

Organization, Management and Wage Practices in Pakistan's Electrical Fan and Ready-Made Garment Sectors

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Management is 'hot topic' among economists now too

- * Recent rigorous empirical research confirms evidence of the profound and positive impact of sound management practices on firm-level productivity (Bloom and Van Reenen, 2007; Bloom et al, 2013)
- * 1/4 of the variation in total factor productivities can be explained by the quality of private sector management (Bloom 2014)

Family firms

- * Recent research is also highlighting the role of family firms in firm productivity, management, and growth
 - * Bloom and Van Reenen (2007)
 - * Bandiera, Prat, and Sadum, (2013)
- * Family firms often rely heavily on family members for management roles
 - * Ilyas (2006) showed that this stunted the growth of firms in Sialkot
 - * Lack of cadre of middle management (chicken or egg?)
- * Succession issues

Optimal wage schedules

- * Piece-rates and performance-based pay have proven effective in increasing worker productivity, both in developed and developing country settings
 - * Bandiera et al (2005); Choudhary et al (2013); Goto et al (2013); Kaur, Kremer, and Mullainathan (2014); Shearer (2004); Shi (2010)
- * But there can be a quality-quantity trade-off
 - * Paarsch and Shearer (2000); Heywood et al (2013)

Piece-rates

- * Piece-rate wages common in Pakistan
- * It's been suggested that it is needed to incentivize workers where management weak
- * Piece-rates accompanied by good monitoring, or fixed wages paid to diligent workers can maintain both quality and productivity
 - * Heywood et al (2013)

Introduction to the fan sector

- * Clustered in the Gujrat and Gujranwala districts of Punjab province
- * The largest three firms in Gujrat produce roughly 1/2 of output
- * Domestic sales take place mainly through distributors, and each of the large firms has a different regional strength
- * Exporting is a recent phenomena
- * Seasonality

Organization of Production Fans

- * Batch Production
 - * Workshops spread across the factory
 - * '*Ustad*' and '*Shagird*' system
- * Barriers to move to an assembly line system
 - * layout of factory
 - * worker's concerns about transferability of skills
 - * Bottlenecks due to absenteeism and irregular working hours

IGC Project

Incentives and Productivity: Work groups vs production lines

- * Woodruff and Chaudhry worked with a firm to address one of the barriers that the firm faced in re-organizing production
- * Designed a group-based attendance bonus
 - * depended on the number of days each month that the team's target attendance was met.
- * We found that the group-based incentive bonus increased by almost 3 days per month the number of days that the attendance target was met
→ workers were coordinating absences
 - * Comparing the attendance records of the teams offered the group-based incentive to a control group
- * After the project, some teams started working on a non-mechanized assembly line using a series of rollers

Remuneration in the Fan sector (‘Nafri’)

- * Output is measured at the team level, and the team is paid on a piece rate per unit produced
- * Each member of the team receives a share of the team’s daily output, called *nafri*
- * Daily team output is attributed to the workers present on a particular day, according to their *nafri*.
- * Monthly salaries consist of a nominal fixed payment plus their share of the team’s output, which depends on their *nafri*, the output on each day they were present at work, and the *nafri* of the other workers present on the same days.
- * Workers can get paid more on days where there are fewer workers present (holding the output constant).
 - * Reduces the incentives for workers to put pressure on their fellow team members to minimize absenteeism,

Management – Fan sector

- * Day-to-day management of production is delegated to the *ustads* and a few foremen,
 - * supervision of work, quality control, identifying and training new workers, negotiating piece rates, and monitoring attendance.
 - * In our survey of 85 workers in one of the sector's largest firms, the most common way that workers got jobs was that the worker or a family member directly contacted the *ustad*;
 - * 89 percent of the workers stated that the first 'nafri' was also determined by the *ustad*

Quality Issues in the Fan Sector

- * Quality of intermediate inputs
 - * A weak and unreliable vendor segment, although energy shortages can be partly to blame
 - * As a result, the large fan firms are not able to specialize in assembly like their competitors in China, but have to manufacture some components as well.
- * Quality defects due to batch production
 - * Piling up of in-process inventory between workspaces
 - * Machine damage caused when workers run it at a higher speed
- * Workers are not paid for defective pieces but are not penalized either
- * Older machinery especially in motor winding process impacts quality
- * Recycled materials used in motor

Fan Quality

- * The firm we worked with to incentivize attendance with bonuses reported that it believed quality had improved as a result of having more workers on a regular basis, although no formal analysis was performed.
- * One concrete change observed by management was that more fans were getting a final quality check before packing than before.

Introduction to the ready made garments (RMG) sector

- * Opportunity for Pakistan in the RMG sector as increasing wage rates in china
- * GSP Plus
- * Rapid growth in 1980's due under the MFA (Multi Fiber Agreement)
- * Productivity enhancement is needed for sustainability
- * Competition from low wage countries such as Bangladesh

Organization of Production and Management - RMG

- * Assembly line production
- * Division in the factory floor
 - * specialized tasks
- * Lack of training institutes
 - * In house training
 - * Nabi and Hamid (2013) reported trained workers constraint
- * hierarchy of supervisors (one per line/section)
 - * one quality supervisor per line (3 or 4 quality inspectors)

Issues - RMG

- * 33 line supervisors were surveyed from 6 RMG factories
- * Absenteeism (two thirds believe it to be a problem)
- * Movement of workers across firms
 - * Sliding bonus tied to monthly attendance
- * Supervisors were asked to assess whether poor planning or layout of line was important in creating bottlenecks:
 - * answers were almost evenly split;
 - * interestingly they were split amongst supervisors within the same factory.

RMG Sector: Use of SMV (Standard Minute Value)

- * Use of international table and time and motion study
- * Line balancing
- * Used to set piece rates (the market rate also plays a role)
- * Industrial engineers gauge efficiency and set targets accordingly
- * Auto Trimmers not widely adopted

RMG Sector: piece rates

- * Makino (2012) has noted this as the historical remnant of the cell manufacturing system
- * Common in RMG sector in Pakistan
 - * to incentivize workers
 - * mostly male
 - * though some may be paying fixed and some a combination of both
- * Mostly females in Sri Lanka, Bangladesh, Thailand and China
- * Haque (2009) found that firms are willing hire women at fixed wages
- * Quality from fixed wages may be better? (not tested in RMG context)
- * Negotiation of piece rates through supervisors
- * Firms have to keep in mind the market rate (movement of workers)

Authority of Supervisors in RMG Sector

- * According to our survey,
- * Supervisors have the authority to shuffle operators on the line, deal with machine break downs, discuss layouts with industrial engineers
- * Supervisors may also suggest amendments to production targets
- * Discipline issues with workers are also handled directly by the production supervisors.

Quality Issues in RMG

- * Fabric quality
 - * fabric wastages may be high as there may be pressure to accept sub standard fabric (vertically integrated units)
- * Stitching error
- * Value adding special finishes (wet and dry processes)
- * Piece rates? (next slide)

Quality Issues in RMG

- * Piece rates (output vs quality)
- * Garments tracked with bundle numbers (each worker is tracked with the bundles he/she worked on)
- * After checking, defective piece is given back to the worker who made the quality defect (self routing mechanism)
- * According to Lu et al (2009) self routing maybe sub-optimal
 - * dedicated re-workers or cross workers (who do new pieces and do re-work as well) may improve quality if the worker who gets the piece right is the one who gets paid
 - * Future project idea??

Quality in RMG

- * Is it changing styles?
- * Little training on new styles
- * Nonetheless, fewer than half of the supervisors suggested that changing styles was associated with greater quality defects
- * Interesting story:
One large buyer for an international brand explained that one of their Pakistani suppliers had been the fastest factory in the world when they produced a single style of a pure cotton garment, but the efficiency fell and defects increased when styles changed and stretch fabrics were introduced

Conclusions

- * *Ustads* in the fan sector and supervisors in the garment sector exercise a fair amount of authority and discretion
 - * Mostly informal training
 - * Is there a role for more formally trained middle managers? Especially in the family firm context?
- * Monitoring of output (quality checking) also wide-spread in the piece-rate system
 - * Yet still quality is an issue
 - * Maybe try other systems –
 - * cross-routing of defects?
 - * Color card system?

Conclusions

- * Beyond quality trade-off, piece rates may have other consequences:
- * Adoption of new technologies
- * when learning is involved, workers paid piece-rates will earn less in the transition → resist innovation, unless the firm compensates them
 - * Atkin et al (2014) argue that the system of piece rate wages to the cutters of leather pentagons and hexagons for soccer balls lowered the adoption rate of a new cutting technology because it slowed the cutters down during the learning phase
- * Until management stronger and demand less lumpy, piece-rates will likely prevail in the medium term

Conclusions

- * Agglomeration as boon and bane?
- * Agglomeration has helped the manufacturing sector to develop
 - * By inducing firm entry and growth
 - * Haroon and Chaudhry (forthcoming); Delgado, Porter, and Stern (2010); Glaeser and Kerr (2009); Otsuka (2008) Rosenthal and Strange (2010)
- * But is agglomeration also locking firms into suboptimal wage/management practices and technologies??
- * Role of buyers in bringing changes in practices?