Brand Purchasing Practices and Labor Outcomes in Apparel and Footwear Supply Chains: The Case of Multi-Buyer Suppliers.

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Executive Summary

Scholars, activists and policymakers have long been interested in the causes of labor and human rights violations in global supply chains. There is some consensus that voluntary regulation by global companies of labor practices in their supply chains, enacted through corporate codes of conduct and social auditing, has only led to limited improvements in labor rights and working conditions in supply chains generally, and particularly in the global apparel industry which has attracted the most scholarly attention. In response, a new narrative--that poor labor practices in the supply chain are in part caused by poor purchasing practices of global companies-- has gained prominence. In fact, new legislations in European countries such as France, Germany, Norway and the European Union's Corporate Sustainability Due Diligence Legislation (passed in 2024, but now under revision), generally requires that companies ensure that they are not the cause of harms to people or planet, which requires examination of purchasing practices.

This research project conducts an inquiry into purchasing practices of global companies. It is generally difficult to study corporate purchasing practices, because companies do not routinely share their purchasing practices --such as order quantities, lead time, payment terms and product prices with researchers. However, this project overcomes this difficulty—we gained access to two established global suppliers—a shoe firm and a garment firm, who service multiple global buyers. We interviewed merchandizing managers in charge of servicing different global buyers (identities protected under a non-disclosure agreement) to illuminate buyer purchasing practices including the ordering process, pricing and price negotiations and payment terms, across multiple buyers in across two industries. We then analyzed detailed purchasing data from these buyers to examine their effect on labor conditions at these two suppliers.

Our interview results show the variation in global companies practices with regard to ordering process, pricing negotiations, prices, payment terms and other relevant purchasing practices as they are experienced by the suppliers. Our quantitative analysis of purchasing data and supplier labor data show that the dominant buyers' pricing and payment terms are related with higher wages for workers, while order volatility was associated with more overtime and higher worker turnover rates.

This article contributes in three ways. First, our contribution is revelatory in that it provides a window into buyer-supplier interactions regarding purchasing practice terms that are usually impossible for researchers to observe, and hence go unstudied (Anner 2018). Second, our analysis of links between purchasing practices and labor outcomes occurs in the understudied case of *multi-buyer* suppliers. And finally, we provide, for the first time, statistical evidence linking selected measures of some purchasing practices to labor outcomes such as wages, overtime hours and worker turnover at these supplier factories. This study justifies the effort of European policy makers to induce companies to improve their purchasing practices so as to not cause harm to workers in the supply chain.

INTRODUCTION

Private regulation of labor conditions in global supply chains, enacted through corporate codes of conduct of lead firms combined with social auditing, has only led to limited, fleeting improvements in labor standards for workers in supply chains over the last 25 years (Cao and Jayasinghe 2024; Soundararajan et al. 2025, Kuruvilla 2021). In response, a new narrative--that poor labor practices in supplier factories are in part caused by poor purchasing practices of global companies-- has gained prominence. For example, scholars argue that the "relentless demand for lower prices, flexibility, and short lead times"— are the "root cause" of abusive working conditions in supplier workplaces (Reinecke and Donaghey 2021: 473, Anner 2019). Global firms are therefore now seen as part of the problem, and reformation of their purchasing practices is now seen as an important part of the solution to improve supplier labor conditions. The focus on purchasing practices is timely given that corporate sustainability due diligence legislation in the European Union generally requires that companies ensure that they are not the cause of harms to people or planet. Consequently, there has been an explosion of guidance frameworks to improve purchasing practices--- such as the "Common Framework for Responsible Purchasing Practices".

Conducting systematic research on the effect of company purchasing practices on labor outcomes in supply chains is difficult. Companies do not routinely share their purchasing practices --such as order quantities, lead time, payment terms and product prices with researchers. Matching these data to labor outcomes in suppliers is equally impossible given difficulties in accessing suppliers. Therefore, much of what we know about the negative impacts of purchasing practices come from annual surveys of suppliers (Better Buying), occasional surveys (e.g., ILO 2017), and analysis of trade data (Anner 2019). The latter primarily provides macro price data not linked with individual companies or suppliers. There is no direct research investigating the impact of a given purchasing practice on a given supplier's labor outcomes, no evidence regarding which purchasing practices are most detrimental (Anner, 2020; 2020; Brown, Dehejia, Rappaport, et al., 2016), and no research at all on the link between prices paid by specific buyers and wages at their supplier factories!

Guidance on purchasing practices implicitly assumes that improvements in a given lead firm's purchasing practices will automatically improve labor practices in their supplier. This assumption is unwarranted, given that the majority of suppliers sell to *multiple* lead firms---the norm in the apparel industry (ILO 2017; Khan et al. 2020, p.776). Thus, it is possible that a

particular lead firms' share of a multi-brand supplier factory's production may be so small that improving its purchasing practices will have little effect on labor outcomes. Similarly, as Starmanns (2017:7-8) notes, "it does not make sense for a single buyer to unilaterally pay a high enough price to pay a living wage in a [*multi-buyer*] factory". And fears of anti-trust issues (Schuessler et al. 2023), deter buyers from the same factory sharing their purchasing data with each other. The multi-buyer issue makes purchasing practices research more difficult.

In this article, we use a mixed methods case study design to learn how two established multi-buyer suppliers—a shoe firm and a garment firm —experience the purchasing practices of multiple lead firms from Europe and North America. Interviews with merchandizing managers in charge of servicing different global buyers illuminate buyer-supplier purchasing practices including the ordering process, pricing and price negotiations and payment terms, across multiple buyers in across two industries. Our quantitative analysis of purchasing data shows that and labor data show that the dominant buyers' pricing and payment terms are related with higher wages for workers, while order volatility was associated with more overtime and higher worker turnover rates.

We make three original contributions to the purchasing practices literature. First, our contribution is revelatory in that it provides a window into buyer-supplier interactions regarding purchasing practice terms that are usually impossible for researchers to observe, and hence go unstudied (Anner 2018). Second, our analysis of links between purchasing practices and labor outcomes occurs in the understudied case of *multi-buyer* suppliers. And finally, we provide, for the first time, statistical evidence linking selected measures of some purchasing practices to labor outcomes such as wages, overtime hours and worker turnover at these supplier factories.

Literature Review: Purchasing Practices and Labor Outcomes.

A persistent criticism of global companies' programs to regulate labor conditions at their suppliers has focused on the decoupling between their own purchasing practices and their labor policies. Lead firms CSR/Sustainability departments and purchasing departments often work in silos, (Villena 2019; Jayasinghe and Cao 2025) and this lack of integration not only fails to create the incentive for supplier compliance (Amengual et al. 2020), but poor purchasing practices may cause violations of labor standards at suppliers (Reinecke and Donaghey 2021).

There are many ways in which poor purchasing practices undermine compliance at the supplier level. Anner's analysis of trade data showed consistent decline in prices for apparel imports to US since mid-1990s, paralleled by consistent low wages for workers in factories Vietnam (2018), India (2019), and Bangladesh (2020). Suppliers complain in surveys ILO (2017) that lower prices lead to lower wages and unauthorized subcontracting to noncompliant contractors (Caro et al. 2021). Survey evidence (ILO 2021) suggests that 39 per cent of suppliers reported having accepted orders whose price did not allow them to cover their production costs!

Such "predatory" (Anner 2019) pricing practices are also often accompanied by reductions in lead time—the time that suppliers have for producing and shipping the volumes ordered by the buyer. This "sourcing squeeze" (Anner 2019) is increasing given the demands of "fast fashion", which exerts pressure on suppliers to use excessive overtime and engage temporary labor to complete orders (Locke 2013). Other poor purchasing practices exacerbate these effects. Inaccurate demand forecasting (both in terms of quantities as well as product and style mix) by lead firms often result in late changes of orders that forces suppliers to reconfigure production schedules, resulting in productivity losses. More accurate sales forecasting allows factories to plan staffing, source materials, and allocate production to avoid idle-time, and otherwise organize work in ways that avoid poor labor practices.

Similarly, imperfect technical specifications (design of the product, fabric specifications, production of prototypes for buyers approval) can delay production at suppliers, resulting in overtime (Munch, 2022). Poor 'specs', combined with late placement of orders, result in shortened lead times. Failure to meet lead times exerts additional financial pressure on the supplier, since many contracts impose a penalty for late delivery of products (Brown, Rajeev, et al., 2016).

Payment terms are an important purchasing practice. Late payments appear to be a common concern voiced by suppliers in all surveys. But the effect of payment terms on supplier cash flow could be dire. Recall that the supplier has to pay for the fabric from the fabric mill, and other relevant inputs, then produce the product for which lead time could be 10-12 weeks (much shorter for fast fashion). Most suppliers meet their working capital requirements by borrowing money from the bank based on the order received by the buyer---- banks provide such capital, but at a cost.

While some purchasing practices may cause more harm to human rights than others, and the effect of individual purchasing practices may be different for different suppliers, in general the ILO survey suggests that poor purchasing practices have a disparate effect on suppliers who have a high dependency on a few buyers—almost 54% of suppliers interviewed have a main buyer who takes about 35% of their production----this is a high dependency risk.

Recent "soft law" approaches encouraging lead firms to improve their purchasing practices include recommendations regarding good purchasing practices principles. The Sustainable Terms of Trade Initiative (STTI) launched a set of "responsible purchasing practices" in 2021, which covered *payment terms, order changes, booking capacity, and the use of Force Majeure*. The Better Buying Institute has launched its principles of "responsible purchasing", very much in line with STTI's view. Many of these principles and guidelines come together under the Common Framework for Responsible Purchasing Practices, jointly developed by several multi-stakeholder initiatives.[1] For the full description of the various items in the common framework, see the CFRP website.[2] The OECD guidelines for responsible business conduct for multinationals urges firms to develop *pricing models* that account for the cost of wages, benefits, and investments in decent work.

These efforts are complemented by the "responsible contracting project"[3], which has developed model clauses that lead firms could voluntarily include in their contracts with suppliers. For example, the model clause on pricing states "*Buyer and Supplier shall collaborate to agree on a price, taking into account the scope and size of the contract, that accommodates the costs associated with upholding responsible business conduct, including the payment of a Living Wage to workers. If the payment of a Living Wage is not required by law and is not immediately feasible, then Buyer and Supplier shall commit to developing a pricing schedule to pay such wages within a reasonable time*". There is no publicly available data as to which firms have adopted model clauses, nor whether they follow or violate them or whether suppliers seek enforcement of these provisions, and the consequences for them if they do so!

In terms of "hard law', the recitals[4] to the Corporate Sustainability Due Diligence

[1] such as Ethical Trade Institute, UK and Norway, the Partnership for Sustainable Textiles, Germany, and FairWear in the Netherlands

[2] https://www.cfrpp.org/

[3] https://www.responsiblecontracting.org/

[4] Recitals accompany the text of the law, and are designed to explain the intent of the legislation, but are not legally binding in and of itself.

Directive (CSDDD) enacted May 2024 in the EU explicitly mention purchasing practices. Recital 46 states that "where relevant, companies should adopt business plans, overall strategies and operations, and develop and use purchasing policies that contribute to living wages and incomes for their suppliers, and that do not encourage potential adverse impacts on human rights or the environment". Recital 47 notes that "tackling harmful purchasing practices and price pressures on producers, particularly smaller operators is especially important in relation to sales of agricultural and food products". The German Supply Chain Due Diligence Act, which came into force in 2023, provides in Section 6(3) that if a company identifies risks, it has to lay down appropriate preventive measures including "the development and implementation of appropriate procurement strategies and purchasing practices that prevent or mitigate identified risks".

In sum, our brief review of the literature suggests that while there is agreement that poor purchasing practices may cause human rights violations, there is little research that explicitly links the two in specific cases. And the research fails to take into account that supplier factories typically service multiple global buyers. The multiplicity of purchasing practices (Kuruvilla 2021) from different buyers creates volatility that also affects supplier labor practices. Our approach in this paper is to examine qualitatively and quantitatively, the impact of purchasing practices experienced by suppliers to multiple global brands, on specific labor outcomes such as wages, overtime and turnover at the supplier.

METHODOLOGY

We take a mixed-method case study approach. Two well-established global suppliers from India, a large shoe manufacturer and a large garment manufacturer, agreed to share with us the purchasing practices of their top global buyers, based on a non-disclosure agreement requiring that supplier and buyer identity (except country of origin) be kept confidential. Both are sophisticated high-quality suppliers, professionally managed, and have been supplying leading global brands that have practiced private regulation for over 30 years.

The leather shoe manufacturer (hereafter FFF), established in the 1960s, is privately held, and the factories that we studied produce an average of 340,021 pairs of shoes (5.7 million USD) monthly. FFF's major clients are primarily from US and UK, but they service many other international customers. FFF maintains stable relationships with five major global brands--which account for about 70% of FFF's production capacity. Rockport, Caterpillar, and Marks and Spencer are generic examples of the class of buyers that source from this

supplier.

The garment manufacturer (GGG) is a publicly held corporation operating many factories, four of which we studied in South India. GGG is primary an export house, whose customers fall into three categories—fashion brands (generic examples include H&M and Zara) that have shorter lead times, sportswear brands (e.g. Adidas and Columbia as generic examples), and casual wear brands (e.g. Walmart and TJ Maxx as generic examples). Although they have many customers, they have a core set of five stable global clients that account for 60-70% of its production capacity. These five clients have had long-term relationships with GGG,ranging from 5 to 20 years. Table 1 presents summary details of the five major customers of each of these suppliers.

--Table 1---

In each supplier, we interviewed the top management (CEO or CFO), and the merchandising managers, who are allocated to specific clients. They deal with customers regarding orders, maintain the relationsip, negotiate prices, and only check in with top management on major issues such as when there was an unusual demand on pricing by the clients, or for new orders from new clients. We interviewed five merchandizing managers in the shoe supplier and 4 from the garment supplier. Each interview took about an hour, was not recorded, but handwritten notes were taken.

The interviews were broadened by visits to the manufacturing units and conversations with data management and HR teams at the factory. From the data management teams we obtained detailed business order data (volumes, values, prices and product mix from each buyer), and from the HR team we obtained factory payroll information (wages, hours, overtime pay, number of workers, and worker turnover rates). For both suppliers these quantitative administrative data spanned the 2017-2022 period. Combining these two sets of data allows us to quantitatively analyze the impact of business orders on worker outcomes at the supplier factory level. To ease readability, we present the qualitative interview results before reporting on our quantitative analytical strategy and results.

Qualitative Interview Results

Note that all quotes in these interview results are from the merchandising managers at the suppliers who are tasked with the responsibility of dealing with their major customers.

FFF Shoe Manufacturer

Customer F1 (North American Retailer) has been sourcing from FFF for over 20 years. Although their position as F1's leading supplier has changed in recent years due to competition from other South Asian producers, and a rise in import duty by the government of India (the quality of Indian leather is not suitable for the leather shoes preferred by Western customers, and hence, leather has to be imported from Brazil), relationships between FFF and Customer 1 have been positive. Customer 1 has a sourcing office in India that is headed by a person who knows FFF well --it is almost like 'having a person on the inside'. Although F1 does not guarantee orders, they have been a stable customer over the years and there is 'clear and implicit recognition' that they will come back every year.

F1 is generally very good on forecasting demand, and orders are placed on an online platform called Infor Nexus™ (formerly GT Nexus), a leading global supply chain management platform that connects a large number of brands, retailers, manufacturers, suppliers, logistics providers and banks---a single platform integrating sourcing, delivery and payment. Their order placement is based on a strict calendar (shared with FFF in advance), where 'everything is mapped out'. Technical specifications are always clear----in fact FFF's technical team and Customer 1's design team start interacting six months before the order is placed. Lead time for production is generally 100 days.

Customer 1's sourcing office in India has a good idea of FFF's costs, given their long relationship, and hence 'negotiations on price are generally very collaborative'. The negotiations focus more on how baseline costs such as leather import duties, minimum wages and have changed. FFF knows that customers cost to sales ratio is 1:4, which also helps in the negotiations. Negotiations regarding costs usually includes a built in profit margin of 7.5% which customer 1 generally respects. Payment Terms, which used to be 60 days after order was shipped, has lengthened after Covid however, to 90, then 120 and currently (as of 2022) it is 150 days, which 'is not sustainable'. This is a premium brand customer --- 'they not only value quality, delivery and price, they also value loyalty'.

F2, a major US corporation that owns many brands, sources leather shoes from FFF, which reserves roughly 25% of one of units to this customer. Given that the relationship is of long duration (over 40 years), processes and procedures are well established. F2 also has a sourcing office in India, whose representatives are well known to FFF. In fact, the process works very much the same way as it does with customer 1, with very accurate and shared

forecasts, long lead times, with order placement done on a strict calendar. Pricing negotiations are focused on fixing the product cost----i.e. cost of materials, labor and production and once that is agreed on a suitable price is negotiated. Although there is no guarantee of future orders, their sourcing record has been consistent over 40 years, which is an implied guarantee of future orders. Payment terms are 'the usual 90 days'.

F3, a UK based customer, has been sourcing from FFF from 2008. FFF remains a strategic supplier to this UK brand, which sells shoes in its own retail outlets. They do forecasting every 6 months, but also update their forecasts every month-based on retail sales, so they are constantly updating their order quantities after the initial order is placed. Their forecasting is '80% reliable' but if they decrease orders based on their monthly forecasts, 'they generally repay the cost of the material---leather and others that we reserve based on their initial orders…that is good, because we can use it for other things'. Customer 3 is focused heavily on quality and delivery time. They are an easy customer to deal with, since they are a retailer, they often 'have the same styles year after year—core styles, so there is not much need to talk to them about that'. They generally order by season. Given their long relationship FFF always reserves a particular percentage of their capacity for this buyer, which is tantamount to there being an implied promise to source.

'Tech Specs and order placement are done electronically, and samples are airlifted to them'. Their lead times are relatively generous, --'15 weeks from order to shipment'. 'The payment terms used to be 60 days after shipment, but now, after the pandemic has become 90 days'. Price negotiations are generally collaborative—'they have a target price that they want us to reach, and their target price is based on an open costing approach—they know our costs very well, and their target price usually includes our profit margin'. This buyer is very focused also on compliance and audits every month.

F4 is also a UK department store chain. One of the four units of the factory is dedicated to this chain, but there is enough left over capacity to include some non-leather fast fashion products also. 'August to February is a lean period for us production wise, so we fill up reserved capacity for other brands'. FFF has been working with Customer 4 since 2007 –one of their biggest customers and FFF is one of this customers larger suppliers, perhaps ranked 4th or 5th. They make leather shoes primarily for men and boys. Again, given that this customer is a retailer, their styles do not necessarily change very often.

Customer 4's purchasing process is collaborative. 'Their designers have some ideas, but they also ask us what we are producing for the season----- they are looking for "inspiration'.

‘We have our own designs and designers, and we can present a range of products for Customer 4’s designers to M&S to see. We wind up giving them about about 100 styles, which they will then winnow down to 10-12’. Customer 4 will then choose 5 styles, and do “smallish” orders--- maybe 2000-5000 pairs that are sold in some of their department stores as product launches. Then, ‘depending on sales, they will expand their orders, and they have good projections..so they can be highly specific regarding the quantity’. ‘Earlier they used to give you rough ideas of the quantities, but now they have become more specific’. For this customer, delivery time is of great importance ‘they cannot tolerate delays’. ‘They want you to buy the material early and they also pay for left over material which cannot be used---which you have ordered based on their quantities.’

Pricing negotiations are relatively easy. Once they decide on the price of the shoe, roughly 25% of the target price reserved for the factory a is target pricing model of 1:4). If it is not possible for FFF to meet that price, they can ‘change that equation if we give them cheaper specs.---for example, we say that we cannot do it at that price, we can counter propose based on using cheaper inputs’. The products that FFF makes for this customer is in the middle range. This customer also has a highly competent sourcing office in India although their sourcing people have ‘bit of a colonial mentality’ . FFF has quite consistently reserved capacity for this buyer. ‘Payment terms are reasonable—they pay 90 days-----once vessel has sailed’.

Customer 5 is a global fast fashion brand, that has commenced sourcing from this factory in 2015. Approximately 35% of capacity on one production unit is reserved for them. They buy non-leather products, and they are extremely sensitive about price and delivery. ‘Their purchasing practices are quite different from other customers. On the one hand, they provide a lot of guidance as to the raw materials and how FFF can source them from raw material providers that they have used before, so both quality and delivery is proven. They will step in and help to ensure that the raw materials are provided on time, and in case of delays they may even step in with alternate providers, so that there is no delay. They do this given that for them delivery schedules are iron clad, and they are willing to help to manage our raw material supply chain’.

In terms of order placement ‘they are harder to deal with’. ‘For instance, they might give you an order for say 20,000 pairs, all at the same price—for the launch. Then if launch goes well, they will come back with another 20K order and expect you to meet it’. The first launch order typically has a lead time of 10 weeks, but repeat orders have to be executed in 4-5 weeks, and the contract requires that you fulfil these repeat orders. So dealing with them is a little bit like ‘catching a tiger by the tail’, since FFF does not always know how many repeat

orders might be coming in. Their payment terms are also quicker than the industry average, given that their lead times are smaller. In terms of compliance, they are 'heavily focused on minimum wages and hours, but not much else'.

Apart from the major customers discussed above, there are a number of other customers from both within India as well as from Southeast Asia and Eastern Europe, but these account for a relatively minor portion of FFF's capacity. The relationships are generally quite cordial and collaborative, and in general, the "target pricing model" dominates---where the target price is decided and the cost worked back from there with the 1:4 or 1:5 cost to target price ratio—a rule of thumb in this industry.

In summary, FFF tends have large long-term customers, mostly from the US and the UK, with whom relationships are cooperative relationships, with a high level of transparency regarding price negotiations, and some profit guarantees.

GGG Garment Manufacturer

Below, we report on our interviews with merchandising managers responsible for specific customers, but also on interviews with the CEO and CFO who provided more generalized information regarding gross margins from their top 5 customers. All material in quotes are from interviews with the relevant merchandising managers.

Customer G1 has been sourcing from this supplier for 8 years. They are a seasonal very large buyer for whom GGG reserves approximately 30% capacity in designated factories. Customer A is looking for stable business relationships—'they want to know what you can manage----- they want to know how vertically integrated you are---do you own your own fabric mill, for instance, and whether you can manage a regional sourcing strategy. They want to see whether you have a partnership strategy with various fabric mills. They want to see whether you can add value they ask for innovation and now increasingly asking about sustainability'. In essence, Customer A expects GGG to manage the rest of the supply chain. Thus, it is more than just a price/quality/delivery business.

They provide some visibility regarding future orders---indicating that 'you can expect so much quantity in the coming season', but not confirming that. The ordering process is largely determined by the buyer. Once they have chosen a subset of suppliers, they will send styles and ask for various bids, which are then the basis for further negotiation. Typically the buyer is aware of some cost aspects---fabric and cut & make costs, but they may not be aware of the efficiency of each supplier in terms of the standard minutes to produce each garment. As

the manager notes 'negotiation on the price is not easy. The buyer simply comes in and argues that your cut and make costs is too high compared to others---they tend to all think the same way'. In some cases, this buyer makes exceptions to the cost-based bidding process. They shortlist a number of suppliers and then follow a 'cross-quote' process (whipsawing), where the decision is made not just on the price, but on quality and delivery.

Their ordering process is structured so that 65% of their orders are due at the end of the first 4 months, while the balance is due in the next two months. Lead time for their products is 150 days, so GGG is usually able to deliver on time. But as a manager noted 'lead times can be a problem. There are penalties for delays in the contract---- 5% of FOB is the usual penalty for late delivery---between 5 and 7 days. Beyond that it is 10% of FOB. If there are delays, we airlift the goods—but we have not yet been charged a penalty for late delivery'.

The buyer nominates the fabric supplier, but expects GGG to buy the fabric which is generally bought for cash or in some cases on 30 days credit. The payment terms for this customer is 90 days after the goods are shipped, and lead-time for production and shipping is 150 days, so their capital is locked up for quite some time. To ease cashflow, once the order is received, GGG then seeks short term credit with a bank to meet their working capital needs. The bank provides credit at a 10% discount rate. In sum, this is a steady long term customer and a significantly large buyer for GGG. Yet, relative to a similarly placed customer in the leather shoe industry, it is a much more 'competitive' relationship.

Customer G2 is a fashion brand, GGG's largest customer, accounting for a significant percentage of GGG's capacity and 46% of its revenue! The relationship has been a long one—two decades. G2 provides some visibility into future orders. For example, last year, G2's letter of strategic intent has indicated 8-10 million pieces per year for the next three years. 'The actual orders could be much higher—say perhaps 15-16 million pieces, which is what they ordered last year'. But having that commitment for 8-10 million pieces is extremely good for GGG in terms of capacity planning.

The order placement process at G2 is well standardized. Their design teams provide the technical specification---sketch measurements, stitching and trim, which form the basis of an initial quote by GGG. Then, samples are made and costs are revised based on the sample. Thereafter, G2 requires a final product sample, in four colors. They then pick one color, and provide the required quantities. They will nominate a fabric supplier, and 'we will order the material ---normally we have to pay in advance with some fabric suppliers, but for others we

can get sometimes get 60 days credit'. Finally, they will ask for a "fit sample" and after that is approved, a pre-production sample us sent to Customer B. Much of these interactions are done through a portal, with designers on both sides working together.

Lead times have been high--- 23 weeks for order to be in the stores. 'This used to be for 95-98% of their goods. But this lead time is coming down steadily—it reduced to 18 weeks, and now for 50% of their production, lead-time is down to 14 weeks'. The problem for GGG is that it takes 8 weeks to procure the material, make the garment and forward the material to a shipper. Shipping time is about 7 weeks (inclusive of sea, rail, and truck to G2). In this case as well, GGG meets its working capital needs by depositing G2's purchase order with their bank 'which gives us money appropriately discounted for our working capital needs'. Payment terms are 90 days usually. In terms of pricing, the. merchandising manager noted that they have a target price which includes costs and a profit margin, and "then we give them a figure and then we haggle' ! G2 has a standard approach to costing that they use worldwide, and 'sometimes, for some products, their benchmarking works to our advantage, other times, it does not'.

Customer G3 is a European brand that GGG has been supplying for 15 years. Two of their factories are reserved for G3, which is viewed as possibly having the best purchasing practices. They provide visibility into future orders for 1 year, but their visibility is quite detailed in terms of requirements by month and date. G3 appears very organized with respect to its purchasing practices. First, they have a seasonal calendar, which is published and shared with GGG well in advance, which is possible due to excellent forecasting. Second, they share the'techpak' i.e. technical specifications 22 weeks in advance for a variety of products. A portal allows GGG to view G3's requirements and prices and make quotes based on the sample requirements and the lead time required. However, the listed prices could vary during the time of the day as orders are accepted from other factories---'its very dynamic and it could be 6.4 in the morning and 6.8 in the evening (rupees per piece)'! GGG has the freedom to immediately accept a listed price and then they download the purchase order from the portal. GGG considers Customer C as being highly sophisticated, easy to deal with, characterized by its superb organization, the lack of adversarial negotiations about prices, and quicker than average payment terms.

GGG has several other fashion customers that fall somewhere in between Customer G2 and G3. *Customer G4* a North American brand provides three years visibility. G4 also has highly sophisticated forecasting the results of which are displayed in its portal, so that GGG and other vendors can get a good look into future demand. G4 has a strong design team

providing good technical specifications, so the terms of their orders are generally clear. In terms of price negotiations, 'G4 collects data from all vendors, and figures out their fixed costs, which then is translated into costs per minute. Then they have a benchmark for each country of origin and they enter their fixed costs, which then provides costs per minute. So each supplier factory is measured against that benchmark and prices are negotiated on that basis'. Given G4s superior data collection abilities, they pretty much determine the cost. But they are as well organized, in GGG's opinion, as G3 is. They are leaders in payment terms with 60 days.

One other fashion brand (*customer G5*), is a leading fast fashion brand. Like other fast fashion brands they know exactly what they want, since their tech specs are standardized across over multiple suppliers. G5 focuses strictly on price and delivery, constantly pushing down the price it pays for its products while also reducing lead time. There is no guarantee of future orders given how price sensitive this customer is but it has been sourcing from GGG for sometime now and tentatively there is some expectation that their sourcing will continue, even if the specific quantities may vary over time. The lead-time varies according to the products,---between 2 and 10 weeks--but the time for shipping is key---since the pandemic, shipping times have increased, and it takes 6-8 weeks to get to North America. This customer also has longer payment terms---78 days after shipping.

CEO/CFO Interviews: If the merchandising managers spoke about the individual clients they were responsible for, the CEO/CFO tended to speak more generally about their top 5 customers, and provided the data in Tables 2 and 3. Table 2 shows that for 4 out of 5 customers, the average prices they have paid per unit has *declined* over the 2017-2021 period (Customer G1 is the exception). The declining prices are reflected in the gross margins for each customer reported in Table 3. GGG refers to gross margins as gross profit divided by sales turnover for each customer.. Gross profit in turn is calculated by reducing the material consumption from total turnover. All operating expenses, direct costs such as wages and benefits general administration, costs of electricity and so forth, are paid from gross profits. The cost of most inputs have increased over time. For instance, minimum wages (inclusive of cost of living allowance), has increased from Rupees 319 per day in 2018 to 411.40 per day in 2022. Consequently gross margins have declined, as Table 3 shows.

--Tables 2 and 3--

The CFO focused on how the practice of buyers to nominate raw material vendors (fabric mills), in order to control fabric quality and reliability of deliveries, impose a financial burden

on GGG in many ways. First, nominated fabric suppliers force GGG to pay in advance. Although nominated by buyers, the buyers do not work or negotiate with those suppliers on GGG's behalf to obtain better prices and terms, credit terms up to 30 to 60 days. As the CFO noted 'this nominating process is control from above which has to stop'. We are perfectly capable of obtaining material on our own that meets the customer's quality requirements, and we may get terms more suitable for us'. In addition, the CFO highlighted the need for the delivery times to be extended if the buyer is late with sample turnarounds and want to be compensated for order cancellations.

Summary: While FFF and GGG cases exhibit some similarities, there are differences. The major similarity is that they are both established 'top of the line' suppliers in their respective industries with long term customers. The quality of relationships with buyers appears to be more collaborative and partnership oriented in FFF relative to GGG. Negotiations regarding price are collaborative at FFF, where profit margins are built-in to the price. FFF's customers also allow FFF to source raw material, which gives them more leeway with their suppliers and does not put as much pressure on working capital requirements. In contrast, in the GGG case, long term relationships are also characterized by competitive relationships, --there is a steady squeezing on the price, and a competitive bidding process is common. While these differences may be due to different industry practices—that does not explain all of the differences. For example, there is a recent tendency amongst GGG's customers to provide more visibility into future orders---some provide a guarantee for three years. That said, given the qualitative differences in buyer-supplier relationships across these two firms, we would expect outcomes data to reflect this. And they do, as shown in Table 4.

--Table 4--

Given the collaborative buyer-supplier relationship, FFF experiences fewer audits relative to GGG. Also given that FFF has a customer base that has more predictable sales, allowing FFF to smoothen out production over the year, they use less OT than GGG. In addition, worker turnover is also less in FFF. While these are not causal relationships, they are indicative of how more collaborative purchasing relationships are reflected in some outcomes.

Quantitative Results

In this section, we describe the quantitative data and our analysis. Note that the data are not exactly parallel across the two suppliers, so some of our variables differ across the two suppliers, and hence we report our results serially rather than in parallel.

Study 1: FFF Shoe Supplier

As indicated in our interviews, FFF reserves capacity for multiple major buyers by allocating them to specific production lines. It has three main production units—A, B, and C—each having different production lines. Factory unit A is reserved for customers F1 and F2, factory unit B for F4, while factory unit C is almost fully dedicated to customer F3. So, although customer F3—the largest one—takes up an average of 23.6% of FFF's overall production capacity (in terms of the number of pairs of shoes produced), F3's orders make up 88.8% of the production in each of the 7 production lines in factory unit C, exerting huge influence on these lines beyond its overall leverage. Similarly, F2 takes up 8.7% of FFF's overall production capacity; but F2 is the major customer for two production lines, accounting for 58.3% of monthly production in one line (A-3) and over 33.7% of monthly production of production line A-2 during 2019 to 2022.

Each of FFF 28 production lines spreadover its three factories, work for an average of only three buyers each month. The average percentage of production in each line accounted by the main buyer was 81.9% (SD=19). Besides the five major global buyers, another five relatively small buyers also emerged as major buyers for the production lines. For instance, one small global buyer F8 which takes up 3.7% of FFF's production emerged as the dominant buyer for production line A-1 in the majority of months in 2020 and 2021, accounting for 58.6% and 53% of the A-1's monthly production in these two years respectively (Figure 2A). Likewise, another global buyer F10—which takes up about 2.5% of FFF's overall production—is the main buyer for production line B-2 for 9 months in a row from February to November 2022, contributing to 88% of the monthly production in this line (see Figure 2B).

--Figure 1A & 1B here—

Hence, our analysis of purchasing practices effects on outcomes is done at the production line level, rather than at the general factory level.

Dependent Variables: FFF's HR team only provided us data on the number of workers and wages for each of the 15 production lines operating from January to September 2022, making 130 line-month level observations. We calculated the average monthly wages in each production line by dividing the total wage bill divided by number of workers. We also calculated the worker turnover rate as 100 X (current month's workers - prior month's

workers)/prior month's workers. When the current month workers are larger than those in prior month, it is coded a 0, assuming no worker left. This attrition includes both voluntary turnover and dismissals.

Independent Variables: We match the monthly worker data with the production data in 2022 to identify the main customer for each production line and month. The percentage change in monthly total pairs of shoes produced from quarterly average production in each production line to capture *order volatility*, as a key independent variable[5]. Note that the ordered quantity of FFF's top five major customers from 2017 to 2022 June. Orders can change vastly from one month to the next and spikes of peak orders occur more frequently—almost quarterly—for FFF. Figure 4 presents the ordered quantity of FFF's top five major customers from 2017 to 2022 June.

- Figure 2 here-

A second independent variable is the *main buyers' average unit price* for each pair of shoes in the month (total order value divided by total pairs produced in the month). Then since *collaborative pricing negotiation* is an important issue discussed by the merchandizing managers in our qualitative interviws, we rated the main buyers on the degree of collaborative price negotiation, assigning values to each—reported in Table 5. Two smaller buyers not discussed by the merchandizing managers also show up as the main buyers in 14 line-month observations (as would be expected from FFF's buyer-production line allocation); we rated them as 3 or average on collaborative price negotiation because the general manager indicated other buyers are "cordial and collaborative" and "don't cheat and squeeze."

-Table 5 here-

Control Variables: We control for the total number of buyers in the month for each production line, the total number of workers at the month for the line, and total pairs of shoes produced in the month and line (total output may impact average wages), and factory unit fixed effects (Lines B, C vs A).

We use ordinary least square (OLS) regression to test the relationships between main buyer price and collaborative price negotiation as well as overall order volatility on average monthly wages and worker attrition. We cluster the standard errors at the production line level. Table 6 reports the regression results.

-Table 6 here-

[5] We have only 15 months of data here, but when we look at the whole period 2017-2022, there is a lot of volatility (results available from authors), with peaks every four months.

Table X shows that one unit improvement in line-month main buyer's collaborative price negotiation is associated with 155.5 Rupees more monthly wages for workers (p=0.001). This constitutes a 1.8% increase from the average wage (8168.75) if the main buyer moves from an average rating of 3.7 to 4.7 (a collaborative negotiation that guarantees a profit margin for FFF). The main buyer's unit price per se was not related with higher wages (it was also not significant in the absence of main buyer collaborative price negotiation variable). In addition, *Order volatility* from quarterly production is related with significantly lower monthly wages (b=-5.5, p=0.002).

We regressed worker attrition on the independent and control variables measured at the prior month because prior month's working conditions are more likely to impact the current month attrition numbers.Here too, the main buyer collaborative price negotiation is related with lower attrition: b=-0.644, p=0.005, implying an 18.5% decrease from the average attrition rate of 3.43 if the main buyer moves from an average rating of 3.7 to 4.7 on price negotiations. Order volatility is related with significantly higher attrition rates: b=0.0573, p=0.040. The number of buyers in each line is not significantly related to wages or attrition rates, suggesting limited impact of multiple buyers *per se*.

To sum up, both interviews and quantitative analysis show that collaborative price negotiations of the main buyer of each production line is important for FFF managers and relates with higher monthly wages for workers and lower attrition rates. Order volatility was a problem however, with greater volatility resulting in lower wages for workers and higher attrition rates. We are limited by the number of matched production and wage observations to control for production lines for a more rigorous test, which we will accomplish with longitudinal data from the garment supplier, below.

Study 2: Garment Supplier

GGG also manages multiple buyers by assigning each major customer to specific production lines at its factory units. As shown in Table 7 (data for 2022 only includes the first three months), each customer accounts for a large percentages of production in their designated factory unit. For instance, customer G1 takes up around half of the reserved production in factory unit 3. Customer G3, which has an average of 20% leverage in overall production, takes up over 60% of the production in factory unit 4 from 2017 to 2021.

--Table 7 here—

Although customer G4 still has a small leverage in these yearly planning figures in Table

7, it is a seasonal buyer that concentrates orders in October and February, as shown in the monthly production of factory unit 3 in Figure 4A. Its leverage in these five months in factory unit 3 is over 52%, in sharp contrast to its 12% leverage in overall production. Customer G4's purchasing practices are likely to influence workers at its designated factory in the months when it is the main buyer. Similarly, on a monthly production basis, factory unit 2's main customers alternate between G1 and G2 (see Figure 4B). Customer C is the most consistent and dominant buyer for factory unit 4, with a few exceptional months producing mainly for a smaller customer G6.

--Figure 4A & 4B—

Dependent Variables: Our dependent variables include average monthly wages for production workers, average overtime hours, and worker turnover rates, provided by GGG for the 2018-2022 period. Given lack of data April-May 2020 and May 2021 when there was mandated lockdown in India due to COVID-19, we have 180 observations for four factory units over 45 months.

Independent Variables: Since the qualitative interviews surfaced the importance of a competitive price negotiation process and long payment terms, we rate the different buyers on these two variables. The ratings can be seen in Table 8. One smaller buyer in discussed by the merchandizing managers was the main buyer in 6 months in factory unit 4. We rated their competitive price negotiation and long payment days as below average (i.e. 2 for both measures) assuming that smaller buyers may have less power over GGG to ask for demanding terms.

Similar to our measure in FFF, we calculate order volatility-- the percentage change of monthly pieces produced from quarterly average production at the particular factory unit. As can be seen in Figure 3, the order quantities still vary vastly across time for these five major customers from 2017 to March 2022.

--Figure 3 here—

Control Variables: We control for the number of buyers in the month for particular factory unit, the total number of pieces produced, factory unit size (total number of workers-log transformed to reduce impact of very large values), factory unit fixed effect, and year fixed effects. In addition, since we have more information, we control for the the percentage of women workers, and "mandays" a term used by GGG to indicate the number of workers

working in each month (relevant for its impact on wages and other outcomes). Our analytical method is the same as in FFF-- OLS regression, where standard errors are clustered at the factory unit level, the results of which are shown in Table 9

--Table 9 here—

Similar to the FFF case, we find that the unit level main buyer's price negotiation approach is related with significantly lower wages: b=-73.9, p=0.019. This suggests an 0.66% decrease from the average wage (11192 Rupees) if the monthly main buyer moves from the average price negotiation rating (2.9) to cost-based bidding (4). Similarly, the main buyer's longer payment days are related with lower wages, although less signfcantly (b=-224.1, p=0.072). The monthly main buyer's unit price is signifcantly related with higher wages (b=0.24, p=0.051). In contrast to the FFF result, order volatility is very slightly positively associated with higher wages, (b=4.06, p=0.082), suggesting that other unmeasured variables may shape the impact of order volatility on wages.

Turning to worker turnover rates, the monthly main buyer's competitive price negotiation is related with significantly higher worker turnover: b=0.176, p=0.014. This is a 1.9% increase from the average turnover rate of 9.28 if the monthly main buyer moves from the average to cost based bidding in price negotiation. Surprisingly, the main buyer's long payment time is related to a significantly lower turnover rate: b=-0.44, p=0.030. This may result from buyer G2 which respects profit margins but nonetheless has among the longest payment days (90) in the sample; G2 is related with below-average worker turnover rate 8.62%. This suggests that one buyer's different purchasing practices may impact different worker outcomes in different directions.

The regression results on average overtime hours are less suggestive as most coefficients are not statistically significant, except a surprisingly negative coefficient for the monthly main buyer's competitive price negotiation which is marginally significant (b=-0.45, p=0.085). This suggests more causal complexity regarding overtime hours which may be influenced by many other factors such as factory planning capacity, timing of raw material procurement, or other smaller buyers' orders.

In sum, both interviews and quantitative results underscore the importance of price negotiations for GGG, which translates to lower wages and higher worker turnover. This contrasts with the finding of positive worker outcomes relating with relatively more collaborative price negotiation for the shoes supplier FFF. The importance of price

negotiations goes above and beyond the monthly main buyer's unit price per se which has previously been studied with trade data (Anner 2018, 2019), 2022). Payment terms (is a problem for GGG and is associated with lower wages, a problem not seen in FFF, perhaps implying that longer payment terms coupled with advance payment for raw materials may impose greater financial stress on GGG, with its attendant implications for labor outcomes.

Discussion

We contribute to the very limited empirical research on purchasing practices and labor outcomes literature in several ways**.** Our interviews with managers in both shoe and garment suppliers highlight the importance of price negotiations that has been unstudied in prior research. Whether the negotiations around price is collaborative and guarantees a profit margin for the supplier (as in FFF) or is a competitive bidding system (as in GGG) matters and is more important than actual unit price per se in affecting wages and labor turnover. By studying the dynamics regarding purchasing practices in particular suppliers, we enrich and extend earlier research that has solely focused on effects of price on labor outcomes through the analysis of trade data (Anner 2019).

Our mixed-method study of two large suppliers in two different industries also reveal how suppliers deal with multiple buyers, an important and necessary context in which to study the impact of purchasing practices. Both suppliers consistently reserve capacity for their long term major buyers and allocate them to specific production lines or units to maximize efficiency. In so doing, the suppliers enlarge the impact of individual buyers on particular production lines/units beyond their nominal share of overall supplier production. This consistent buyer-production line/unit allocation practice resolves, to a certain degree, the concern that in multi-buyer units the impact of each individual brands is so limited that their efforts to improve purchasing practices may be futile (e.g. Starmanns 2017; Ashwin et al. 2020). Our quantitative regression analysis shows that some practices of the main buyer of particular line/unit in a particular month—whether the buyer is big or small —are related with significantly better or worse outcomes for workers.

Our results converge and diverge across the two suppliers. While price negotiation was crucial for labor outcomes in both cases, we found a positive relationship between the main buyer price and wages in the garment supplier but not so in the shoes supplier which shows a surprisingly negative and marginally significant relationship. Likewise, order volatility from quarterly average production is related with significantly *higher* wages in the garments but with significantly *lower* wages in shoes. The results for order volatility (which

was high in both cases) were also not consistent. These diverging findings may support the idea that practice multiplicity could be a significant problem in a multi-buyer situation (Ashwin et al 2020). But the supplier's practices of allocating buyers to specific units partly alleviates multiplicity issues. And in our quantitative analysis, the number of buyers in the particular production line/unit during a particular month was not significant for any worker outcome.

Rather our case studies point to causal complexity (Kuruvilla 2021) as a more significant issue in linking purchasing practices and worker outcomes. The main buyer's practices matter but differ in their relationships with outcomes across contexts. Moreover, the main buyer's purchasing practices are often not internally consistent, as is visible in the disconnect between price negotiation and payment times for some garment buyers that relate in contradictory ways with worker outcomes (i.e. turnover rates).

There are several limitations to our study. Not all suppliers may deal with multiple buyers in the way that GGG and FFF do, and there is need for research in other industries and contexts. We estimate the impact of payment terms and price negotiations process on labor outcomes, but we are not able to quantitatively measure and assess the impact of all purchasing practices—such as ordering process issues. This suggests however the need for more mixed methods studies. Our data was also limited to a narrow set of worker outcomes measures.

In terms of practical implications, our study confirms that purchasing practices are important in influencing labor outcomes, providing empirical support to campaigns to reform purchasing practices of global brands. Our results also highlight the need for global buyers to ensure that their purchasing practices are internally consistent such that they result in positive outcomes for workers. And for other researhers, our results strongly underlines the value of qualitative research in uncovering how purchasing practices differ across multiple buyers and industries.

CONCLUSION

Our research is perhaps the first to empirically study how purchasing practices experienced by suppliers affect labor outcomes in their factories, particularly in factories with multiple global buyers. Our inductive approach revealed the importance of price negotiations process as a key purchasing practice while our quantitative analysis confirmed the impact of price negotiations as a key determinant of wages and labor turnover, rather than price per se.

Our inductive approach presents some new insights from suppliers regarding buyer-unit allocations, reducing some of the opacity surrounding multi-buyer-supplier purchasing interactions.

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Table 1: Major Customers of Shoes and Garment Suppliers.

Shoe Manufacturer (FFF)				Garment Manufacturer (GGG)			
Customer	Country	Length of Relationship in Years	Product	Customer	Country	Length of Relationship In Years	Product
F1	US	20 +	Leather shoes	G1	US	8	Women & Mens jacket
F2	US	40 +	Leather shoes	G2	US Fashion	15	Women top & dress
F3	UK retailer	14	Leather shoes	G3	Germany	15	Men jackets & pants
F4	UK retailer	15	Leather shoes	G4	US	10	Women top & pants
F5	Global fast fashion	7	Non-leather shoes	G5	US fast fashion	5+	Women tops

Table 2: Major Garment Buyer's Average Unit Price in USD, 2018-2022

Buyer	FY18-19	FY19-20	FY20-21	FY21-22	Compounded Annual Growth Rate
G1	5.5	4.8	5.7	7.3	10.0%
G2	15.7	14.2	12.1	11.5	-9.8%
G3	4.5	4.1	3.4	2.9	-13.8%
G4	9.5	9.3	8.6	8.9	-2.2%
G5	6.7	6.1	5.9	6.6	-0.3%

Table 3: Gross Margins of Major Garment Buyers

Buyer	FY18-19	FY19-20	FY20-21	FY21-22
G1	45.60%	46.80%	47.60%	46.00%
G2	40.20%	39.10%	38.20%	39.90%
G3	44.90%	45.30%	44.00%	50.50%
G4	38.30%	36.70%	46.70%	44.50%
G5	40.60%	47.50%	44.40%	41.60%

Table 4: General Labor Outcomes FFF vs GGG.

	Avg. turnover or attrition rates		Overtime pay among wages%		Number of Social audits	
year	Shoes	Garment	Shoes	Garment	Shoes	Garment
2017	5.58		0.64		5	68
2018	4.22		0.63	3.86	0	62
2019	4.18	8.10	0.55	7.53	25	90
2020	4.21	11.70	8.37	7.33	19	44
2021	4.87	9.05	3.63	22.08	29	48
2022	5.37	7.33	2.28	19.98	15	71
Average	4.74	9.04	2.68	12.16	15.5	63.8

Table 5. Ratings of Major Shoe Buyers' Price Negotiations Approaches

Shoes buyer	Collaborative price negotiations	Rating
F5	Hard negotiation: extremely sensitive about price	1
F2	Price negotiations focus on fixing the product cost	2
F4	Relatively easy: 25% of target price for factory	3
F3	Collaborative: open costing that includes profit margin	4
F1	Collaborative and includes a built-in 7.5% profit margin	5

Table 6. Purchasing Practices and Worker Outcomes at FFF.

Variables	Average monthly wages	Worker attrition rate (N)
Line-month main buyer's collaborative price negotiation	**155.397*** **	**-0.644** **
	(35.730)	(0.195)
Line-month main buyer unit price	-23.494 †	0.072
	(12.520)	(0.088)
Order volatility from quarterly average	**-5.457** **	**0.057***
	(1.479)	(0.025)
Total number of buyers in the month-line	-19.146	0.177
	(37.609)	(0.246)
Total workers at the production line	-15.724***	0.053
	(2.442)	(0.053)
Total pairs produced in the month-line	41.582***	-0.106
	(6.511)	(0.073)
Factory unit B	-19.744	-0.811*
	(109.704)	(0.302)
Factory unit C	-986.412***	3.797
	(171.277)	(3.095)
Intercept	9579.096***	-0.787
	(467.243)	(7.668)
Observations	127	112
R-squared	0.576	0.207

Note: OLS regression coefficient and standard error clustered by production line in parenthesis. Attrition rate (N) is in the next month after the independent variables. † p<0.10* p<0.05, ** p< 0.01, *** p<0.001 two-tailed.

Table 7: Factory Unit Allocation of Garment Supplier's Major Buyers

Buyer	Designated factory unit	FY18-19	FY19-20	FY20-21	FY21-22 Mar
G1	3	38%	44%	65%	62%
G2	2 (and 1)	25%	29%	17%	14%
G3	4	69%	63%	51%	8%
G4	3	3%	8%	7%	8%
G5	1	7%	33%	19%	12%

Table 8. Ratings of Major Garment Buyers' Price Negotiation and Payment Terms

Buyer	Competitive price negotiation	Price negotiation rating	Long payment days	Payment terms rating
G5	Constant price pressure	5	78 days	3
G1	Cost based bidding	4	90 days	4
G4	Country-based benchmarking	3	Leader, 60 days	1
G3	No adversarial negotiation	2	Faster than average	2
G2	Target price with profit margin	1	90 days	4

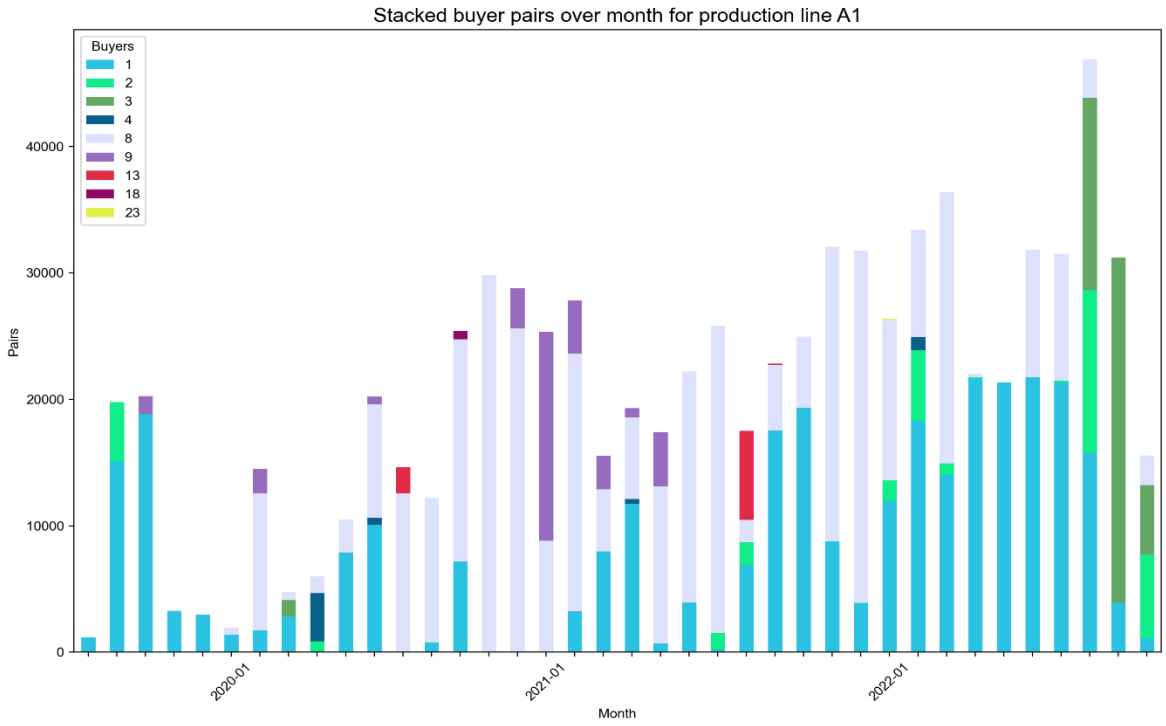
Table 9. Purchasing Practices and Labor Outcomes at GGG.

	Average monthly wages	Worker turnover rate (N)	Average overtime hours
Unit monthly main buyer competitive price negotiation	**-73.941***	**0.176***	**-0.453†**
	(15.977)	(0.034)	(0.178)
Unit monthly main buyer long pay days	**-224.079†**	**-0.442***	0.489
	(82.056)	(0.113)	(0.767)
Unit monthly main buyer unit price	**0.240†**	0.0005	0.002
	(0.076)	(0.001)	(0.001)
Order volatility from quarterly average	**4.056†**	0.019	0.003
	(1.572)	(0.029)	(0.016)
Number of buyers in the unit-month	11.498	0.177	-0.011
	(55.152)	(0.263)	(0.641)
Percentage of women workers	136.209†	-0.140*	-0.035
	(46.673)	(0.043)	(0.545)
Total order pieces produced (10k)	6.576	1.835	0.322
	(7.929)	(4.481)	(0.186)
Factory unit size (log workers)	-8056.706**	-0.279	7.371
	(1227.034)	(0.193)	(5.566)
Man-days (1 k)	217.492***	-0.138	0.143
	(15.922)	(0.128)	(0.145)
Factory unit fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Observations	179	116	179
R-squared	0.708	0.286	0.567

Note: OLS regression coefficient and standard error clustered by production line in parenthesis. Worker turnover rate (N) is measured at the next month after the independent variables. † p<.10, * p<0.05, ** p< 0.01, *** p<0.001 two-tailed.

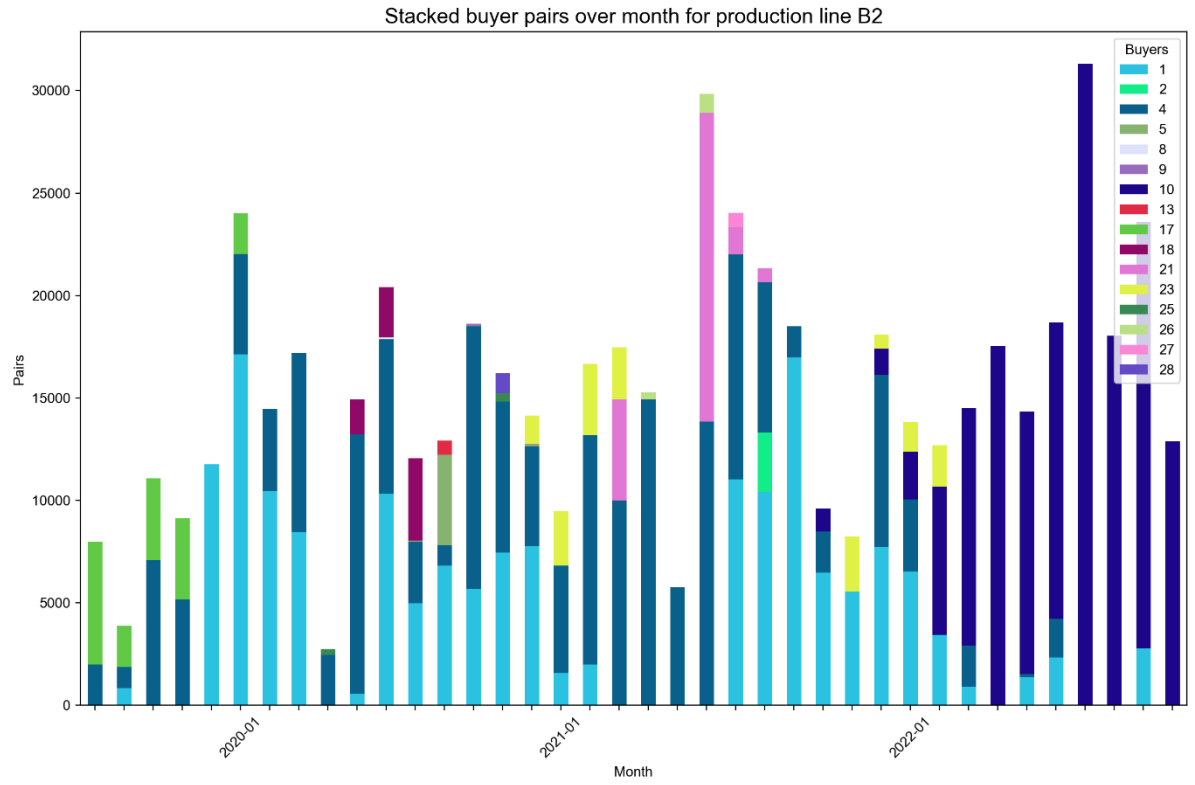
Figure 1A: Buyer Allocation for Shoes Production Line A-1

Note



Note: small buyer 8 (light purple) is the consistent main buyer for A-1 in 2020 and 2021.

Figure 1B: Buyer Allocation for Shoes Production Line B-2



Note: small buyer 10 (navy) is the consistent main buyer for B-2 in 2022.

Figure 2: Pairs of Shoes Ordered by Major Buyers of Shoe Supplier

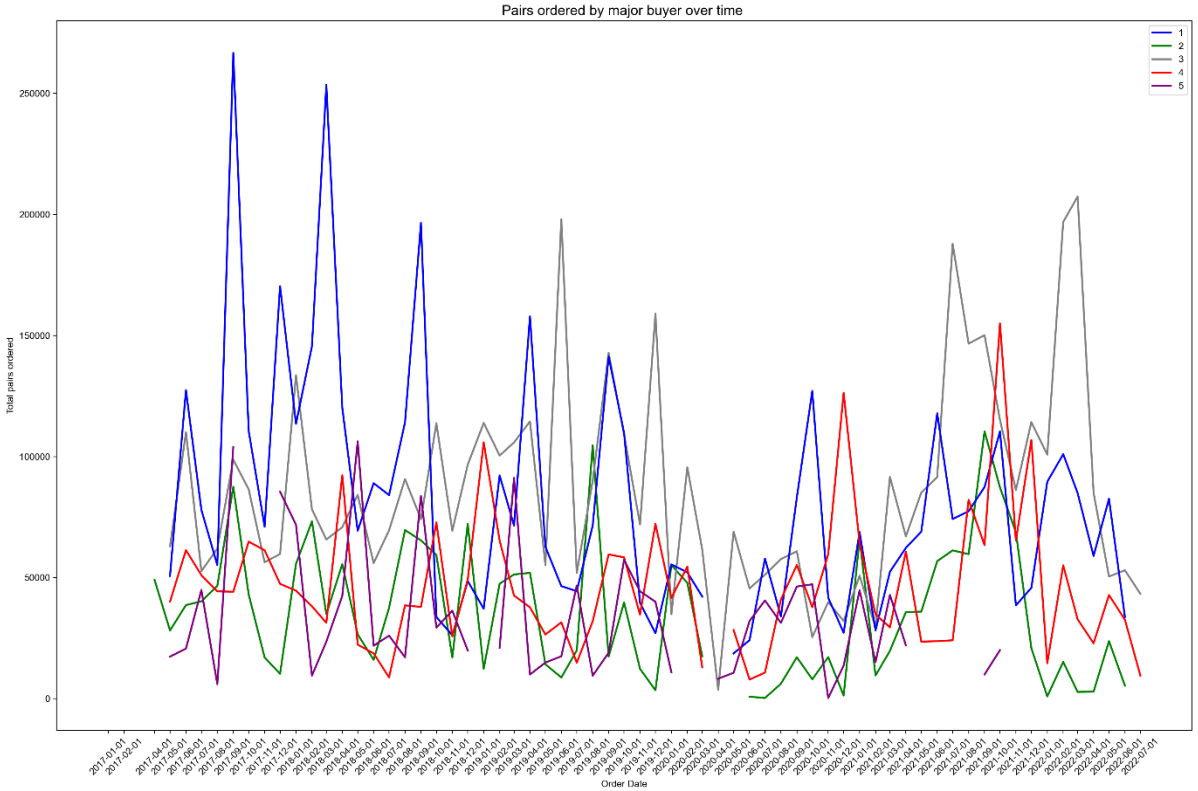


Figure 3. Pieces Ordered Major Garment Buyers of GGG

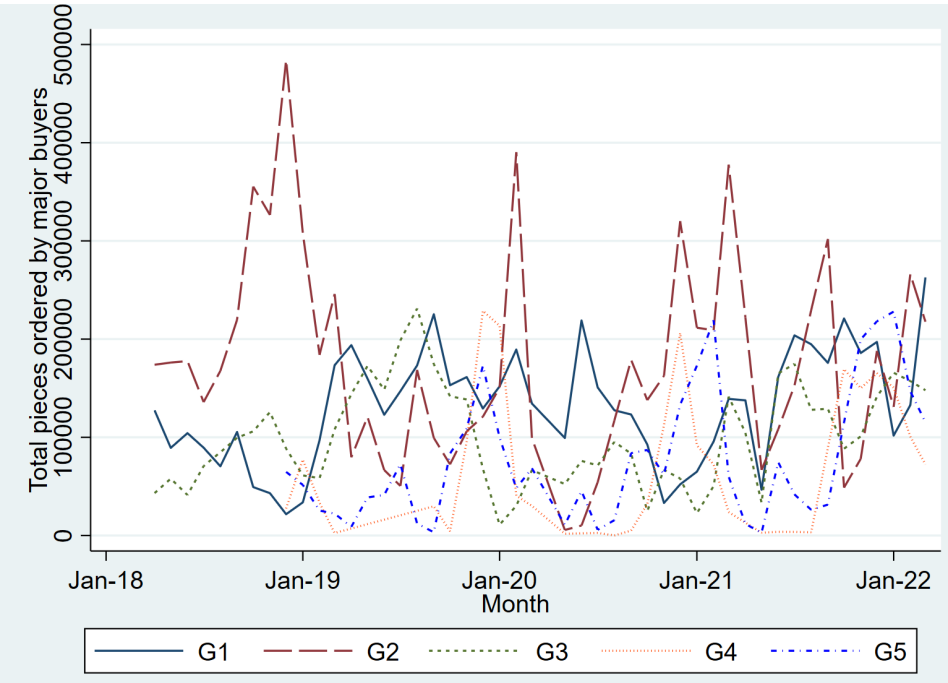
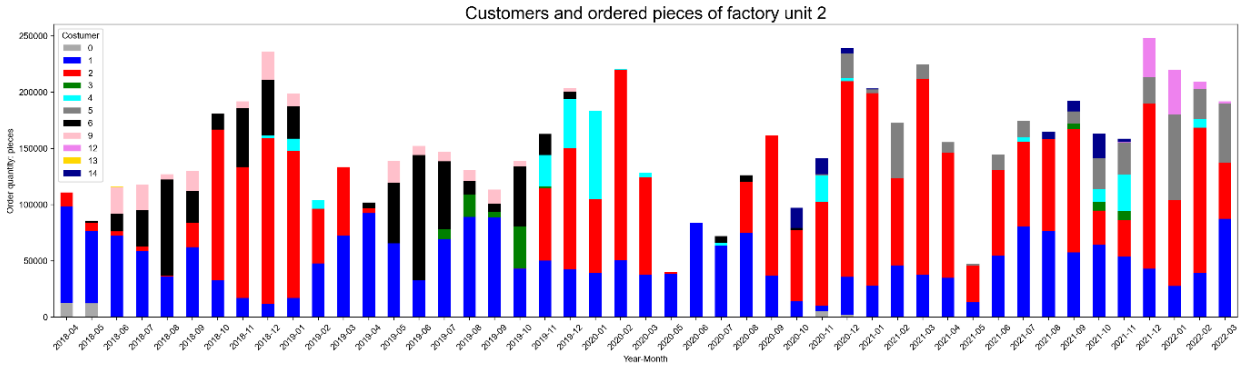


Figure 4A. Major Buyers of Garment Factory Unit 3

Note: small buyer (4 in light blue) is the main buyer for unit 3 in winter months of 2020 and 2021

Figure 4B. Major Buyers of Garment Factory Unit 2


Customers and ordered pieces of factory unit 2
Costumer
0
1
2
3
4
5
6
9
12
13
14
Order quantity: pieces
Year-Month