Appendix A: Further Details on Empirical Analysis

Figure 2

The figure shows the relationship between market concentration and the share of traded volumes that is accounted for by sustained relationships in coffee (Panel A) and garments (Panel B).

An observation in the data underlying the graphs is a *market* defined as a product–origin combination. Products correspond to the *Harmonized Code* classification at six digits of disaggregation (HS6), that the exported item gets in customs procedures. An example of a product in garments is *men's or boy's shorts made of man-made fabrics (HS6 620530)* and one in coffee is roasted, not decaffeinated coffee (HS6 090121). In Panel A, where we study the coffee supply chain, we focus on one product code only, HS6 090111, corresponding to green coffee or not roasted, not decaffeinated coffee. In Panel B, where we focus on garments, we study all HS6 codes that fall within Chapters 61 and 62 of the harmonized classification, covering *knitted garments* and *woven (non-knitted) garments*, and approximately 186 HS6 codes per country of origin. Origins, in turn, correspond to countries exporting coffee or garments and included in our harmonized databases. The coffee data is available for 14 countries covering over 90% of green coffee world exports (Brazil, Burundi, Colombia, Ecuador, Ethiopia, Guatemala, India, Indonesia, Mexico, Panama, Rwanda, Tanzania, Uganda, Vietnam). The garments data is available for six large garment exporters (Bangladesh, India, Indonesia, Vietnam, Ethiopia and Pakistan), which account for 36% of all garment exports from developing countries into the United States and the European Union. Taking all of this together, there figure studies 14 product–origin combinations or *markets* in coffee and 1,113 product–origin combinations or *markets* in garments.

The data used in this figure corresponds to exports recorded during the year 2019. The measures of concentration are computed as Herfindahl–Hirschman indices based on sellers' and buyers' market shares in 2019, using volumes in the case of coffee and values in the case of garments (this discrepancy reflects the data available for one and the other sector). These measures are reported on the horizontal axis. The vertical axis reports the share of all exports in each market that correspond to sustained relationships. Buyer–seller relationships are defined as sustained in 2019 if they are observed trading in 2018. Horizontal and vertical axis' variables are residualized against the size of the market, in terms of exported values.

Each sub-figure shows the linear fit between the share of trade in sustained relationships and market concentration on the buyer side (solid lines) and the seller side (dashed lines). Panel B, on garments, uses simple standard errors to construct 95% confidence intervals. Panel A, on coffee, relies on one HS6 code only, and hence, 14 observations. For this reason the linear fit is estimated with wide confidence intervals.

The data used in Panel A comes from ongoing work in Del Prete et al. (2022). The data used in Panel B come from ongoing work in Cajal-Grossi et al. (2022). We are grateful to Davide Del Prete

for letting us use the data in this paper.

Figure 3

The figure in Panel A shows the relationship between (i) the quality of the relational contract between farmers and mills in Rwanda, and (ii) the strength of mills' competition for farmers. Analogously, the figure in Panel B shows the relationship between (i) the quality of the relational contract between workers and garment plants, and (ii) the strength of plants' competition for workers. In both cases we show scatter markers in equally sized bins of the underlying data, and the linear fit of the data.

Panel A reports the OLS version of the reduced form and first stage relationships in Macchiavello and Morjaria (2021). A unit of observation is a coffee mill in Rwanda. An index of relational contracting between the mills and surrounding farmers is reported on the vertical axis. This is constructed following Macchiavello and Morjaria (2021), in particular:

> "[W]e focus on the following practices: (i) before harvest, did the farmer receive inputs and loans from the mill; (ii) at harvest, did the farmer sell on credit in exchange for second payments; and finally, (iii) post harvest, do mills help farmers with loans? We ask both farmers and managers about the use of each of the three practices at the mill. After standardizing the responses, we construct indices for the intensity of the relationship before, during, and after harvest giving equal weight to the managers' response and the average of the farmers' responses. Our main dependent variable is the overall "relational" contract index that aggregates the three period sub-scores." (p.1103, Section II, Macchiavello and Morjaria, 2021)

The horizontal axis shows the number of mills located within 10 kilometers from the mill of interest. The variables in both axes are residualized against a set of geographic controls, namely elevation, slope, presence of spring, density of coffee trees, length of roads and rivers, and coffee suitability from FAO's Global Agro-Ecological Zones.

In Panel B, a unit of observation is a garment plant in Bangladesh and its index on contract quality is constructed as follows. We work with data from a large, established program of the International Labour Organization, targeting working conditions in the textile sector, the *Better Work* program. Plants enrolled in the program have regular social compliance assessments, through which specialized auditors assess several dimensions of the working conditions and social compliance at the plant. There are 290 garment plants in Bangladesh for which *Better Work* performed an initial compliance assessment between 2015 and 2020. We identify 28 dimensions (questions) in these assessments, that reflect to the quality of the relational contract between the plant and its workers. The list of dimensions is included at the end of this section for reference. The procedure to construct the contract quality index is analogous to that used in the figure for the coffee sector. We standardize each plant–level observation on each individual dimension, using the average and

standard deviation across all plants. We average these 28 standardized measures for each plant, and construct a z-score by re-standardizing. This plant–specific relational contract quality index is residualized against plant size (as measured by its own exports on the year of assessment) and plotted against the vertical axis. The horizontal axis has a measure of competition of garment plants for workers. For each garment plant, we use the count of other garment exporters that were active in the year in which the compliance assessment took place, located within one kilometer of the plant of interest.

The data used in Panel A of Figure 3 draws from Macchiavello and Morjaria (2021) and those of Panel B come from ongoing work in Cajal-Grossi and Kreindler (2022).

Dimensions of quality of the worker–plant relational contract in garments. Does the employer provide required daily break periods? Has the employer provided all workers with a letter of appointment? Does the employer inform workers about overtime at least 2 hours in advance? Does the employer provide required annual leave? Does the employer provide 10 days of casual leave per year? Does the employer provide workers at least 11 festival holidays per year (or compensatory and substitute holidays when workers work on festival holidays)? Does the employer only terminate or dismiss workers for valid reasons? Does the employer provide 14 days of sick leave per year? Does the employer provide required time off for maternity leave? Do workers have an opportunity to defend themselves before they are dismissed or punished based on their conduct or performance? Does the employer comply with requirements regarding severance pay? Does the employer pay terminated workers their outstanding wages within 7 working days of termination? Do the disciplinary measures comply with legal requirements? Have any workers been bullied, harassed, or subjected to humiliating treatment? Does the workplace have adequate shelters or rest rooms? Are emergency exits and escape routes clearly marked and posted in the workplace? Are the emergency exits and escape routes accessible, unobstructed and unlocked during working hours, including overtime? Does the workplace have an adequate lunch room, and/or canteen? Does the employer conduct periodic emergency drills? Does the employer comply with legal requirements regarding medical checks for workers? Has the employer ensured that there are a sufficient number of readily accessible first aid boxes/supplies in the workplace? Does the employer provide workers with wage slips prior to paying wages? Has the employer made any unauthorized deductions from wages? Does the workplace have at least one adequate window exit per floor? Does the employer adequately communicate and implement OSH policies and procedures? Does the employer adequately communicate and implement HR policies and procedures? Does the employer have adequate grievance handling and dispute resolution procedures? Does the employer have adequate disciplinary and termination procedures?