **expand foreign markets** of Chinese tea companies.



Box C.3
Placebo control frame

Sustainable agriculture aims to reasonably use and protect natural resources, reduce pollution from the production process, and protect farmers' and workers' rights and improve their livelihood. It has a broader definition than organic agriculture.

Your company has yet to adopt **sustainable agriculture certification** such as Rainforest Alliance, UTZ, and Fairtrade.



C.2 Data Description

The experiment was fully implemented after a pretest with two dozen respondents. In the pretest, respondents were asked to give their feedback on the frames. I then revised the framing text and officially started the randomization process. As tea certification focuses on agricultural practices, only companies having their own production bases were included in the

experiment. To ensure that respondents read their text, they were forced to stay on the page for at least 10 seconds before moving to the next question. After having excluded a few invalid observations in the pretest, I ensured that each group had more than 50 respondents. Tables C.2–C.4 show summary statistics, correlation matrix, and randomization checks of the data used in statistical analysis in chapter 5.

Table C.2
Summary statistics of the Organic Tea Producer Survey

Variable	Mean	Standard deviation	Minimum	Maximum	Coding rules
Interest	4.21	1.01	1	5	1: "very uninterested"; 2: "somewhat uninterested"; 3: "indifferent"; 4: "somewhat interested"; 5: "very interested"
Revenue	2.85	1.29	1	6	1: less than RMB 500,000; 2: RMB 500,000–5 million; 3: RMB 5–10 million; 4: RMB 10–50 million; 5: RMB 50–100 million; 6: more than RMB 100 million
Production area	2.79	2.21	1	8	1: less than 300 mu; 2: 301–600 mu; 3: 601–900 mu; 4: 901–1200 mu; 5: 1200–1500 mu; 6: 1501–2000 mu; 7: 2001–3000 mu; 8: more than 3,000 mu
Years	7.63	5.77	0	20	Years since the first certification to organic standards until 2018.
Ownership	4.13	1.40	1	5	1: state-owned; 2: collective-owned by township/village; 3: joint-stock; 4: foreign-invested; 5: private owned by individuals
Interaction association	4.10	1.07	1	5	1: never; 2: very rarely; 3: occasionally; 4: sometimes; 5: frequently

(continued)

Table C.2
(continued)

Variable	Mean	Standard deviation	Minimum	Maximum	Coding rules
Interaction ENGOs	3.20	1.37	1	5	1: never; 2: very rarely; 3: occasionally; 4: sometimes; 5: frequently
Organic proportion	3.20	1.61	1	5	1: less than 20%; 2: 21–40%; 3: 41–60%; 4: 61–80%; 5: 81–100%.
Benefit change	2.48	0.67	1	3	1: decrease in benefits; 2: no discernable change; 3: increase in benefits

Note: $N = 153$; 1 hectare = 15 mu.

Table C.3
Correlation matrix

Variable	Revenue	Production area	Year	Interaction ENGOs	Interaction association	Organic proportion	Benefit change
Revenue	1						
Production area	0.345	1					
Year	0.260	0.00531	1				
Interaction ENGOs	0.241	0.0615	–0.0534	1			
Interaction association	0.158	0.00315	0.139	0.497	1		
Organic Proportion	–0.268	–0.0453	–0.000463	–0.129	0.00365	1	
Benefit change	0.0685	–0.0255	–0.0618	0.141	0.191	0.00737	1

Note: $N = 153$.

Table C.4
Randomization checks

Variable		Frame = 0 (control group)	Frame = 1 (treatment = supporting the state policy)	Frame = 2 (treatment = expanding foreign markets)
Revenue	Mean P-value (two-sample *t* -test)	2.69	3.06 0.14	2.78 0.70
Production area	Mean P-value (two-sample *t* -test)	2.80	2.90 0.82	2.67 0.76
Year	Mean P-value (two-sample *t* -test)	7.31	8.11 0.49	7.24 0.94
Interaction ENGOs	Mean P-value (two-sample *t* -test)	3.17	3.43 0.35	3.05 0.67
Organic proportion	Mean P-value (two-sample *t* -test)	2.92	3.31 0.23	3.35 0.18

Note: The *t*-tests show no statistically significant difference in the key covariates across different groups.