

IGC Pakistan Firms' Cluster Meeting, 26th April 2011, LUMS Campus, Lahore.

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Summary

The second meeting of IGC-Pakistan's Firms' Capabilities Research Cluster was held on 26th of April 2011, at the Rausing Centre at the Lahore University of Management Sciences (LUMS) and was designed around a visit from Professor Christopher Woodruff, who directs the IGC Firms' Capabilities Group. The meeting sought to define research questions to take this cluster forward. Participants included senior officials from the State Bank of Pakistan (SBP), members of the private corporate sector, USAID Firms Project specialists and leading academics.

10.15 – 10.35 Introductions

The meeting began with opening remarks from the Head of the Firms' Research Cluster in Pakistan, Dr. Theresa Chaudhry. Dr. Chaudhry welcomed the participants to the meeting and outlined the agenda for the day. Dr. Naved Hamid spoke about the exciting possibilities in Lahore, Sialkot, Gujranwala and Gujrat where auto-parts, surgical goods, sports goods, fans and light engineering clusters are located. He asserted that despite the negative picture presented about Pakistan, interactions with the business community reflect the dynamism and energy in the economy.

Dr. Christopher Woodruff of Warwick University expressed his pleasure at being at the meeting and enthused about the flurry of activities taking place in the cluster. He pointed out that Pakistan's Firms Cluster group was by far the most active out of ten 'firms countries' and looked forward to learning about research projects during his visit.

IGC Pakistan's Country Director, Dr. Ijaz Nabi, spoke about the adverse macro-economic situation in the country but felt that there is a great deal of vibrancy in the SME sector; the mushrooming of private education as well as success in other services sectors such as private transport, cellular phones and auto-parts reflect this. He suggested that while doing micro-level studies, a macro-level study on SMEs as a whole would be advantageous.

Dr. Mansoor Ali, Director IH & SME Finance Department at the SBP, introduced some of the studies initiated by the SBP to collect data on various sectors. These sectors include the sales, maintenance and repair of motorcycles, education, health and social work, textile fabrics, glass and ceramics, bakeries, auto-parts manufacturing, oils and fats, flour and rice mills, as well as a study on the fans sector. He also noted the significant 20% per year growth in the pharmaceuticals sector, where companies

are exploring new markets and distribution networks, as well as expanding exports to African and South-East Asian countries.

10.35 – 12.40 Presentations of Research Ideas by Members of the Firms Capabilities Research Cluster

10.35 – 11.15 Presentation on the Electrical Fan Sector by Dr. Theresa Chaudhry (Lahore School of Economics)

Dr. Chaudhry initiated the presentations with her study on the electrical fan sector and highlighted that possible research questions arising from this industry. The fan sector is mostly clustered in the districts of Gujrat and Gujranwala, and comprises 450 firms, most of which are SMEs with only 6 large firms. The total output of the industry is 10 million fans a year, with exports having doubled over the last 5 years to roughly \$40 million. The major export markets include Bangladesh and the Middle East and the quality of products is judged to be better than those produced by Chinese manufacturers as the local products have more effective cooling power.

However, the industry faces issues. Production is seasonal, from January to July, and while most firms close down during the rest of the year, the larger firms continue to operate at less than full capacity. The scale of operations is relatively small – while Pakistani manufacturers produce 200-300 fans a day, their Chinese counterparts manufacture 45-50,000 fans a day. This is mostly due to outdated technology, and Dr. Chaudhry noted that if body turning, drilling and coiling technologies are upgraded, productivity has the potential to quadruple. On average, fan production takes 5 days, with paint work taking a major portion of that time.

Batch production processes were outlined, whereby significant authority is allotted to the factory foremen who are in charge of monitoring quality control and negotiating payments to team members. The industry norm for contracts are such that payments to the team leaders or 'ustaaads', are made per piece for packing, winding, assembly and painting, with the contract given to the *ustaad* who puts together teams and pays them. Payments to team members are based on pre-decided shares and are also piece rate, with fixed shares going to people on a team.

Each part of the production process has 2-3 teams, with each team given the same piece rate. However, the *ustaad's* payment share and size of team depends on his experience in the industry. While the foremen and *ustaaads* have long tenures of 15-20 years, the production workers change more often with a turnover of 15-20 a month (in a factory of 600 workers). These workers move between firms and also take frequent breaks from factory work to do odd jobs that offer a better daily wage or for farm work. Labour relations are such that foremen, *ustaaads*, and workers mostly originate from the same village and these relationships are used by the foremen to try and reduce absenteeism.

Quality control is a major issue as even though workers and foremen conduct quality checks at different points of the production process, they are not penalised for defects apart from not being paid. The rejection rate is around 5%, which is considered to be relatively high. This is primarily because the fan's motor is susceptible to damage as it is moved from one part of the factory to another, and

when the motors are stacked on top of one another. This issue would be resolved if production was shifted from batch to line, but despite a project carried out by SMEDA on one of the larger firms, it was only partially successful as it met resistance from piece-rate workers who refused to work at fixed salaries. This is because of the fact that they can take days off during a month to work on different jobs and can transfer their batch skills to other firms. Also, line production would require re-building of the aforementioned factory, which currently consists of small workshops and rooms. Moreover, with frequent electricity outages, workers can switch to manual processes in batch work, which would not be possible in line production.

As far as distribution is concerned, the company interviewed relied on a network of distributors as well as selling through its own warehouses. The distributors 'invest' by depositing money with fan companies who fix the prices at which fans can be purchased and establishing a credit line with the distributors. The distributors give a sum of money in September to fix prices for all their purchases until they have exhausted their accounts and the fan companies then use the cash to buy raw materials. The contracts offered to the distributors vary with the region they operate in: in Lahore and Rawalpindi, distributors work on a profit sharing basis and buy from the manufacturer on credit. The Multan and Bahawalpur distributors have their own business in addition to their work for the large company, and they pay in cash.

Interactions among the big firms are regular; with significant collusion among the big three firms (50% of the market). They meet regularly to discuss prices, coordinate lobbying efforts (e.g. to get sales tax refund) and discuss ways to deal with competition from cheap cottage industry fans. However, their price adjustments are sensitive to cost, with prices only raised on newly produced output. The older inventory is sold at old prices.

In terms of the research questions that were raised by Dr. Chaudry, on the production side it was asked whether demand would be more (or less) consistent if assembly (or batch) production was undertaken. This would have to be a cross-sector study as all manufacturers are currently on batch production. There were also thoughts expressed about designing an RCT where contractual terms could be altered for some teams to improve quality and reduce rejection rates.

Similarly, on the distribution side, an RCT was proposed to incentivise distributors. A query was raised about the differences in demand conditions in different areas that necessitated different contracts. The presentation concluded with a question exploring the kind of theoretical model that could be employed to study interactions among the big firms. Dr. Chaudry concluded that this would require information on costs, inventories and prices from at least two of the big firms.

11.15-11.35 'Survey to Assess Competitiveness of Pakistan's Manufacturing Firms' by Dr. Naeem-uz-Zafar (Institute of Business Administration)

Dr. Zafar assessed that manufacturing firms in textile, food, automobile, surgical, sports goods, and leather industries would be surveyed and their responses would be requested on three broad categories: (a) firms' perception on investment climate and

the business environment in general, (b) firms' state of machinery, quality, human resources, supply chain and market orientation, and (c) firms' costs, sales, and productivity data.

He recommended that input and output data from the third group of questions be used to estimate a stochastic frontier model, with the firms at the frontier being technically more efficient and setting the benchmark for comparison with firms inside the frontier. Residuals will be computed for each firm and will be related with responses from the first and second categories of questions.

The statistical relation between residuals from a stochastic frontier model, and first and second groups of questions would help in probing causal relationship between firm-specific actions and competitiveness, with the hope that this relationship would increase the understanding of critical industry specific factors and reasons for dispersion in productivity of firms.

Dr. Zafar then described the survey questions in detail, and outlined factors that would be assessed. The survey included questions regarding assessment of perception on the business environment, modes of financing, ease of doing business, machinery, human resources, equity in the organisation, linkages with suppliers and buyers, entrepreneurial orientation, marketing orientation, employment data, assets, expenditure, profits and production. He proposed focusing on large and medium sized firms producing textile products in major cities of the Punjab and Sindh provinces, with a particular focus on spinners and weavers.

11.35 – 11.55 'Reforms in Pakistan's Dairy Sector' by Dr. Kamran Mumtaz (Institute of Business Administration)

Dr. Mumtaz provided an introduction on Pakistan's dairy sector and stated that despite being the fourth largest producer of milk, the demand for milk is still higher than its supply due to inefficiencies in the supply chain. 20% of the supply gets wasted, and coupled with inefficiencies on the production side the resultant yield of milk is relatively low. In the industry, 70% of farmers have 5-6 animals on average, and therefore dairy hubs were opined to be a promising sector. The sector contributes 14% of the agricultural contribution to the GDP of Pakistan and hence there is great potential to export to markets in China and Europe.

Dr. Mumtaz suggested preparation of a policy document for reforms in the dairy sector in order to improve its performance. A test on the applicability and implementation of value chain analysis methodology in the sector was also proposed. The research methodology would include case studies, on-site data collection and value chain analyses. An outcome would then be expected on the policy advice that could be provided for reforms in the dairy sector as well as on improving the efficiency of the supply chain.

11.55 – 12.15 Presentation on 'Research Interests' by Dr. Antonio Marasco (Lahore University of Management Sciences)

Dr. Marasco's presentation focused on his research interests geared towards technological progress as an engine of growth. He focused on the relationship between income inequality and technological progress, and foreign direct investment (FDI) as a vehicle of this progress. Under the benefits of globalisation, he referred to the welfare analysis of trade and FDI, as well as the determinants and macroeconomic effects of FDI.

He outlined his areas of expertise and discussed how his research interests and expertise could be mapped for research questions for the Firms' Capabilities Cluster. Monopolistic competition and heterogeneous productivity were proposed to measure and understand reasons behind the dispersion of productivity across firms. Schumpeterian growth and growth through expansion of a variety of products, as well as competition and innovation were emphasised to study firms' adoption of new technologies as well as how these technologies spill over across firms.

12.15 – 12.35 'Technological Spillovers in the Sialkot Soccer Ball Industry' by Dr. Azam Chaudhry (Lahore School of Economics)

Dr. Chaudhry asserted that three types of soccer balls are currently being produced: (i) hand-stitched balls, which are mainly produced in China and Pakistan, (ii) machine-stitched balls, which are produced in China, India and Vietnam, and (iii) mechanised thermo-laminated balls produced in China and Thailand. 99% of soccer balls produced in Pakistan are hand-stitched and this market is over a 100 years old. A very small proportion is machine-stitched, and these balls are considered to be of lower quality than hand-stitched ones because of the number of layers involved, even though the stitching process increases productivity. The thermo-laminated or 'Jabulani' balls, which are increasingly being used in the major professional leagues as well as in World Cups are completely machine processed. Only a couple of firms in Pakistan have obtained this technology and the Government is also trying to set up a factory of its own in Sialkot through SMEDA's Sports Industry Development Cooperative (SIDC) programme.

Pakistan's soccer ball industry has approximately 20 large manufacturers with the capacity to produce up to 10,000 balls a day. These firms also produce machine-stitched balls and are of the highest quality, approved by FIFA as 'A' quality balls. There are also a further 1,000 medium-sized manufacturers that produce a few thousand balls a day. These firms are mostly located in houses and primarily produce hand-stitched balls, approved as 'B' and 'C' grade. These are the firms that Dr. Azam proposed to focus on with technological innovation.

The soccer ball production process consists of laminating the 'leather' with layers of cotton or polyester using latex glue. Leather, cotton and polyester are mostly

produced in Pakistan, while the glue (which costs PKR 70,000 per drum) comes primarily from Malaysia. After drying the laminated leather, it is manually cut into panels using a hydraulic press and metal dies. The cut panels are then hand-painted with designs and logos before being stitched together by hand. The stitching is sub-contracted to labour outside the factory and on average a person can stitch up to 3 balls a day. If a stitching machine were used, one person could stitch approximately 8-10 balls a day.

As part of possible technological innovations, Dr. Chaudhry suggested mechanised lamination, cutting, painting and stitching processes but all four had their drawbacks ranging from use of cheap labour and electricity shortages to training labour specifically to operate stitching machines. Furthermore, he asserted that firms are reluctant to change their production processes too drastically. Secrecy is another major issue in the industry and even if the technology is introduced in one firm it is difficult to ascertain how that would spill over to other firms in the industry. He stressed that as work on this project is still in its nascent stages, a suitable technology is yet to be identified and efforts towards this end will be conducted.

13.50 – 14.45 'Issues on Productivity of Firms' by Dr. Christopher Woodruff (University of Warwick)

Dr. Woodruff's presentation focused on a study by Bloom and Van Reenen et al. that compared management practices in manufacturing plants across various countries. He noted that low income countries, such as China and India score much lower than high income countries, such as USA and Germany, across a range of performance indicators. One of the indicators analysed how companies stored spare inventory; companies with poor management practices most often had inventory rooms filled with unlabelled and randomly piled stocks. In better performing companies inventories were stacked in an organised manner, correctly labelled and with information about their type, age and location stored in an electronic system.

To assess the impact of changes that could be brought about, a direct approach in the up-gradation of management quality was taken by picking a sample of 20 textile factories in India. Under this experiment, 14 firms were treated while 6 were controlled, and changes in quality and management practices were measured. It was noted that adoption of these management practices did increase for the treatment firms in particular. It led to greater communication in terms of weekly meetings and discussions, record keeping became more detailed and digitised, and incentives, such as bonus payments, were introduced to detect quality defects. It was estimated that the average impact of improved inventory, quality and efficiency was roughly \$246,000 a year.

This experiment led to a query regarding whether firms in lower income countries suffer from lack of good management practices owing to their informal family-owned structure and whether formalising would lead to changes in behaviour. To study this, Dr. Woodruff, De Mel, and McKenzie undertook a project in Sri Lanka where they offered incentive payments to small firms if they registered with the Division

Secretariat. The experiment was conducted on 500 firms split into 5 groups of a 100 firms each, and looked at the costs and benefits of registering their businesses. Based on a survey done with the firms after the treatment, it was noted that while 36% of the firms did not see any additional benefits on registering their business, the remaining did perceive some improvement. A year after the treatment, even though there was no empirical evidence of significant improvement in profits or grant of government contracts, there were significant changes in firms' attitude towards the government.

Dr. Woodruff explained that through research conducted on numerous microenterprises, it can be argued that while it is possible to increase incomes of these small firms, it is very difficult to increase their growth rates. He gave the example of a study by Kaur, Kremer and Mullainathan (2010), where a varying type of contract was offered to workers. It involved the offer of an 'incentive' contract to the workers who could choose to take this contract and obtain a bonus payment on achievement of a certain level of production. Despite the fact that this incentive contract eventually resulted in earning the same amount of wages as those on a regular or 'control' contract, 35% of the employees ended up opting for the incentive contract. This was primarily due to the psychological impact that led workers to believe that working harder would lead to increased earnings on pay day, and resulted in improved productivity for the firm. He concluded by outlining a number possible ways to understand the productivity of firms; from improving communication and trust within organisations to offering incentives and trusting contractual relationships across firms as possible avenues.

14.45 – 15.45 Perspectives of the Private Sector

In a discussion with industry specialists, Aamer Mohsin of Servis Group, Mobeen Mughal of Mughal Steel, and Mubarika Aijazuddin of USAID: FIRMS, provided their perspectives on the issue of management practices. Mr. Mohsin introduced his company, which is one of the largest shoe manufacturing companies in Pakistan and has a retail network of over 480 stores and 30 wholesale dealers. The payment structure is such that 90% of the salary is commission-based. Recently the Group noted a decline in its gross margins and decided to implement a franchise programme. Mr. Mohsin described the franchise business programme conducted by Servis Group, whereby the enterprise decided to outsource some of its more profitable retail outlets to franchises. Under this treatment, the company has already outsourced a 100 out of over 480 of its outlets in order to run them more efficiently. Most of these are smaller (500 square feet) outlets, with the company believing that it can better manage the larger stores on its own. The franchisee expects a 30% return on investment in 5 years and pays for the security and outfitting of the store. The Group expects returns to triple over the 5-year period. Servis Group provides the franchisee with the staff to run the outlet while the franchisee pays for their salaries and benefits. Over the one year period since the programme was conducted, franchised stores grew by 20% more than the non-franchised ones. Furthermore, the programme solved the 'local hiring' problem that Servis was facing.

Mr. Mughal gave an introduction to his company, which produces steel manufacturing products for construction, cutlery and surgical goods industries. He described how the company decided to introduce an IT system to streamline the process of providing information to the management and eliminate human intervention. The company faced delays in gathering and processing of data from different departments and that had an adverse effect on the efficiency of the business. The information ranged from value of inventory to bidding for contracts and the company sought to streamline the entire process, and obtain more precise costing figures. The new IT system introduced assisted the company in better controlling its material flows and financial information. It also improved the flow of documentation within the company. Following the success of this programme, the company also introduced performance evaluation systems in its Human Resources Department, which included a balanced score-carding system. The company is currently working on 'lean manufacturing' as well. Mr. Mughal asserted that his company was better able to identify leakages and cut down the threat of theft and fraud through these IT information systems.

Ms. Aijazuddin described the FIRMS project being undertaken by USAID and explained how it is promoting economic development. Her department is working on the textiles sector and they are identifying ways in which the sector can be strengthened. She highlighted cotton ginning as being the weakest sector identified by USAID. To improve this sector, three interventions have been introduced. Firstly, out of 1,200 ginners, 800 are operational and the organisation is conducting a survey of 40% of them. This will assist it in gathering information on standard operating procedures (SOPs), productivity and technological ability, which will then be shared with the Ministry of Textiles. Work will then be conducted on a joint-basis to improve the performance of these firms. Secondly, USAID will carry out a detailed technological audit of 10% of these firms (i.e. 40 firms) to come up with a guide of what SOPs should be implemented and what certification these firms would need to become competitive. Thirdly, USAID aims to create a more enabling environment by reviewing existing regulations and laws. It seeks to propose recommendations on existing legislations and provide data to the relevant Ministry to kick-start the process of amendments. This would assist in promoting efficiency at the firm-level and improve the overall legislation and governance of the sector.

15.45 – 16.30 General Discussion and concluding remarks

Dr. Mansoor Ali of SBP explained that the central bank is working towards gathering more information on different sectors to assist in research studies such as the ones that were discussed in the meeting. He also gave a description of the 'Guarantee Scheme' introduced by the central bank to incentivise banks into lending, with the banks being compensated up to a certain amount by the SBP in case of defaults.

Dr. Ijaz Nabi, Dr. Naved Hamid and Dr. Theresa Chaudhry thanked the participants for sharing their perspectives and expressed their optimism on further development of the meeting's agenda.

Follow-on Activities

On 27th April, Dr. Theresa and Dr. Woodruff visited Gujrat where they interacted with two of the biggest firms in the fans industry as well as some of the smaller cottage firms. On 28th April, meetings were conducted with three vendors and manufacturers in the automotive industry. These two industries were highlighted as areas of interest and further research is expected to be undertaken on them.

List of attendees:

Dr. Ijaz Nabi	(LUMS)
Dr. Naved Hamid	(Lahore School of Economics)
Dr. Theresa Chaudhry	(Lahore School of Economics)
Dr. Chris Woodruff	(Warwick University)
Dr. Azam Chaudhry	(Lahore School of Economics)
Mr. M. Mansoor Ali	(SBP)
Turab Hussain	(LUMS)
Usman Khan	(LUMS)
Antonio Marasco	(LUMS)
Adeel Faheem	(LUMS)
Mubeen Mughal	
Farhan Khawaja	(PSIC)
Dr. Naeem-uz-Zafar	(IBA)
Dr. Arif Iqbal Rana	(LUMS)
Dr. Farooq Naseer	(LUMS)
Mubarika Aijazuddin	(USAID)
Suleiman Ghani	(USAID)
Dr. M. Kamran Mumtaz	(IBA)
Dr. Mushtaq Khan	(LUMS)
Mr. Akhtiar Ahmed	(SBP)
Saad Gulzar	(IGC)
Shahrukh Raja	(IGC)
Alishbah Ali	(IGC)