

The Constraints to Industry in Punjab, Pakistan

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Abstract

This paper identifies the main impediments to investment and industrial productivity in Punjab, which have led to a decline in growth. This is done by analyzing the impediments and constraints to productivity and investment using the World Bank's 2007 Investment Climate Assessment (ICA) data at the level of Punjab's seven main industrial zones. This is followed by an analysis of a pilot survey of 100 firms conducted in the Lahore district. Almost 71 percent of the firms surveyed declared electricity to be the most important constraint and macroeconomic stability was ranked as the second-most important constraint. An inadequate workforce, access to raw materials, and corruption were ranked third, fourth, and fifth, respectively.

Keywords: Industry, constraint, Pakistan.

JEL classification: O10.

1. Performance, Structure, and Impediments to Industry in Punjab

1.1. Performance of the Economy: Stagnating Growth

Punjab is Pakistan's largest province, both in terms of population and size of the economy. It accounts for almost 60 percent of the country's annual production of goods and services and 55 percent of the latter's population (Punjab Bureau of Statistics). Since Partition in 1947, Punjab has arguably been the country's most economically dynamic and vibrant province, contributing significantly to the national economy. However, gross domestic product (GDP) growth in the province has decreased alarmingly over the last five years and now stagnated to an anemic 2.5 percent. During the last decade, Punjab's gross provincial product (GPP) grew at an average of 5.5 percent—slightly higher than the 4 percent growth rate of the

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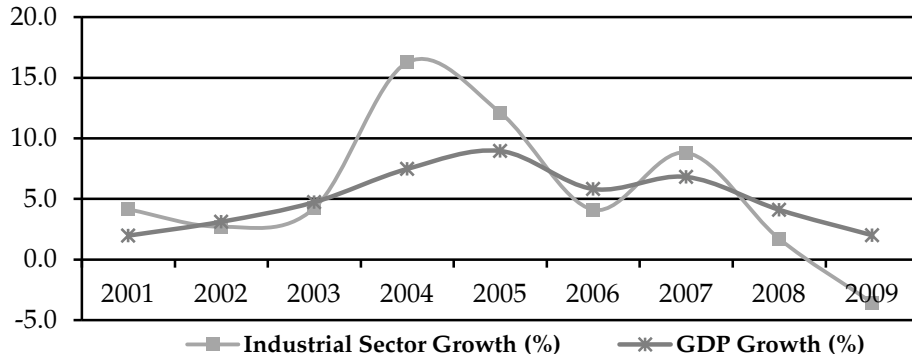
country's GDP (Punjab Bureau of Statistics). Pakistan's growth performance has been in tandem with that of Punjab, indicative of the fact that the country's economic health is inextricably linked to its largest province (Punjab Bureau of Statistics). Given that industrialization is imperative for income and employment generation and is a necessary condition for sustained economic growth and development, the performance of and issues facing Punjab's industry need to be analyzed in order to address the problem of low growth in the province in particular and the country in general.

The objective of this article is to identify the main impediments to investment and industrial productivity in Punjab, which have contributed to this unprecedented decline in growth. We do this by analyzing the World Bank's 2007 Investment Climate Assessment (ICA) data at the level of Punjab's seven main industrial zones. Manes' (2009) report based on this data analyzes the impediments and constraints to productivity and investment at the country and province level. This article focuses on the top constraints in the seven industrial zones of Punjab—analyzing the key constraint across different clusters, sectors, and firm size—that hamper industrial growth and productivity. This industrial zone analysis is followed by an analysis of a pilot survey of 100 firms conducted by a team from the Lahore University of Management Sciences in the Lahore district. The firm-level analysis is meant to gauge the industry's current situation in terms of the major constraints being faced, the cost of these constraints to firms, and the coping mechanisms they employed in response.

In terms of overall economic performance, there has been a secular decline in the country's GDP growth rate since 2007/08. Looking at Figure 1 below, what is clearly evident is the positive correlation between overall industrial growth and GDP growth. After an impressive surge in 2002, industrial growth waned and fell drastically in 2007, pulling down the national GDP growth rate within a period of two years from 6 percent to just above 2 percent. There have been structural reasons for the fragility of economic growth in Pakistan, leading inexorably to periodic boom-and-bust cycles. Some of the underlying structural weaknesses stem from the country's narrow and domestically oriented industrial base and its highly concentrated export basket, i.e., textiles and garments account for almost 50 percent of exports. However, this time a number of different factors have perversely contributed toward a prolonged recession, the main ones being a deteriorating political and security environment, a binding energy constraint, and macroeconomic instability.¹

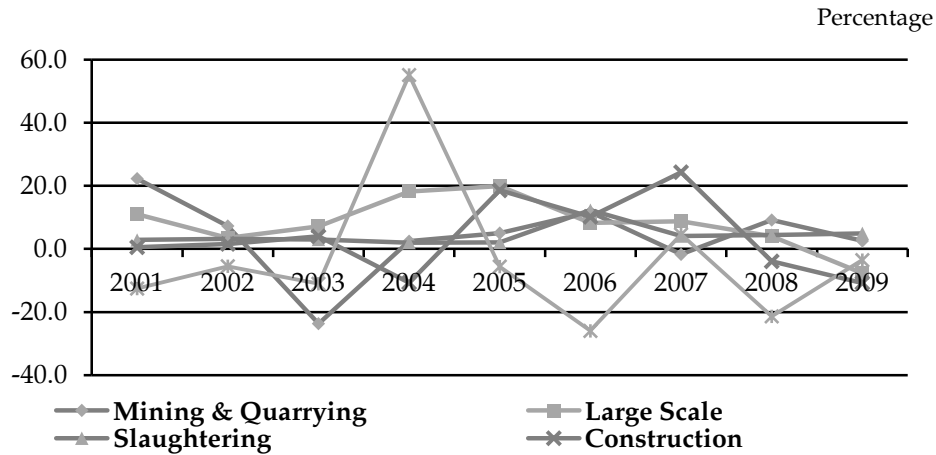
¹ Macroeconomic instability results in inflation, exchange rate depreciation, and depletion of foreign exchange reserves.

Figure 1: Industrial and GDP growth



The province of Punjab reflects the country’s conditions at large. The growth rate in the industrial sector remained strong from 2003 to 2007, with growth in the large-scale sector peaking at almost 20 percent in 2005 (Figure 2). Since 2007, however, there has been a sharp decline in industrial growth—in particular, large-scale manufacturing in the province saw a decrease of 6.7 percent during 2008/09. As mentioned above, a number of factors including political instability, chronic energy shortages, rising input costs, and lower domestic and external demand on account of recessionary conditions both locally and globally have been responsible for this decline. Export-oriented industries have also suffered due to the loss in competitiveness and fall in external demand.

Figure 2: Industrial performance in Punjab



Source: Punjab Bureau of Statistics.

1.2. Constraints to Investment and Productivity: A Brief Review

The economy of Punjab is currently going through a critical period: while population growth remains high, there has been a dramatic slowdown in the growth rate of output. The sluggishness in growth and productivity in manufacturing is fast eroding industrial competitiveness, which is bound to have serious implications for the country's future employment, income, and export earnings. A substantive improvement in the investment climate and a drastic enhancement in industrial productivity are now essential prerequisites to compete in an increasingly globalized and competitive environment of production and trade. In order to shift from the current low-growth equilibrium onto a sustained high-growth path of economic recovery, it is therefore imperative to reinvigorate the private sector by removing impediments to investment and boosting industrial productivity.

Table 1 depicts changes in firms' perceptions of the constraints identified in the World Bank's ICA in 2002 and 2007. In 2007, more than three quarters of the firms interviewed ranked electricity supply (power shortages) as the most serious obstacle as compared to 2002, when less than 40 percent of firms considered electricity supply a major constraint. Similarly, more than half the firms surveyed identified macroeconomic instability as a serious constraint in 2007 as compared to one third in 2002 (Manes, 2009).

Table 1: Firms' perceptions have changed dramatically since 2002

(Percentage of firms who view issue as a severe constraint)

Deterioration	2007	2002
Electricity	79.6	39.3
Corruption	56.7	40.3
Macroeconomic instability	56.6	34.5
Political instability	46.8	40.4
Crime, theft, and disorder	32.5	21.4
Improvements		
Tax administration	23.2	39.3
Access to finance	17.6	38.3
Anti-competitive practices	14.1	21.4
Labor regulations	5.9	15.8
Customs regulations	5.8	24.4

Source: ICA 2002 and 2007.

Despite some improvement in business environment, perceptions of crime and corruption worsened in 2007. The results clearly show that governance issues (political, corruption, and crime) coupled with power outages and macroeconomic instability were the major constraints affecting the investment climate in 2007. On the other hand, constraints that in 2007 became relatively less important for firms were tax administration, access to finance, anti-competitive practices, and labor and customs regulations.

The results of the 2007 ICA were also consistent with other surveys such as the Global Competitiveness Report, which in 2008 listed government instability, corruption, an inefficient bureaucracy, and inflation as the major constraints facing the private sector in Pakistan (Porter & Schwab, 2008).

Power sector issues have been ranked as the most important obstacle facing Pakistan's investment climate. In Punjab, almost 77 percent of firms identified electricity as a major impediment to growth. Electricity outages per month were by far the largest in Punjab compared to other provinces. Firms in Punjab have suffered severe financial losses due to power interruptions, with small firms and the textile industry bearing the highest loss. Most firms have had to resort to other means of power generation, which has mitigated the impact to some extent but increased their costs. The resultant financial loss is estimated to be 9 percent of sales in Punjab.

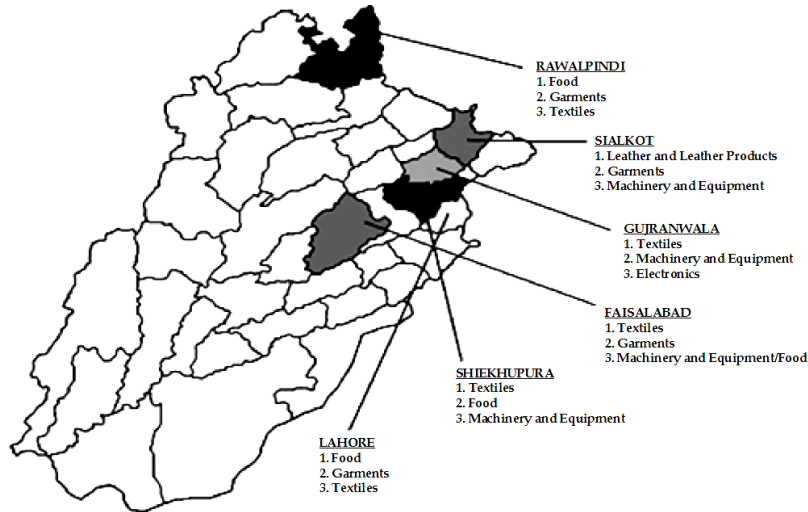
According to the World Bank's ICA for 2007 and the Department for International Development (2010), macroeconomic, political, and governance issues—all of which play a crucial role in strengthening the investment climate—were identified as the second most important set of constraints. Macroeconomic instability, political instability, corruption, and crime, theft, and disorder were ranked after power shortages. More than half the manufacturing firms ranked macroeconomic instability and political instability as a major constraint while 43 percent considered it to be among the top three constraints. Corruption was listed as a major constraint by more than half the firms surveyed, and a third ranked it among the top three obstacles. Although there was some improvement in certain areas, corruption in the business–government interface remained high. The creation of industrial zones, while solving many other problems, has apparently failed to provide a corruption-free business environment. Other important constraints that have hampered investment in Punjab are tax rates and tax administration, business licensing and permits, access to finance, and the functioning of the courts.

1.3. Main Industrial Clusters in Punjab and their Importance

Punjab's centuries-old agrarian dominance tends to eclipse the province's contribution to and potential for industrial development in Pakistan. Manufacturing industries in Punjab contribute almost 58 percent to the country's overall industrial production, and account for about 60 percent of value-added in its manufacturing sector. According to the Economic Census of 2005, there were about 3.3 million economic establishments operating in Pakistan, 95 percent of them in the private sector. The overall industrial structure in Punjab is dominated by small and medium enterprise (SME) clusters. Almost 90 percent of its private enterprises are SMEs, which employ 78 percent of the nonagricultural workforce and contribute approximately 40 percent to GDP (World Bank survey 2010).

Punjab has numerous large industrial concentrations in sectors such as textiles, leather, and light engineering goods. It also has geographically distinct industrial clusters, the most well known of which is the "industrial triangle" comprising Gujranwala, Sialkot, and Gujrat. In total, there are seven industrial zones/clusters in Punjab: Lahore, Gujranwala, Faisalabad, Sialkot, Sheikhupura, Wazirabad, and Islamabad/Rawalpindi.

The Lahore district is one of the most diversified, with industries ranging from food, carpets, automobile parts, textiles, machinery and equipment, furniture, and printing. Faisalabad is the country's textile centre, with an additional concentration in light engineering products. Gujranwala specializes in electronics and textiles, and Wazirabad in the manufacturing of cutlery. Sialkot is perhaps the most dynamic and competitive of all the industrial clusters in the province—it is a manufacturing and export hub, concentrating in leather, surgical, and sports goods. Finally, the three main industries in Sheikhupura district are textiles, food, and machinery and equipment. Figure 3 shows six of these seven industrial zones and their three major industries.

Figure 3: Punjab's main industrial clusters

Clusters are a fundamental economic unit in the economy and an important driver of competitiveness. The importance of clusters stems from the “fundamental role” they play in “knowledge creation, innovation, the accumulation of skills, and the development of pools of employees with specialized expertise” (Porter, 2007). In Pakistan, clusters contribute significantly to the country’s overall industrial development. However, more recently, cluster-level development and industrial competitiveness has been seriously hindered by chronic electricity shortages and continued macroeconomic and political instability.

Cluster- and sector-level analysis is particularly important since some constraints and issues are only sector- or cluster-specific. For instance, process-based industries incur relatively large losses as a consequence of power outages while other industries are crucially dependant on a trained workforce. A constraint important for one particular industry might not be, therefore, as binding as for another. Hence, cluster-level studies that identify sector-specific obstacles or constraints can help design more specific and targeted policy interventions.

In the following section, we briefly outline the methodology of the World Bank’s ICA survey of 2007 and the Lahore pilot survey of 2012. Section 3 identifies the top four major constraints faced by the seven industrial clusters/zones in Punjab and analyses their impact on industrial productivity and output using the ICA 2006/07 data. In addition, the analysis is supplemented by the results of the Lahore pilot survey of 101

firms across various sectors to assess current constraints and their impact, albeit on a smaller sample of industry. The article concludes with a short policy brief for the Punjab government derived from our analysis of both the ICA 2007 cluster-level data and the recent pilot survey in Lahore.

2. Methodology

The ICA survey's main objective was to identify the key constraints faced by industry and ascertain their impact on output and productivity. The methodology was based on a two-pronged approach—a perception-based survey of firm managers and an econometric analysis of the impact of the constraints on firm-level productivity. The survey identified 16 constraints that were categorized into four broad areas: (i) infrastructure, (ii) economic governance, (iii) finance, and (iv) labor market and skills. The results of the perception-based survey were corroborated by the more rigorous empirical analysis, that is, the top constraints perceived by firms were also the statistically significant constraints affecting their productivity.

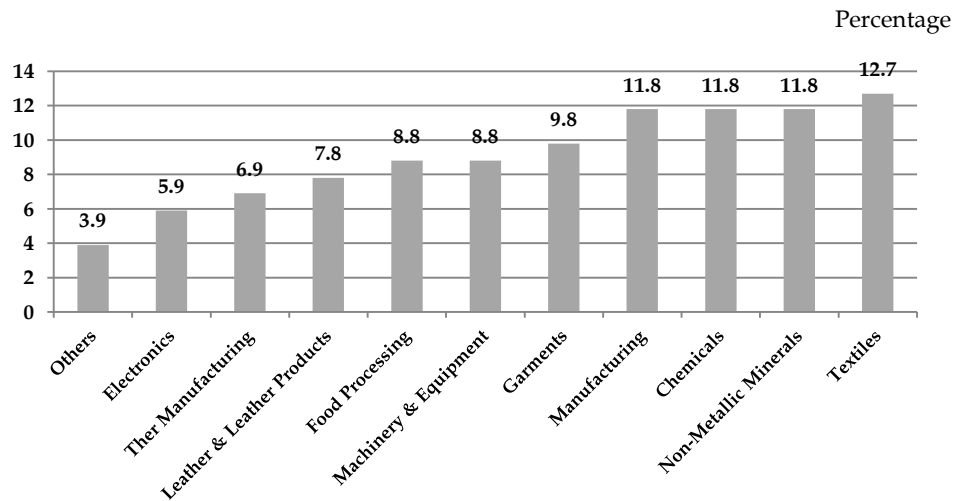
The World Bank conducted an ICA survey in 2002 and then subsequently in 2007 in 13 major cities of Pakistan (see Manes, 2009). The report based on this data analyzed the constraints to industry at the national and provincial level, but the analysis did not go deeper into the industrial clusters within each province. Our study aims to fill that gap by focusing exclusively on Punjab and its seven major industrial clusters by using the ICA's 2006/07 data and supplementing it with a recent pilot survey of industries in Lahore.

Punjab's main industrial clusters contain a diverse range of sectors, from low-value-added food products to high-value-added products such as machinery and equipment. Identifying the constraints that hamper firms' growth and productivity at the cluster level is imperative for designing appropriate and targeted policy interventions. Since these clusters are heterogeneous in terms of industry type, average firm size, legal status, and geographical location, an identical "one-size-fits-all" industrial policy might not be suited to all. Therefore, identifying constraints at the cluster level serves two important purposes: First, it will help policymakers identify and prioritize constraints at the cluster and sector level. Second, this more "microscopic" view can assist in customizing policy for clusters and sectors in order to spur industrial growth and productivity.

In order to assess the current extent and severity of the constraints to industries, we conducted a fresh pilot survey in the Lahore region (the survey questionnaire is available separately). The survey covered 101

enterprises and was focused mainly in and around the Lahore region. The purpose of conducting a fresh survey was, first, to verify the prioritization of constraints identified by the World Bank's ICA 2007; second, to identify and evaluate any changes in the impact of those constraints to industry since 2007. Finally, the survey helped explore and assess the cost and effectiveness of the coping mechanisms adopted by enterprises in the Lahore zone. Figure 4 illustrates the sector composition density of the survey respondents. The survey comprised ten key sectors with maximum concentrations in textiles, nonmetallic minerals, chemicals, manufacturing, and garments.

Figure 4: Sector coverage of Lahore pilot survey



Building sector diversity in the sample was crucial as it helped highlight the relative severity of constraints faced by different types of industries. For example, sectors that are heavy consumers of power are likely to suffer more due to load-shedding than those sectors that are not high energy consumers. Furthermore, within each sector, the scale and size of the firm also matter in determining the impact of constraints. In order to make the data sensitive to size, the survey split each sector into small, medium, and large-scale units.

As shown in Figure 5, the survey comprised around 50 percent large-scale manufacturers and around 25 percent medium and small enterprises. Figure 6 shows that, collectively, around 78 percent of the enterprises surveyed were either privately owned or under sole proprietorship.

Figure 5: Survey coverage by size of industry

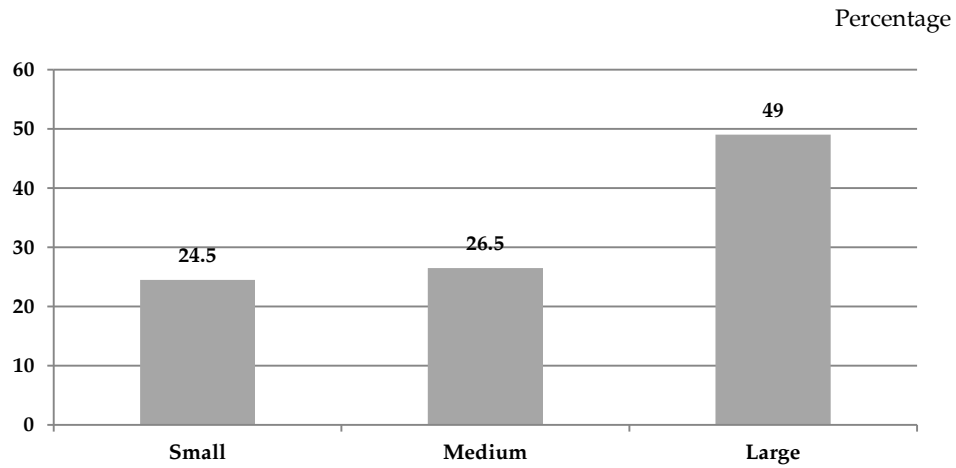
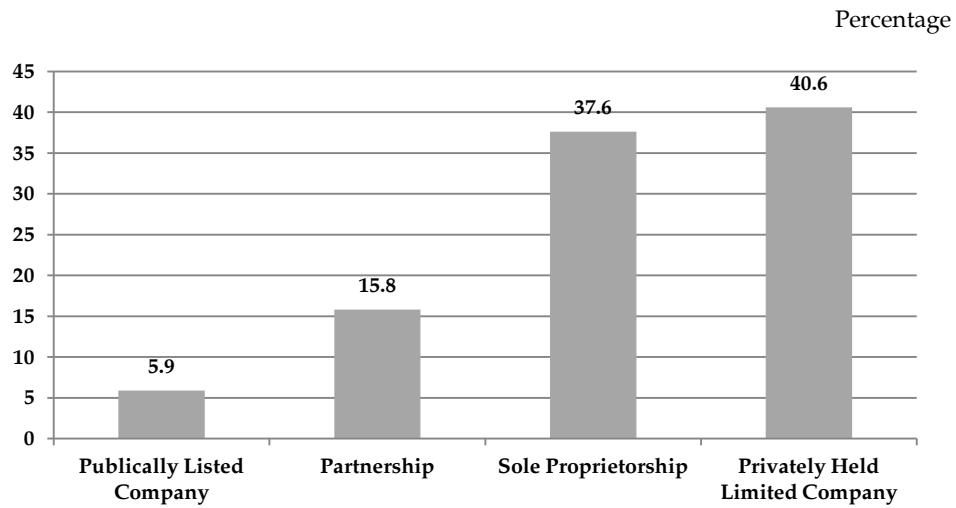
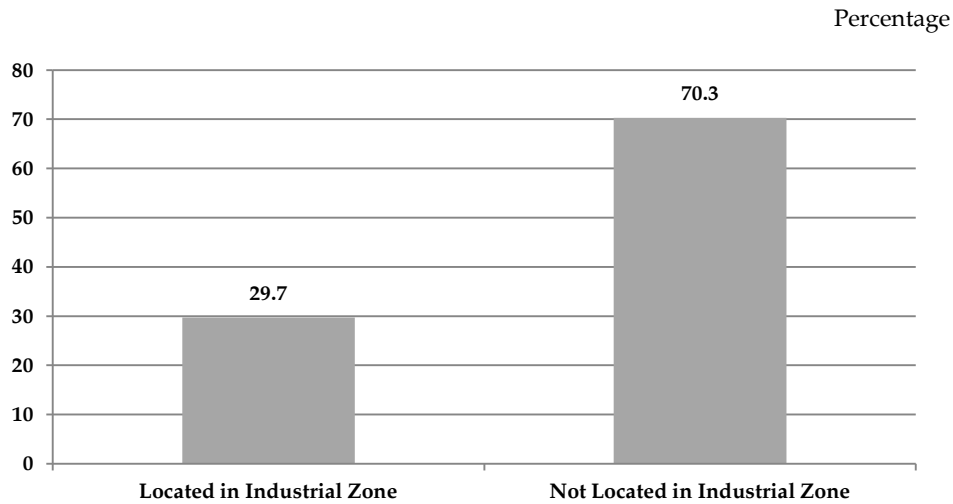


Figure 6: Survey coverage by ownership structure



The data collected was also sensitive to the location of firms within or outside an established industrial zone. This information can help determine if there are any significant advantages for firms to locate within an established zone. Figure 7 indicates the survey's coverage in terms of the sampled firms' locations falling within or outside an industrial zone.

Figure 7: Survey coverage by location within or outside an industrial zone



3. The Constraints to Industry in the Seven Key Regions of Punjab

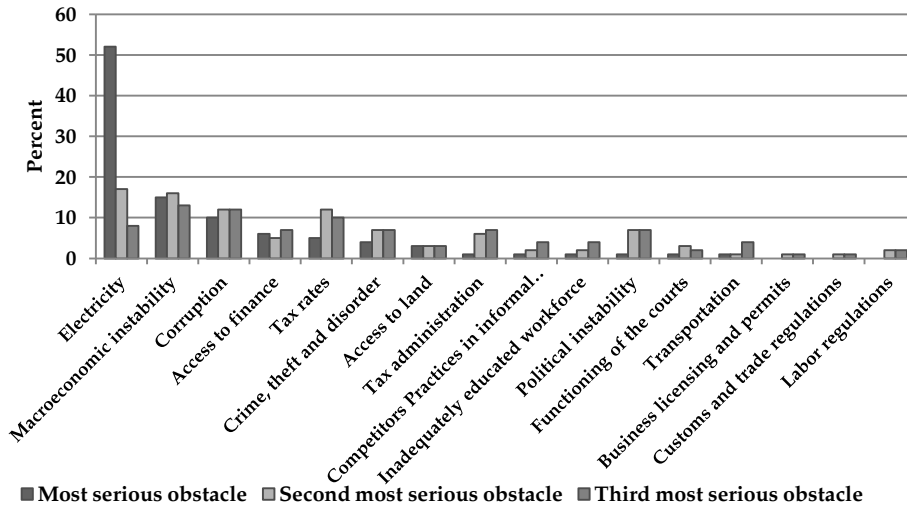
The objective of this analysis is to identify the major constraints impeding firms' output and productivity in the major industrial clusters/zones of Punjab. Using the ICA's 2006/07 data, Manes (2009) has analyzed the impediments and constraints to productivity and investment at the country and provincial level. This section focuses on Punjab, taking the analysis deeper into the province's industrial zones; identifying the key constraints hampering growth and productivity across various clusters, industries, and firm sizes; and estimating, where possible, the impact of these constraints on firm/industry output. Given that most of the constraints to industry persist today and, in some cases, have even worsened, this analysis is further supplemented by the Lahore zone analysis of 101 manufacturing firms. This is done to identify the key constraints currently inhibiting firms' growth and productivity and to reassess the impact of those constraints on the zone's manufacturing sector.

3.1. Major Constraints and Challenges Faced by Manufacturers in Key Industrial Zones: An Analysis of the 2006/07 ICA Survey

Electricity supply, macroeconomic instability, and corruption emerge as the highest-rated constraints by the firms that were surveyed in Punjab (Figure 8) in 2006/07. Among the list of constraints, the lack of electricity was considered the first and most serious issue—more than 50 percent of all firms identified electricity shortages as the most serious

obstacle out of the given list of 16 business environment obstacles. The huge rating gap between electricity and the other obstacles identified in the list is quite evident.

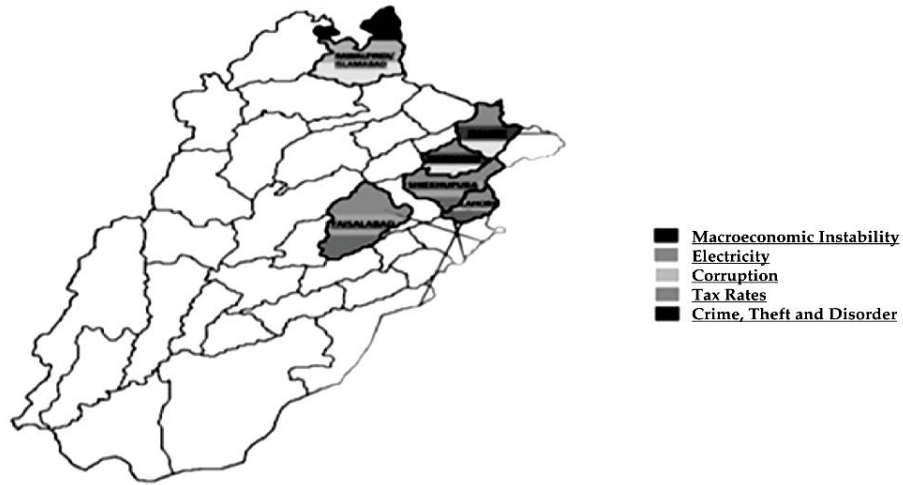
Figure 8: Major constraints faced by firms in Punjab



Source: Authors' calculations based on ICA 2007 survey.

Macroeconomic instability emerges as the second-highest rated constraint by all firms in Punjab. In this category, about 15 percent of firms ranked macroeconomic instability as the most serious constraint while 16 and 13 percent of firms reported it as their second- and third-most serious constraint, respectively. Corruption was considered the third-highest rated constraint, ranked by 10 percent of the firms surveyed as the most serious obstacle. Around 12 percent chose it as the second-most serious constraint and 12 percent as the third-most serious. The other notable constraints that firms identified were access to finance; tax rates; and crime, theft, and disorder. Figure 9 shows the major constraints in each of the six industrial clusters in Punjab.

Figure 9: Summary of overall constraints faced by all firms in Punjab



3.2. Major Constraints and Challenges Faced by Lahore-Based Manufacturers: Pilot Survey 2012

At the aggregate level, the pilot survey asked respondents to rank their top-most constraint, second-most serious constraint, and third-most serious constraint. The results show that, at the aggregate level, electricity supply was by far the most critical constraint with over 70 percent of firms classifying it as the most important and about 20 percent as the second-most important constraint. Table 2 summarizes the aggregate results of constraints prioritization.

Table 2: Aggregate constraint prioritization

Aggregate constraint analysis	Percentage of firms
Top-most constraint	
Electricity supply	71.3
Macroeconomic/political instability	7.9
Inadequate workforce	5.0
Second-most serious constraint	
Electricity supply	20.0
Macroeconomic/political instability	17.0
Inadequate workforce	12.0
Third-most serious constraint	
Access to raw material	18.2
Inadequate workforce	15.2
Corruption	13.1

These constraints are consistent with the findings of the ICA 2006/07, with the exception of the inadequate workforce and access to raw material—factors that were not identified as serious constraints at that time. Based on the summary results presented above at the aggregate level, the top five constraints hampering industrial activity in Lahore are in order of priority: (i) electricity/power supply, (ii) macroeconomic and political instability, (iii) inadequate workforce, (iv) access to raw material, and (v) corruption.

Discussions with the private sector and a large body of recent literature on industrial constraints in Pakistan show that a major impediment to its growth is the lack of skilled labor, particularly that which is highly skilled (technical personnel). The shortages are particularly acute in positions at the level of mechanics, electricians, fitters, foremen, and so on. These shortages afflict large-scale enterprises but are particularly damaging to the prospects of SMEs. Moreover, not only are skills inadequate, an understanding of manufacturing excellence is completely absent. Workers and floor-level supervisors prefer outdated techniques and are reluctant to use modern tools and techniques. The key organization responsible for technical education at this level in Punjab is the Technical Education and Vocational Training Authority (TEVTA). The industry has identified several shortcomings in the way TEVTA operates to provide a skilled workforce to the industry.

Additionally, the quality, availability, and price variance of raw materials are key factors that distort input costs and the decisions of manufacturers. Industries have to invest heavily to store sufficient amounts of inputs to guard against frequent price hikes and nonavailability. This is more so the case for imported raw materials.

Figures 10, 11, and 12 illustrate the prioritization of all the key constraints that industrialists in Lahore face.

Figure 10: Top-most serious constraint

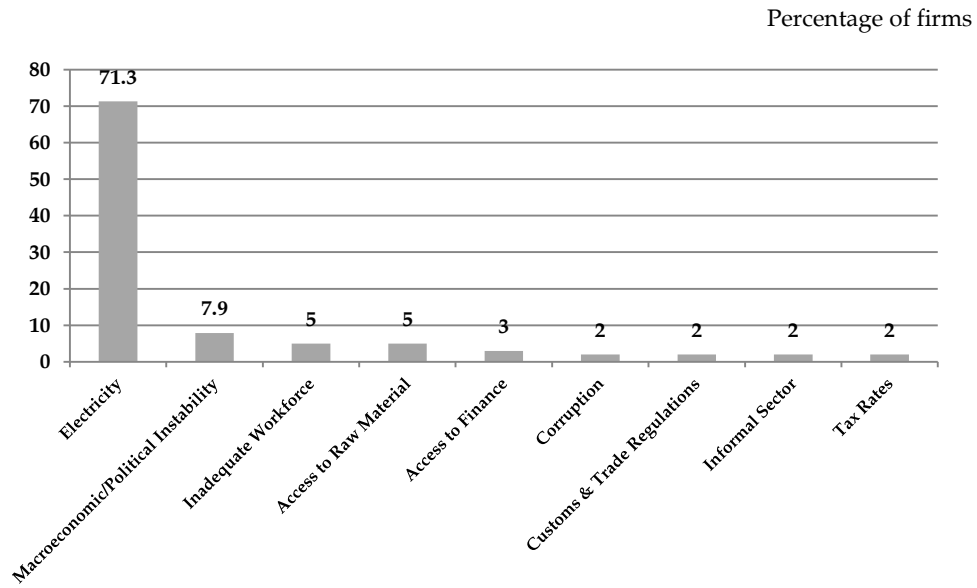


Figure 11: Second-most serious constraint

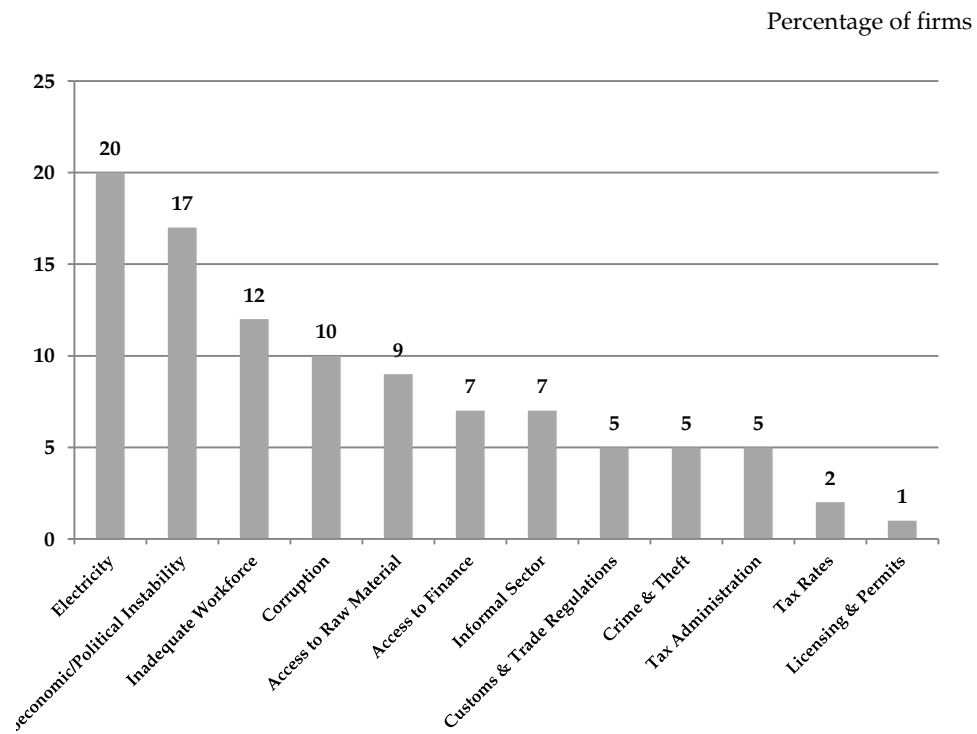
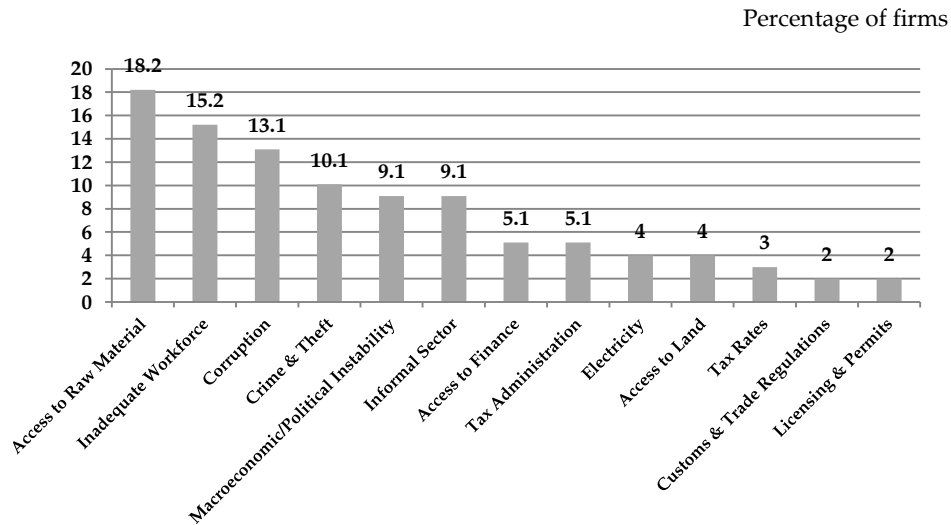


Figure 12: Third-most serious constraint

The following discussion focuses on the five major constraints identified in the ICA 2006/07 survey and in the recent pilot survey of firms in the Lahore zone. For each of the constraints, we provide a detailed comparison of their incidence and impact across the seven clusters, sectors, and firm size using both the ICA 2006/07 data and the Lahore pilot survey.

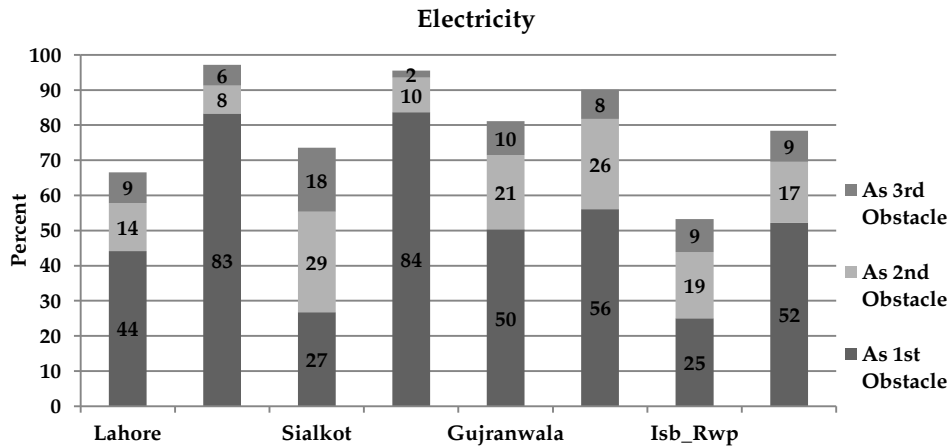
3.3. Electricity Supply

3.3.1. Introduction

The nationwide electricity shortage is the most damaging and chronic problem facing industry across the country. The impact of electricity shortages on industry in Punjab is acute and needs immediate attention and redress by both the provincial and federal governments. The first part of this section looks at the impact of electricity shortages at the cluster and sector level in Punjab, using the ICA survey for 2006/07. The second part uses the Lahore zone pilot survey of firms to analyze and assess the current situation of industry vis-à-vis electricity shortages.

In the data collected for the World Bank's ICA survey in 2006/07, electricity shortages were consistently reported as the most important obstacle to industrial growth in Punjab across different clusters, sectors, and firm sizes. This is evident from Figure 13, which shows that five out of the six industrial zones in Punjab reported electricity as being the most severe constraint to their growth and productivity.

Figure 13: Firms reporting electricity shortages as the most serious constraint

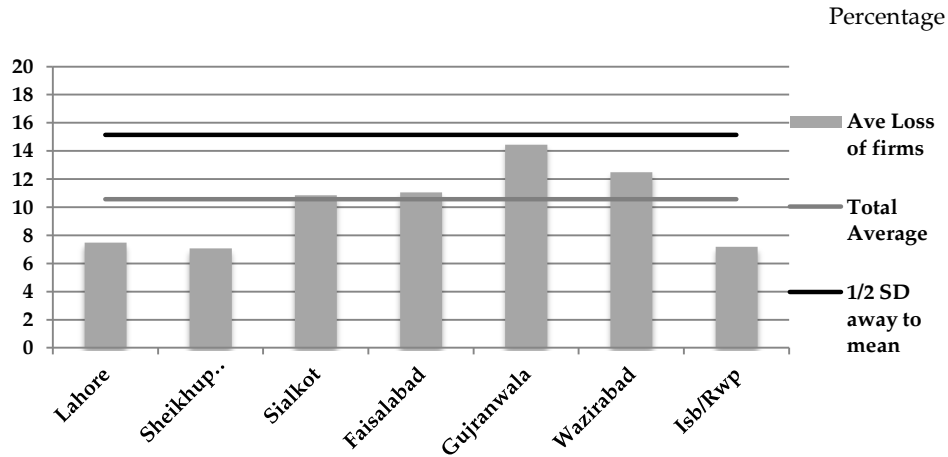


Across Punjab as a whole, almost 80 percent of firms ranked electricity among the top three most serious constraints, of which 52 percent identified it as the most serious one. Across clusters, Sheikhpura and Faisalabad are clear outliers; more than 80 percent of the firms in these industrial zones reported electricity shortages to be the most serious obstacle to their business. They are followed by Wazirabad, Gujranwala, and Lahore, where more than 40 percent of firms indicated electricity as being the most severe constraint. Interestingly, in both Sialkot and Rawalpindi, only a quarter of firms reported electricity as being the most serious obstacle, although more than half in both these clusters still considered it among the top three most severe constraints.

3.3.2. Impact of Electricity Shortages Across Clusters

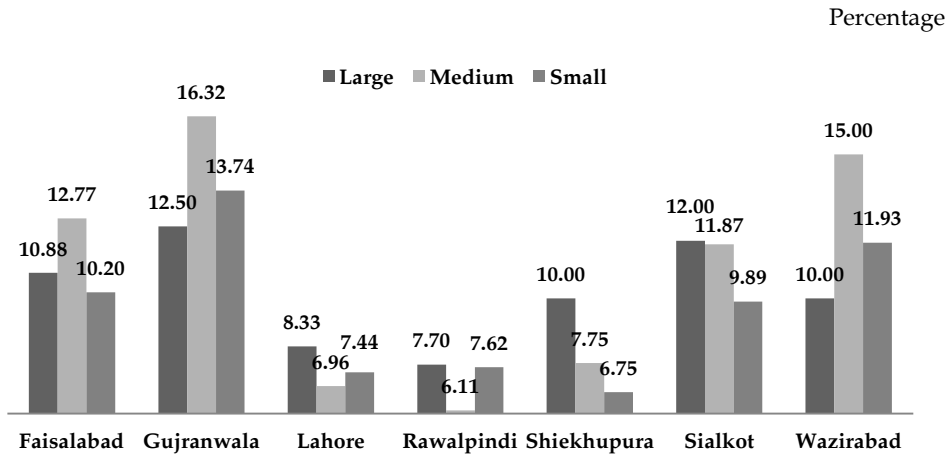
The severity of the electricity supply problem can be judged by the fact that, on average, firms in Punjab lost more than 10 percent of total annual sales as a result of power outages. The sales loss was most acute among firms located in the Gujranwala zone, which suffered an average loss of around 14 percent—almost half a standard deviation above the Punjab mean. This is followed by Wazirabad, Faisalabad, and Sialkot, where average firm losses were more than 10 percent of annual sales (see Figure 14). Although more than 80 percent of firms in Sheikhpura reported electricity supply as being the most serious constraint, the losses reported by firms in that zone were, on average, around 7 percent, which is the lowest in Punjab. Firms in Lahore and Rawalpindi fared relatively better with reported losses of less than 8 percent of annual sales.

Figure 14: All firms' average loss due to power outages



From Figure 15, it is clear that, across different industrial zones, small and medium-sized firms are more vulnerable to electricity shortages than large firms. In Gujranwala, Faisalabad, and Wazirabad, which constitute the 'golden triangle' of Punjab's industry, the losses incurred by small and medium-sized firms were substantially higher than those incurred by large firms within these zones. This result is not surprising—small and medium-sized firms generally do not have the financial capacity to generate their own power and, hence, rely much more heavily on the national grid.

Figure 15: Sales loss due to power outages across zones



Source: Authors' calculation based on ICA 2007 survey.

3.3.3. Impact of Electricity Shortages Across Sectors

Figure 16 indicates which sector within each of the six clusters has been worst affected by electricity shortages. For example, in Lahore, the pharmaceuticals sector appears to have suffered most, with almost 20 percent of annual sales lost as a consequence of electricity outages. In Sialkot, Gujranwala and Rawalpindi, the garments industry is a clear outlier. In fact, the garments industry in Gujranwala reported, on average, a 50 percent loss as a result of electricity shortages, which is by far the highest among all the sectors. The food sector in both Wazirabad and Faisalabad was the worst hit with average losses of 26 and 40 percent, respectively. Other sectors (not shown in the figure) that also suffered significant losses were electronics and cutlery in Gujranwala and cutlery and machinery/equipment in Wazirabad.

Figure 16: Highest annual sales loss due to power outages

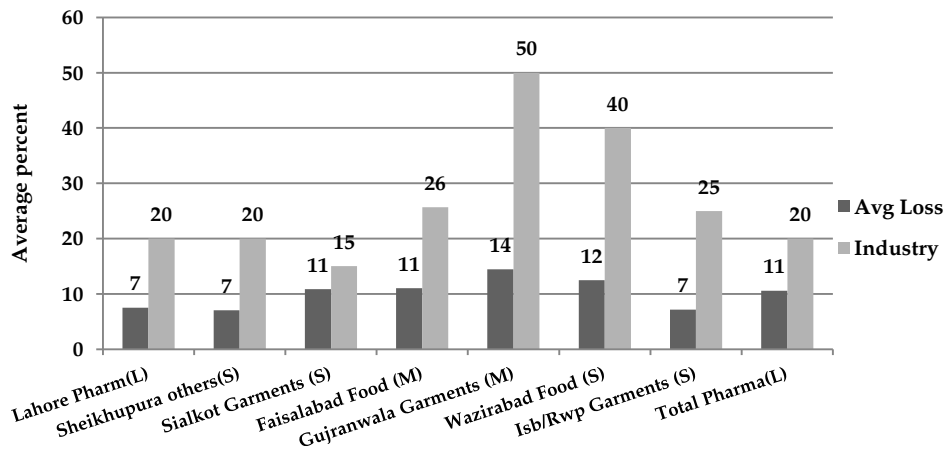
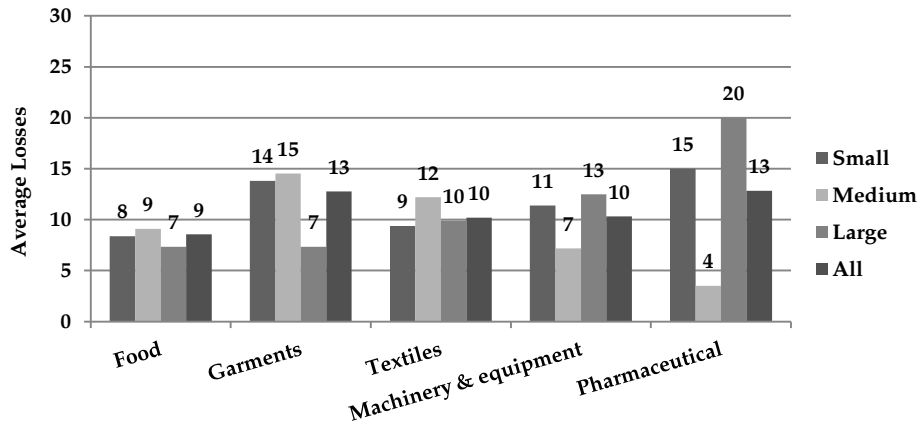


Figure 17 compares losses due to electricity shortages in the five major sectors of Punjab as reported by the 2007 ICA survey—textiles, garments, pharmaceuticals, food, and machinery and equipment. According to the survey, the pharmaceuticals and garments industries reported the highest losses in terms of annual sales. Interestingly, in the pharmaceuticals industry, large firms reported the highest annual losses—amounting to 20 percent of annual sales—while in the garments industry, small and medium enterprises bore the highest losses as a consequence of electricity shortages. Machinery and equipment, textiles, and the food sector reported, on average, losses of around 10 percent of annual sales; the variation of losses across firm size in these industries is not significant. It is

worth noting that the industries reporting the highest losses due to electricity outages are primarily process-based where an unscheduled outage, even for a short duration, is likely to have a large impact on production costs.

Figure 17: Loss as percent of total annual sales due to power outages



Therefore, according to the 2007 ICA survey, the zones worst affected by electricity shortages were Gujranwala, Wazirabad, and Faisalabad. Within these zones, the sectors that registered the highest annual sales loss were pharmaceuticals, garments, and food. Across the five major industrial sectors of Punjab, the pharmaceuticals industry reported the highest annual losses, followed by the garments industry and the textile sector. Machinery and equipment, and the food sector were fourth and fifth in terms of average annual sales loss.

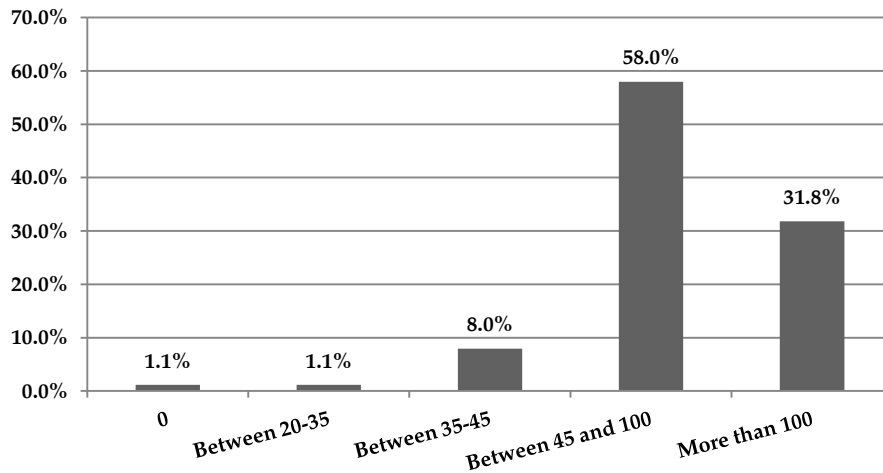
3.3.4. *The Current Situation: An Analysis Based on the Lahore Pilot Survey*

The dominant issue of power supply has emerged even more strongly since the ICA survey of 2006/07. Power shortages have multiple impacts on industrial performance. Nonavailability results in loss of production, reducing the amount of output produced by firms. Unannounced outages result in increased wastage and machine wear and tear, especially in sectors involving more automation, such as plastics and chemicals. Sudden power outages can cause more sensitive equipment or machines to break down. In some cases, the damaged equipment may require repair by suppliers located outside Pakistan, resulting in a significant loss of production time. Moreover, the lack of power at workers' homes has a negative impact on workforce efficiency and productivity.

Firms have reported that, during the summer months, workers' productivity falls significantly as they feel more tired due to lack of sleep. Finally, it is not only the availability but the increased cost of power that has become a problem for firms, especially those in the SME sector.

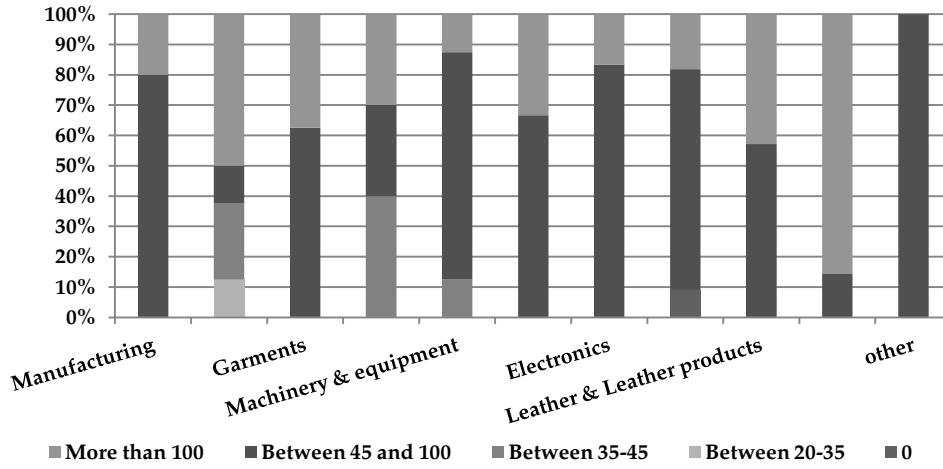
Power/electricity shortages have been identified as the key constraint that all major sectors in Lahore face across all firm sizes. In terms of the extent of the problem, some 58 percent (Figure 18) of firms consider that the average number of outages varies between 45 and 100 in a month, i.e., averaging out to more than twice a day.

Figure 18: Average number of power outages in a month



This number has worsened slightly since the ICA 2006/07, in which most firms reported there being around 45 power outages per month. Figure 19 breaks down the data on outages at sector level. All the sectors with the exception of printing, food, and textiles, reported that the number of outages per month was between 45 and 100. The majority of firms in the printing and food sector reported that the number of outages was greater than 100, while in the textile sector, the response was evenly split between greater than 100, between 45 and 100, and between 35 and 45.

Figure 19: Average number of power outages per month per sector



Interestingly, across all sectors, small firms report the highest number of power outages, averaging more than 100 per month (Figure 20). Small firms are more likely to be located outside industrial zones, implying that the frequency of outages is much higher and also more random in areas outside these zones. In the case of medium and large firms, the majority report the number of outages at between 45 and 100, except for firms in the food and chemical industries, where around 50 percent of firms report the number of outages to be greater than 100 (Figures 21 and 22).

Figure 20: Number of outages per month per sector (Small firms)

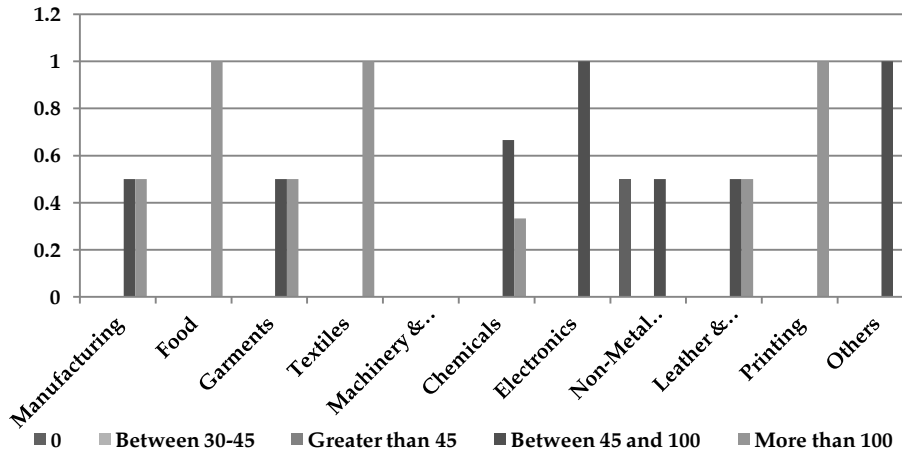


Figure 21: Number of outages per month per sector (Medium firms)

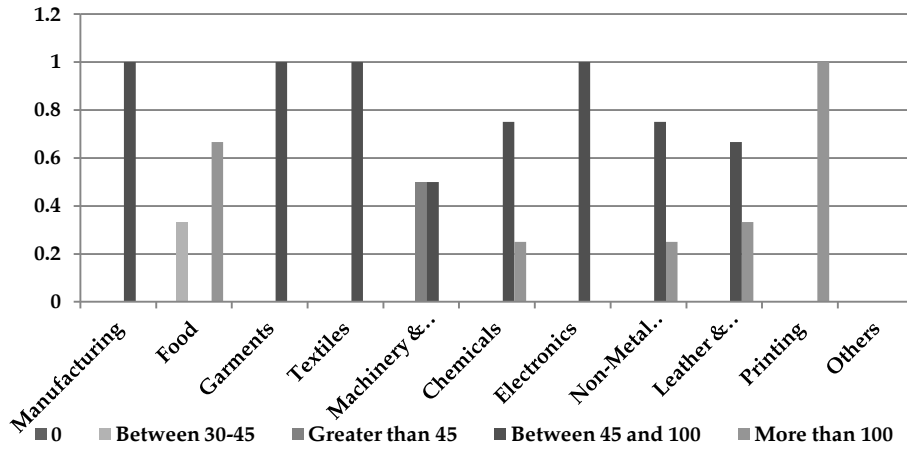
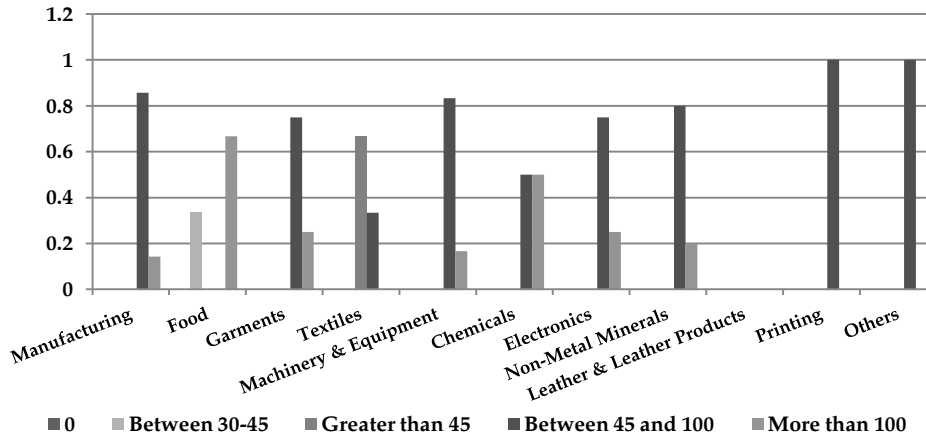


Figure 22: Number of outages per month per sector (Large firms)



Impact of Power Outages

In order to assess the impact of the power outages on the performance of industry, the survey estimates the losses to sales experienced by firms in Lahore. Since it was not possible for firms to estimate the exact amount of loss, the survey reports losses in terms of a broad range to identify the maximum and the minimum possible losses experienced. Figure 23 shows the percentage of sales lost due to power outages at the aggregate level. About 43.8 percent of the firms surveyed reported losses of less than 10 percent, about 19 percent reported losses of between 10 and 20 percent, and around 37 percent of firms reported losses

of more than 20 percent of sales. Using conservative weights, this translates into an average of loss of 15 percent of sales. This loss is twice as much compared to 2007, when it was around 7 percent in the Lahore zone.

Figure 23: Percentage of sales lost due to power outages

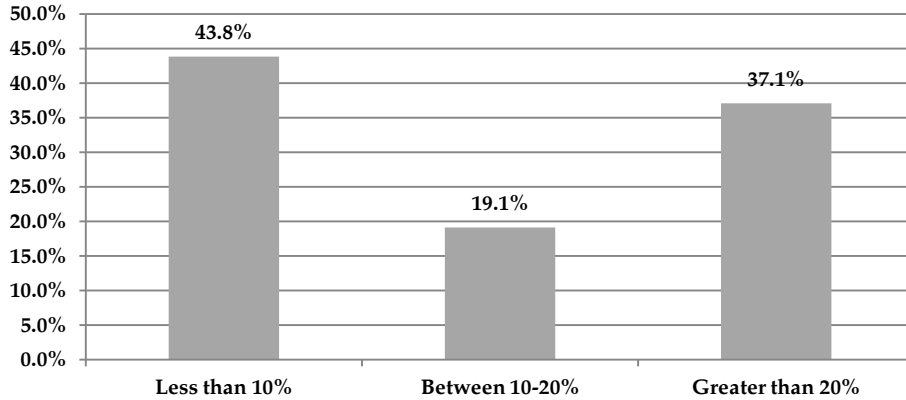


Figure 24 shows that chemicals, nonmetallic minerals (including plastic), printing, and others suffer most from power outages. More than half the firms in each of these sectors have reported that losses due to power outages were greater than 20 percent of sales. This is to be expected, given that the manufacturing processes of all three industries require an uninterrupted power supply. Interruptions result either in a loss of material or in a significant loss as a consequence of increased production downtime.

Figure 24: Percentage of sales lost due to power outages per sector

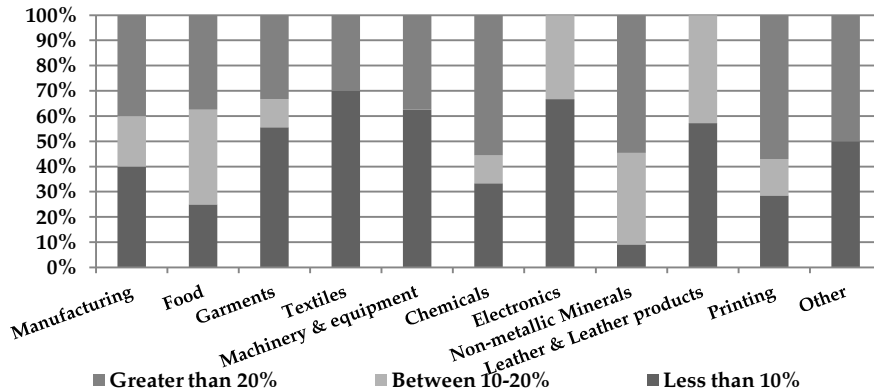
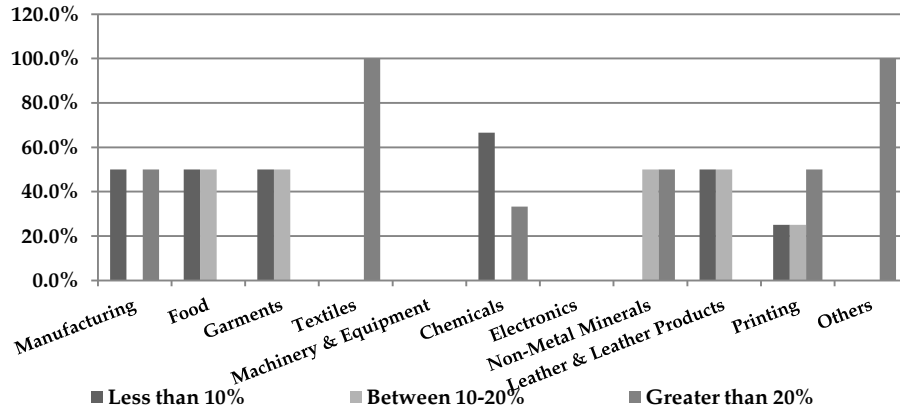


Figure 25 reports data on small firms in various industrial sectors, indicating that textiles, manufacturing, chemicals, nonmetallic minerals, and printing are the most affected by power outages.

Figure 25: Percentage of sales lost due to power outages per sector (Small firms)



Medium-sized firms in manufacturing, garments, machinery and equipment, nonmetallic minerals, and printing tend to suffer losses in sales greater than 20 percent as a result of power outages (Figure 26). In the case of large firms, the food, chemical, and nonmetallic mineral sectors are the most affected, with the greatest proportion of firms reporting losses higher than 20 percent (Figure 27).

Figure 26: Percentage of sales lost due to power outages per sector (Medium firms)

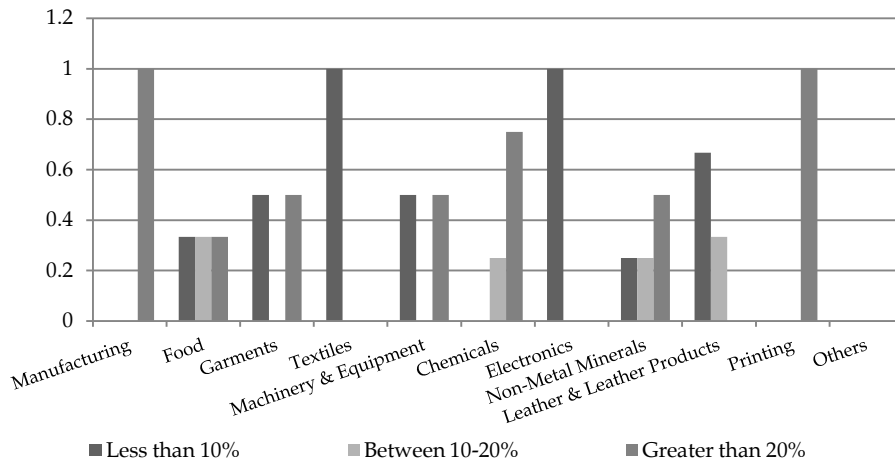
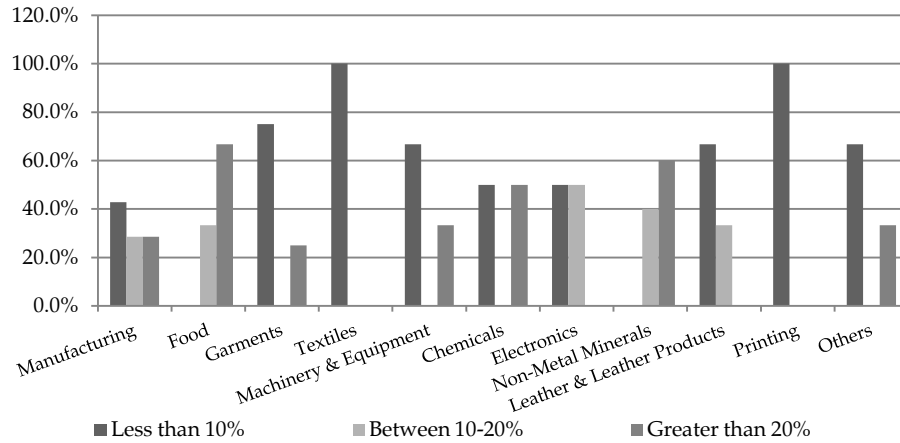


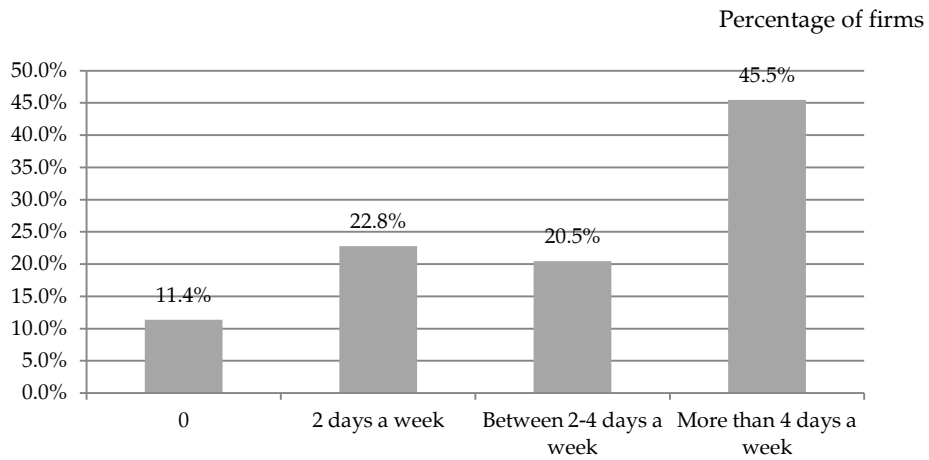
Figure 27: Percentage of sales lost due to power outages per sector (Large firms)



Gas as an Alternative Source of Power

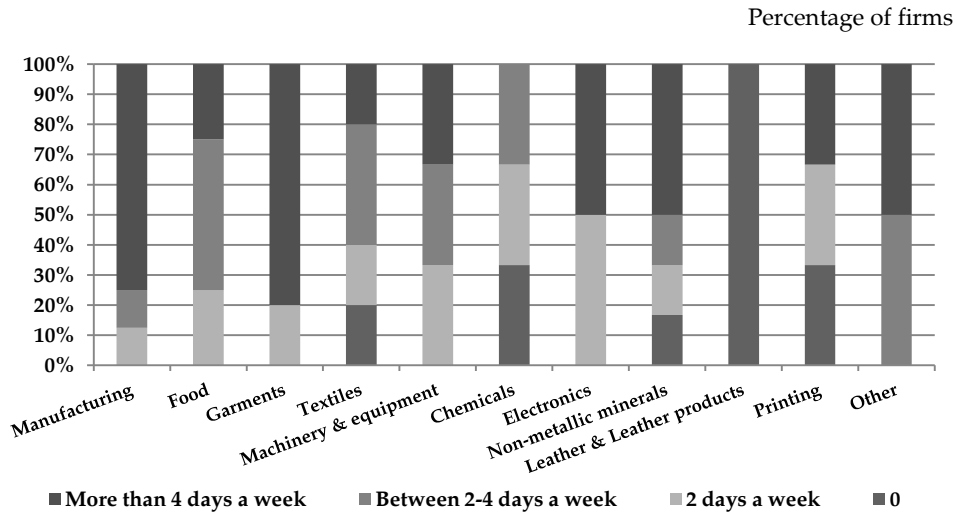
An alternative source of power to electricity is gas. However, even this is in severe shortfall in production and, currently, no new industrial gas connections are being granted. Industries with existing gas connections suffer due to the high level of gas load-shedding. The textile sector is one of the biggest users of gas, and reported having had to face 168 days of gas load-shedding in 2011. Figure 28 shows that more than 45 percent of the firms surveyed reported that gas was not available to the industry for more than four days a week.

Figure 28: Gas load-shedding



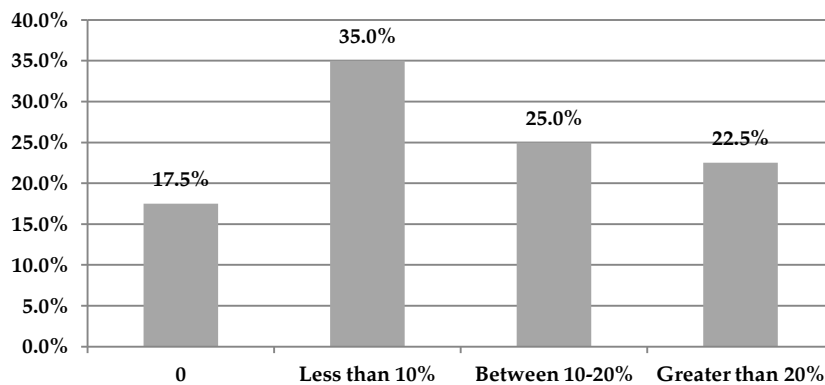
In terms of sectors, more than half the firms in the manufacturing, garments, electronics, and nonmetallic minerals sectors reported that gas load-shedding occurred more than four days a week. Figure 29 represents large firms since 90 percent of the small and medium firms surveyed did not have an industrial gas connection, while around 55 percent of the large firms were operating their factories on industrial gas connections.

Figure 29: Gas load-shedding per sector



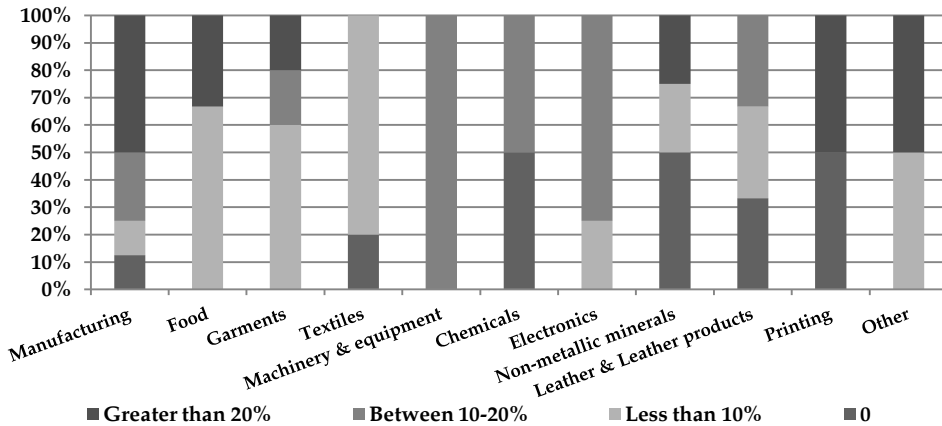
The majority of firms reported (35 percent) that the losses due to gas nonavailability were less than 10 percent of their sales, while about 22.5 percent of firms reported losses that were greater than 20 percent of their sales (Figure 30).

Figure 30: Percentage of sales lost due to gas load-shedding



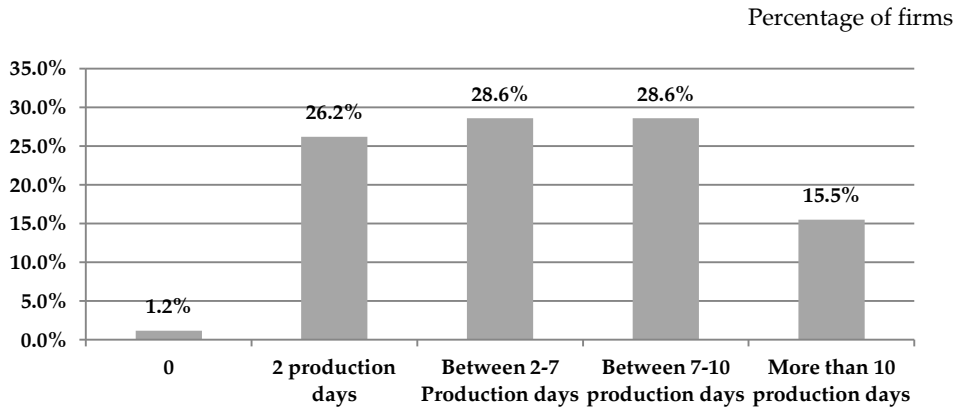
Around half the firms in the manufacturing and printing sectors reported losses due to gas shortages as being greater than 20 percent. Based on discussions with the industry, it is more likely that losses resulting from gas shortages are less than 10 percent of sales. Figure 31 presents aggregate-level data but is more representative of large firms since hardly any of the medium or small firms surveyed had industrial gas connections.

Figure 31: Percentage of sales lost due to gas load-shedding per sector



In order to further assess the impact of power shortages, the survey also reports data on the number of production days lost (Figure 32).

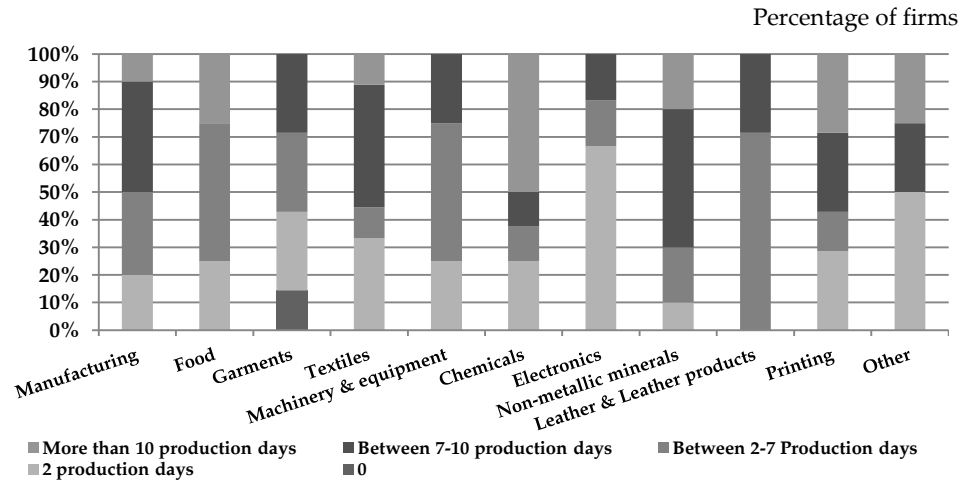
Figure 32: Number of production days lost due to power shortages



More than 28 percent of the firms surveyed reported losing 7–10 days of production time due to power shortfalls. The same percentage reported losing 2–7 days’ production time. On average, firms lose around

5–7 days due to power shortage issues. Figure 33 provides a breakdown of the number of production days lost by sector.

Figure 33: Number of production days lost due to power shortages per sector



Key Coping Mechanism

For firms, the key coping mechanism for power shortages is the use of power generators—73 percent reported using generators to meet the power shortfall (Figure 34).

Figure 34: Firms using generators to meet power shortage

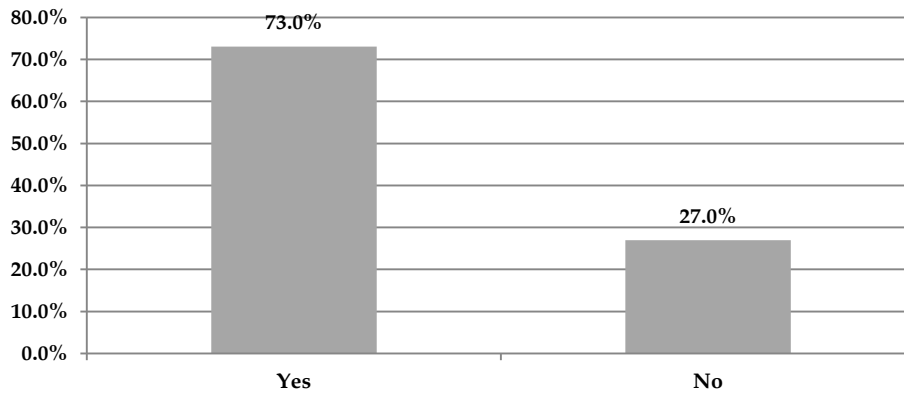


Figure 35 shows that, except for chemicals, leather and leather products, and printing, more than 70 percent of firms in all the other sectors owned generators. Moreover, the majority of these (90 percent)

were fuelled by diesel and very few by gas (Figure 36). This has an important implication for the cost of power generation. The cost of using a generator fuelled by diesel is around PKR 48 per unit of electricity, whereas the same unit if consumed from the national grid costs PKR 13. Thus, costs increase more than threefold if generators are used as an alternative power source, and this cost does not vary across firm size or sector.

Figure 35: Firms using generators to meet power shortage per sector

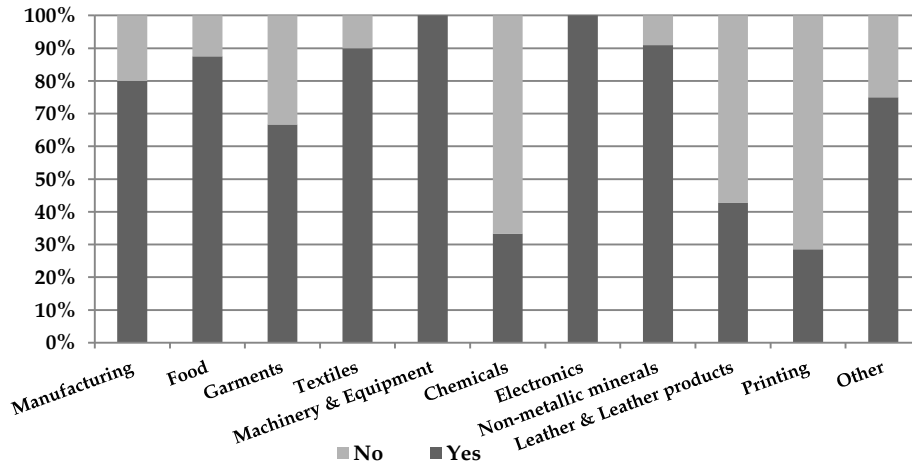
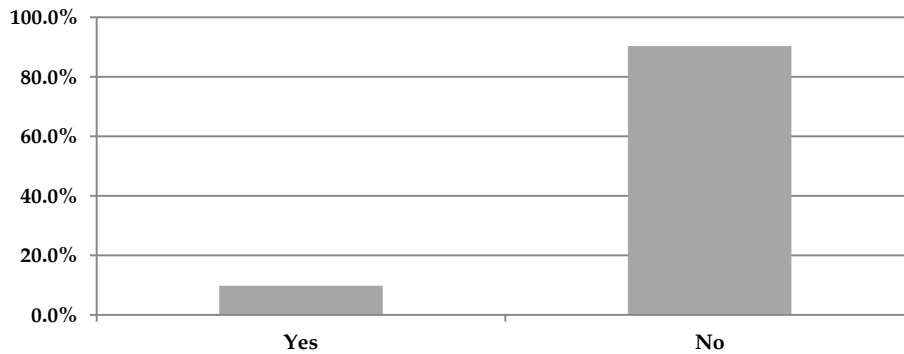


Figure 36: Are firms' generators gas-fuelled?



Other Coping Mechanisms

In addition to using generators, firms have to resort to alternative means to meet their production targets in the wake of electricity shortfalls. At an aggregate level, over 55 percent of firms across all sectors have to rely on overtime to meet the production shortfall caused by power outages.

Other mechanisms include increasing the working week (moving to a seven-day week) or increased standard shift times, all of which result in higher worker costs and larger overheads (see Figures 37 and 38).

Figure 37: Coping mechanisms

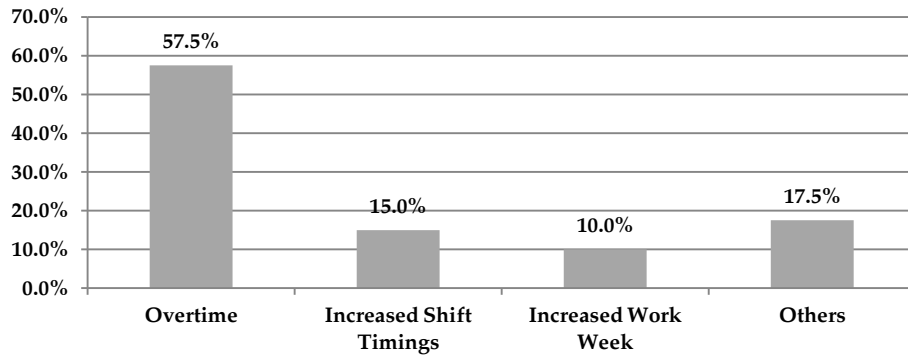
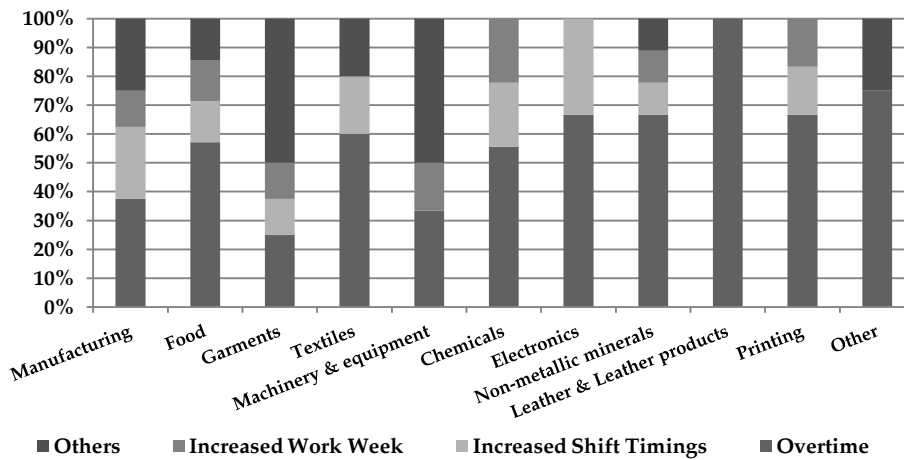


Figure 38: Coping mechanisms per sector



Around 38 percent of the firms surveyed reported that, in implementing these coping mechanisms, their overhead costs had increased by more than 20 percent (Figure 39). In terms of sector, the majority of firms in manufacturing, garments, textiles, machinery and equipment, nonmetallic minerals, and printing reported the greatest increase in overhead costs as a result of implementing the coping mechanisms mentioned above (Figure 40).

Figure 39: Impact on overhead costs of implementing coping mechanisms

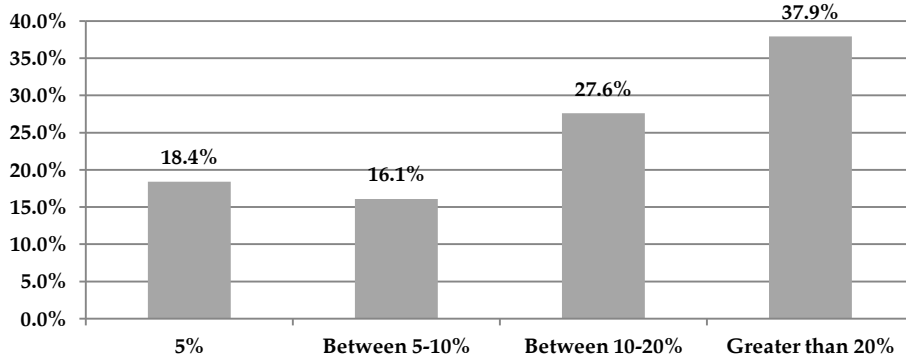
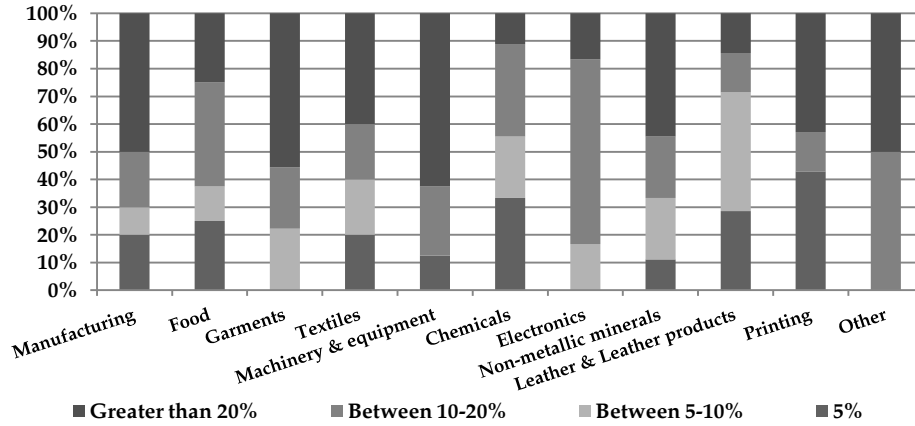


Figure 40: Impact on overhead costs of implementing coping mechanisms per sector



For small firms across all sectors, the impact on costs due to the implementation of coping mechanisms generally varies between 5 and 10 percent (Figure 41). For medium firms, the impact on cost varies between 10 and 20 percent for almost all sectors, whereas for large firms the impact on costs across most sectors is greater than 20 percent (Figures 42 and 43).

Figure 41: Impact on overhead costs of implementing coping mechanisms per sector (Small firms)

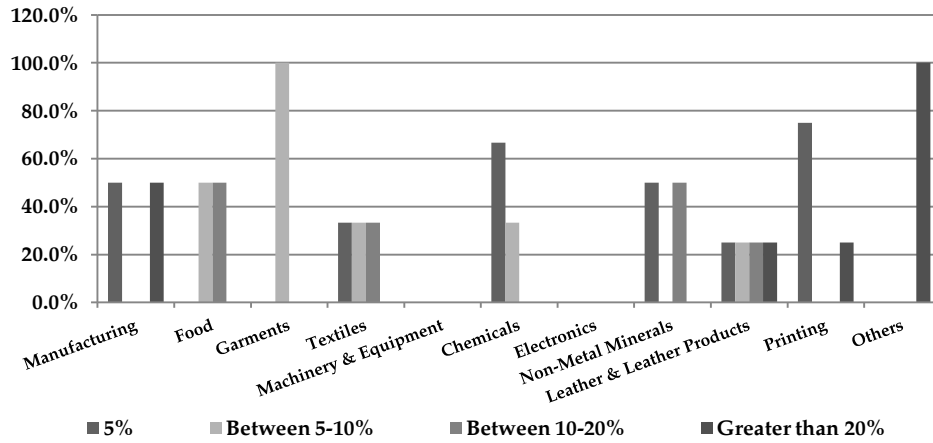


Figure 42: Impact on overhead costs of implementing coping mechanisms per sector (Medium firms)

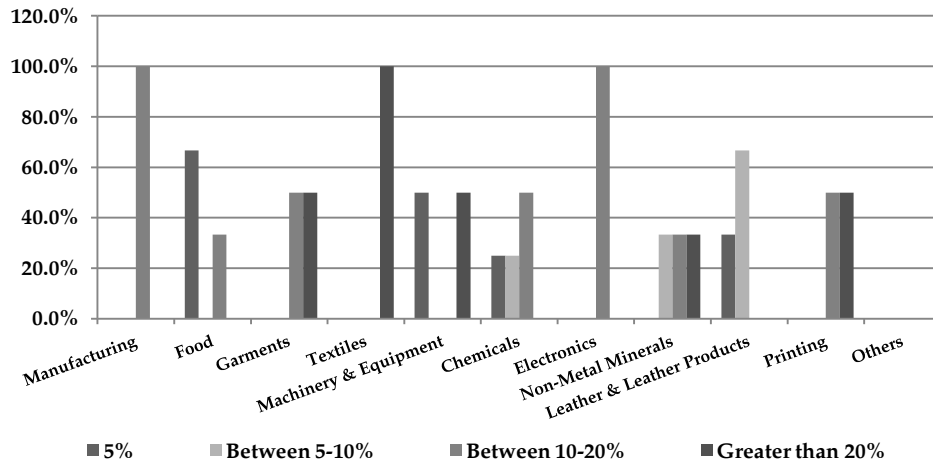
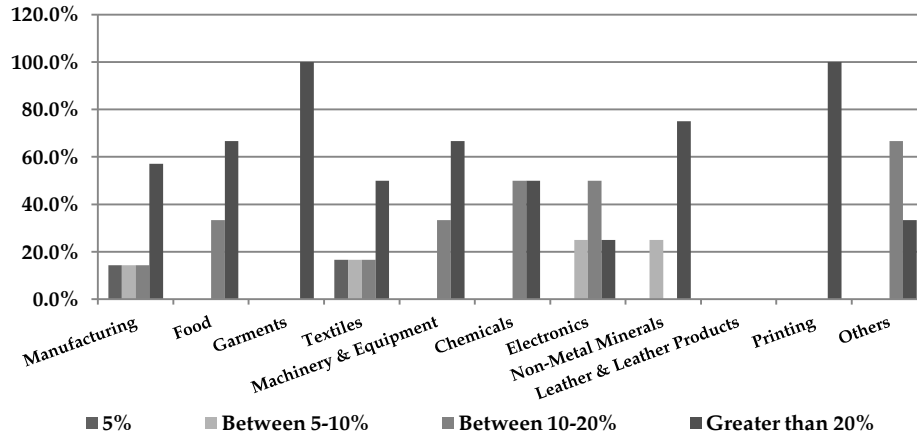


Figure 43: Impact on overhead costs of implementing coping mechanisms per sector (Large firms)

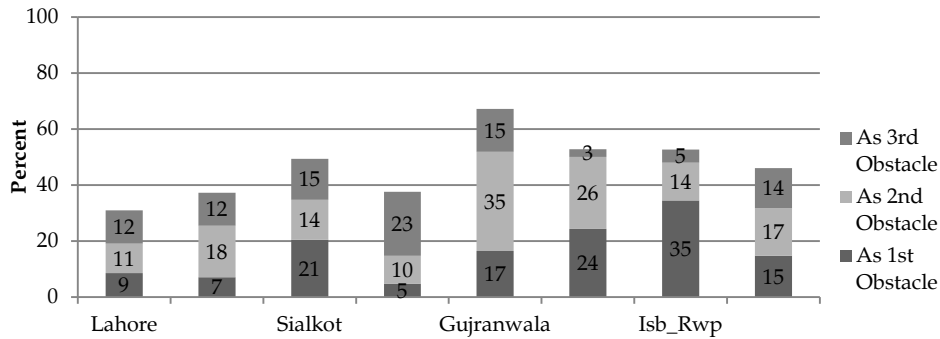


The increasing extent and magnitude of the power shortages faced by Punjab's industry is fast eroding its competitiveness. Industries lose not only valuable production time but, due to the additional costs associated with the coping mechanisms we have described, face significantly higher costs of production. Given the severity of these problems, the industries visited during the survey were running close to full capacity, which demonstrates their resilience in the face of these challenges. They have continued to be innovative in developing techniques to reduce the impact of power shortages on their business. Some have moved to more energy-efficient technology, some use more outsourcing, and others simply work harder to "keep the ball rolling."

3.4. Macroeconomic Instability

A strong and viable macroeconomic environment in the country is critically linked with investment and growth in the manufacturing sector. On the other hand, a volatile macroeconomic environment with rising inflation, burgeoning budget deficits, increasing external debt obligations, and an unstable exchange rate can retard investment, manufacturing, and output growth. A country's overall investment climate is negatively affected by macroeconomic instability because it increases the uncertainty of future returns. This uncertainty, which emerges in the form of instability and volatility in demand and relative prices, adds to the cost of doing business. The firms surveyed in the ICA for 2007 ranked macroeconomic instability after electricity as the top constraint obstructing productivity and output growth.

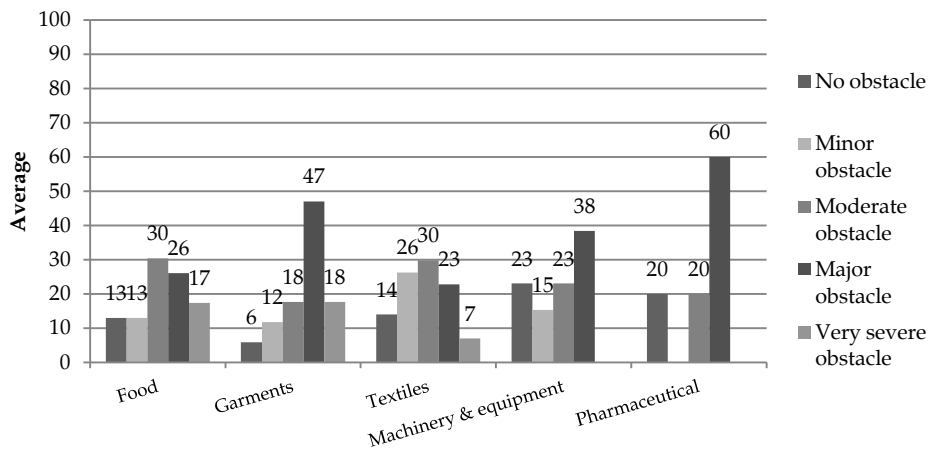
Figure 44: Firms reporting macroeconomic instability as a constraint



Source: Authors' calculations based on ICA 2007 survey.

In Punjab, almost 46 percent of firms declared macroeconomic instability among their top three obstacles. Looking at the variation across the seven industrial clusters, Gujranwala seems to have been the most affected by macroeconomic instability—67 percent of the respondents ranked it among their top three constraints. This is followed by Islamabad and Rawalpindi with 35 percent of firms declaring macroeconomic instability as the top constraint to productivity and business growth. Lahore, Sheikhupura, and Faisalabad were among the least affected by macroeconomic instability. For instance, in Faisalabad only 5 percent of businesses reported macroeconomic instability as being their top constraint. Thus, industrial clusters in Gujranwala, Sialkot, Wazirabad, and Islamabad/Rawalpindi were the most affected zones.

Figure 45: Macroeconomic instability as an obstacle (All firms)



Source: Authors' calculations based on ICA 2007 survey.

In terms of sectoral variations of the constraint, across Punjab the pharmaceuticals industry overwhelmingly declared macroeconomic instability as one of its major constraints. The industry relies heavily on imported raw materials (chemicals) as a primary input, and the continued depreciation of the rupee has significantly increased the price of chemicals, which, in turn, has increased production costs. Garments and machinery/equipment were the other two important sectors that identified macroeconomic instability as the most important constraint. Finally, almost 30 percent of manufacturers in the food and textile sectors ranked macroeconomic instability as a moderate constraint.

While the data on macroeconomic variables affecting business growth reveals no specific information, it is possible to infer that inflation and exchange rate volatility perhaps most affect the business environment. Higher inflation increases the cost of production and decreases demand due to the rise in general price levels. Exchange rate volatility particularly affects the price of tradables. Firms using imported raw materials as intermediate goods pay higher prices, which increases their production costs. As a result of exchange rate instability, the expected prices of goods for export may vary, which might discourage the demand for domestically produced goods in foreign markets.

In the pilot survey of firms in Lahore, macroeconomic stability continued to be identified as one of the major impediments to industrial growth—25 percent of firms ranked macroeconomic instability among their top two constraints. Table 3 shows that the chemical sector and machinery and equipment sector both view macroeconomic and political instability as a key impediment to industrial growth. One reason for this may be the low levels of investment in these sectors since it is perceived as risky in an unstable economic environment characterized by variable and high rates of inflation, an uncertain exchange rate, and high mark-up rates. Most of the other sectors viewed macroeconomic and political instability as moderate obstacles. The survey results estimates that, on average, around 15 percent of productivity is lost due to macroeconomic and political uncertainty. This impact is fairly consistent across sectors as well as firm size.

Table 3: Impact of macroeconomic and political instability on industrial performance

Industry	Size	Percentage of firms			
		Does not apply	Minor obstacle	Moderate obstacle	Major obstacle
Manufacturing	Small		100.0		
	Large		50.0	50.0	
	Total		66.7	33.3	
Food	Small			100.0	
	Medium			100.0	
	Large			100.0	
	Total			100.0	
Garments	Small	100.0			
	Large			100.0	
	Total	33.3		66.7	
Textiles	Medium		100.0		
	Large			100.0	
	Total		20.0	80.0	
Machinery and equipment	Medium		50.0		50.0
	Total		50.0		50.0
Chemicals	Small				100.0
	Total				100.0
Nonmetallic minerals	Medium			100.0	
	Total			100.0	
Leather and leather products	Small			100.0	
	Total			100.0	
Other manufacturing	Small		50.0	50.0	
	Medium				100.0
	Total		33.3	33.3	33.3

A caveat to the reporting of numbers on perceived losses is that the firms surveyed—in particular the smaller enterprises—were not fully able to understand the exact implications of macroeconomic and political instability. It is quite likely that firms, when responding, may have considered poor security conditions a part of macroeconomic and political instability in the country. The security situation has significantly hurt Punjab's industry, especially export manufacturers and importers are becoming increasingly skeptical about Pakistan's capacity to supply goods on time. This has resulted in several export orders (especially in textiles) shifting from Pakistan to other countries.

3.5. Corruption

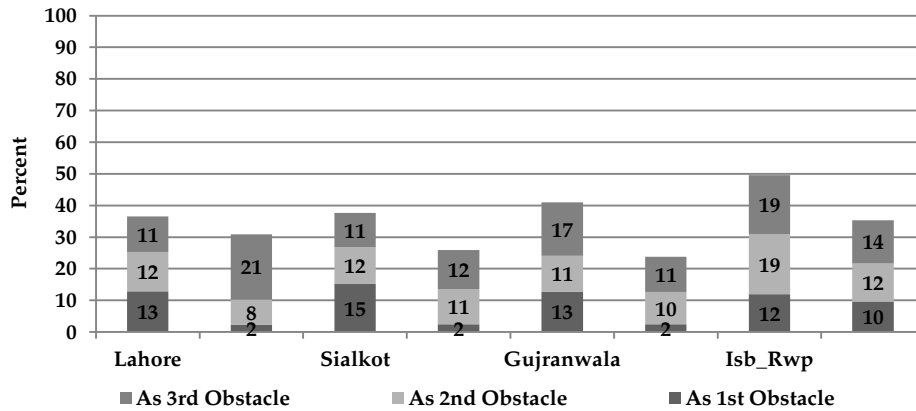
After electricity and macroeconomic instability, corruption emerges as the third-most critical constraint faced by Punjab's manufacturing industries. Government officials interfacing with industry normally exploit firms' lack of awareness concerning technical issues in regulations to extract rents. The industry reports that it is forced to bear high costs in the form of informal payments to the officials concerned. Both the ICA 2007 survey and the Lahore pilot survey for 2012 included specific questions designed to gauge the degree and extent of corruption related to industry in Punjab. We discuss below the extent of corruption as well as informal payments made to officials across key clusters and industries.

3.5.1. Findings from ICA 2007 Survey

Across the seven key industrial hubs in Punjab, more than a third of the firms surveyed identified corruption as either their most, second-, or third-most serious constraint (Figure 46). Rawalpindi (50 percent) and Gujranwala (42 percent) are reported to suffer most from corruption, followed by Sialkot and Lahore. Firms reported that the most common method of corruption was inconsistent interpretation and the ad-hoc application of government regulations and policies related to taxation, labor, and other licensing issues. An overwhelming majority of Punjab's manufacturers believe that officials interpret policies and regulations inconsistently. The application of policies by government officials is purposely complicated to extract as much rent as possible by threat or even harassment.

Moreover, the evidence from the survey suggests that there is a strong positive correlation between firm size and contact with various levels of bureaucracy. Hence, medium and large firms report much greater contact both in terms of time and the number of offices with which they have to deal as compared with small firms. A slight anomaly in the ICA 2007 data is that it reports that medium and small firms—rather than large ones—pay more bribes and make informal payments to get things done. This may be the case when it is relatively easy for the lower bureaucracy to extract rents from poorly informed smaller manufacturers than from larger businesses.

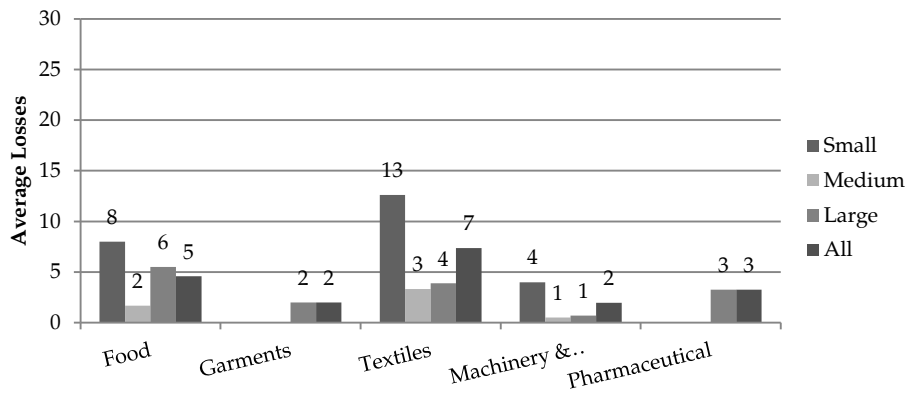
Figure 46: Incidence of corruption across clusters



Source: Authors' calculations based on ICA 2007 survey.

The reported data also suggests variations in the cost of corruption across key sectors (Figure 47). The textile sector reportedly channels around 7 percent of its annual sales into informal payments to get things done, with smaller firms in the sector spending almost 13 percent of annual sales for this purpose. The food sector, especially small firms, bears the second-highest cost of corruption. The results are not surprising—the textile sector is the biggest employer of labor and is subject to the highest frequency of visits by labor inspectors, while the food industry faces the most number of visits by health and quality regulators.

Figure 47: Percentage of total annual sales paid as informal payments

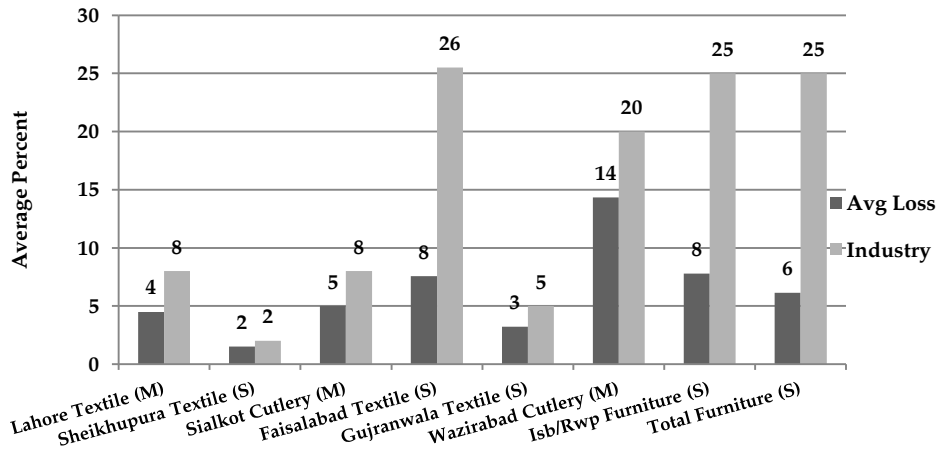


Source: Authors' calculations based on ICA 2007 survey.

In terms of cluster averages, firms in Wazirabad report the highest cost of corruption, paying on average 14 percent of their annual sales as

informal payments and gifts to get things done. In terms of size, small firms in textiles and furniture located in Faisalabad and Rawalpindi, respectively, bear the maximum cost of corruption (all above 25 percent). The medium-scale cutlery industry in Wazirabad pays around 20 percent of its annual sales as informal payments. The textile sector in Faisalabad pays the most to labor inspectors while the small- and medium-scale industry in Wazirabad and Rawalpindi seems to suffer due to high levels of illiteracy, which facilitates exploitation by government officials.

Figure 48: Percentage of total annual sales paid as informal payment per sector and cluster



Source: Authors' calculations based on ICA 2007 survey.

The section below uses the evidence from the new pilot survey done in Lahore to support the findings from ICA, 2007 presented above.

3.5.2. Findings from Lahore Pilot Survey

The fourth key obstacle to industrial growth identified in the Lahore-based pilot survey was corruption. As mentioned before, the major source of this corruption is the willfully ambiguous interpretation of rules and regulations by government officers in order to create room and opportunity for corruption. Figure 49 shows that all the sectors surveyed unanimously felt that the government was weak in interpreting and implementing regulations. This held for all firm sizes across all sectors.

A key impact of such behavior by government officials is factories' loss of productive time. All the sectors perceived that engaging repeatedly with government officials to resolve simple matters wasted precious time

and resources that could have been used more productively. Most sectors felt that anywhere between three to seven days could be wasted in dealing with any single issue if having to engage with a government department. The data does not vary much across firm size.

Figure 49: Do government officers interpret and implement rules consistently?

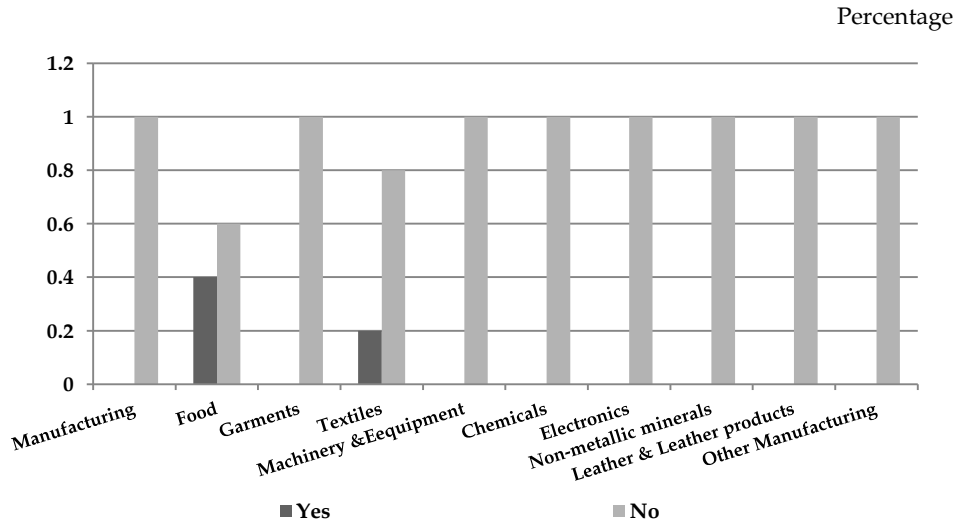
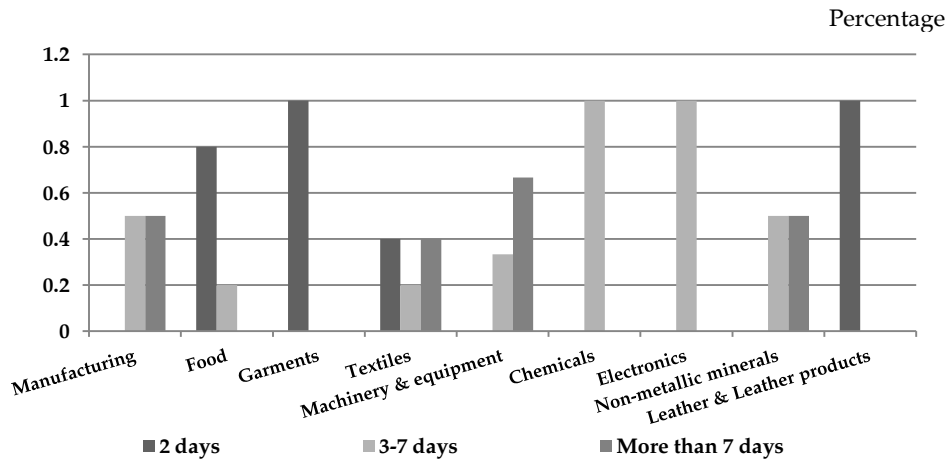


Figure 50: Time wasted due to over-bureaucratic procedures



All the sectors across all sizes consistently reported that up to 5 percent of sales are usually spent on bribes to various government departments/officials (Figure 51). Figure 52 shows that most of these

bribes are given to labor inspectors, followed by electricity inspectors. This data is invariant at both the sector and size level.

Figure 51: Percentage of sales used in bribes to government officials

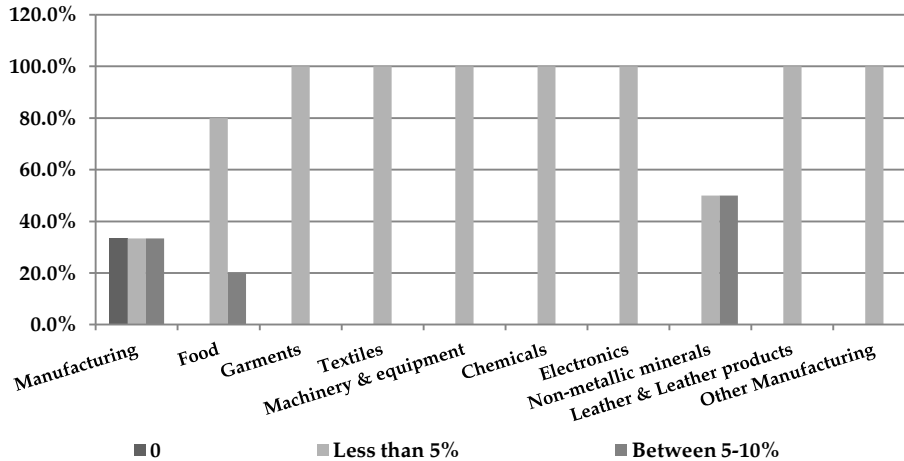
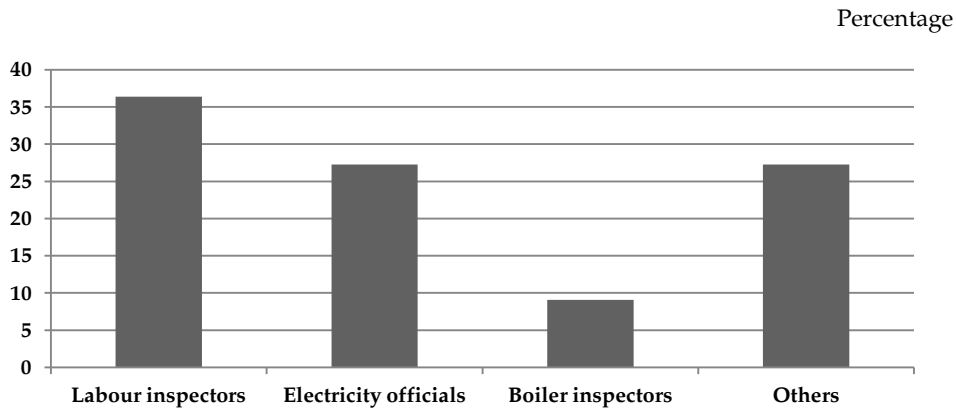


Figure 52: Share of bribes given to officials



3.6. Access to Finance

Based on data from the World Bank’s ICA for 2007, some 7 percent of firms across Punjab listed access to finance as a key constraint to their business. Most of these firms were located in Lahore and Sialkot. The pilot survey of Lahore-based firms reported that around 3 percent of firms categorized access to finance as a key constraint. Both surveys had a significant number of missing entries for questions on access to finance and, hence, it was not possible to provide a quantitative analysis of the

problem. However, we attempt to provide a qualitative analysis of the issue and make a case for how a lack of access to finance has impeded industrial performance in Punjab.

3.6.1. The Issue

The pilot survey of Lahore suggests that it is generally medium-sized and small firms—more than large firms—that are constrained by lack of access to viable finance. The problem of larger firms has more to do with higher mark-up costs than access to finance. Through discussions with the SME industrial sector and commercial banks, it is clear that the issues of capital availability and its appropriate utilization stem from inadequate capacities both at the level of firms and commercial banks.

Firms suffer from typical SME-related asymmetric information issues and a limited capacity to manage and provide reliable financial and balance sheet data. Most of their financial transactions are recorded informally, with much of this information residing only with the owner. Banks generally refuse to trust even audited statements, which they assume to be fictitious. Hence, in most cases, the banks secure lending against 100 percent collateral, which small and medium enterprises cannot always provide. Even in cases where firms are willing to fully disclose their information, they do not have the capacity to comply with their bank's documentation requirements. Moreover, the sector is not all that disciplined or scrupulous when it comes to the use of credit—in some cases, working capital limits or short-term business loans may be utilized for personal expenditure. This inappropriate use of capital puts further pressure on businesses as they add up on debt without any addition to revenue generation capacity.

However, the issue concerns not only the industry's capacity. Commercial banks also have a limited capacity to meet the requirements of SME credit in Pakistan. First, they do not have any special schemes for SME development finance and all lending is done on a commercial basis, which is too expensive for the SME sector. Second, there has never been any pressure on commercial banks to extend development/long-term credit to the SME sector. With the large fiscal deficits of the federal and provincial governments and the presence of attractive spreads, commercial banks comfortably maintain large exposures to AAA-rated debt. They also use the broad nature of the SME definition/classification to their

advantage.² Most of the lending to SMEs includes clients that are on the margin of being classified as an SME.

3.6.2. *Impact on Industry*

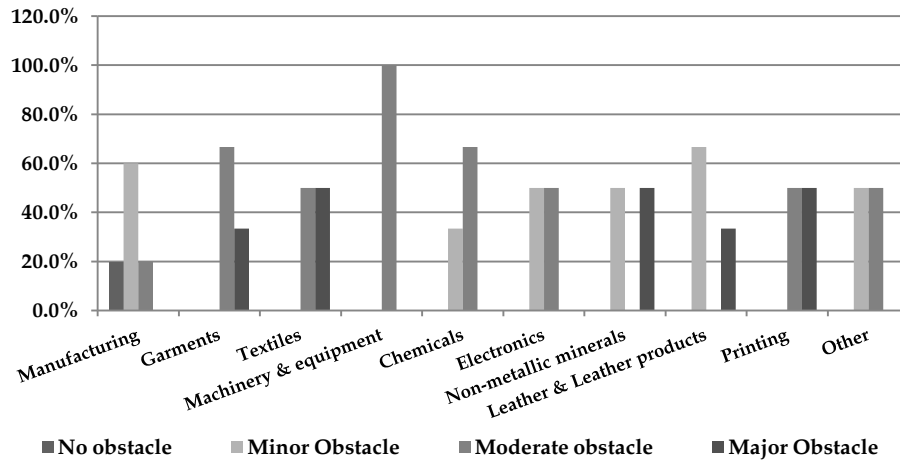
The lack of access to finance has resulted in industry following noninnovative and low-technology production techniques. The major production of the small and medium sector is low-value-added products with little intra-industry differentiation; there is hardly any innovation, resulting in limited international competitiveness. Moreover, the lack of access to long-term loans has resulted in limited investment, if any, in technology, as a result of which most medium and small sector firms in Punjab use outdated machinery and technology. A key consequence of this is that industry has failed to grow and remains uncompetitive due to diseconomies of scale. If this pattern persists, industry in Punjab is likely to fall behind its international competitors and, over time, lose its domestic and export market share to low-cost and more innovative producers in India, China, and Vietnam.

3.7. *Inadequate Workforce*

Notwithstanding acute shortages of electricity/power and uncertain macroeconomic conditions, one factor that can still drive competitiveness is a skilled labor force. Punjab is endowed with a young and a fast growing labor force. This demographic trend presents an immense challenge for the economy—to both educate and train this young labor force and produce enough jobs to absorb its growing numbers. Keeping this challenge in mind, the Government of Punjab has recently formulated the Youth Skills Development Council, which will work as a regulatory authority in tandem with TEVTA to train the province's workforce. The survey conducted for this study has identified an inadequately trained workforce as one of the key impediments to industrial performance. Figure 53 shows that almost all the sectors surveyed listed an inadequate workforce as being a moderate to major obstacle.

² To be categorized as an SME in Pakistan, a concern must not employ more than 250 persons in the case of a manufacturing or service concern, and 50 persons in the case of a trading concern. Moreover, its net sales should not exceed PKR 300 million and it must not possess assets worth more than PKR 50 million for a trading concern and PKR 100 million in the case of a manufacturing concern. The State Bank is now working on revising this definition.

Figure 53: Inadequate workforce as an obstacle



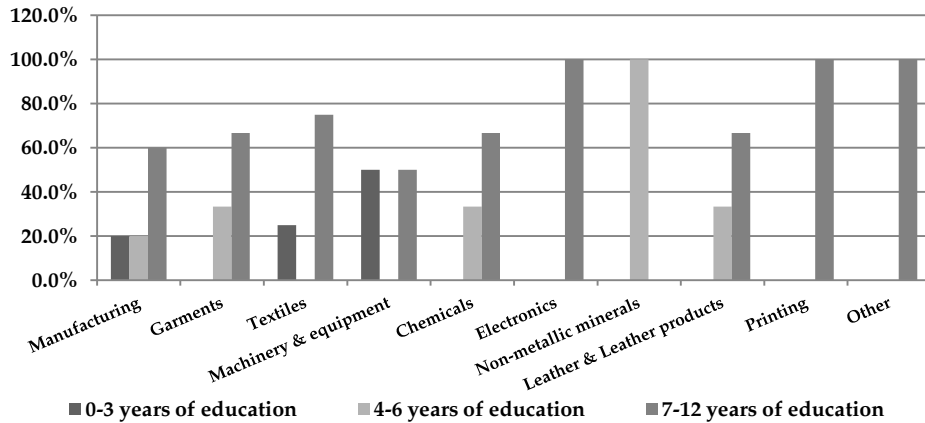
More specifically, Table 4 indicates the diversity of this problem across sectors and across various firm sizes. Textiles and leather/leather products are the two main sectors where, regardless of firm size, an inadequate workforce is considered a major obstacle to industrial performance. Most of the other sectors across different firm sizes view it as a moderate obstacle.

Table 4: Inadequate workforce as an obstacle

		Percentage of firms			
Industry	Size	No obstacle	Minor obstacle	Moderate obstacle	Major obstacle
Manufacturing	Small	100.0			
	Medium			100.0	
	Large		100.0		
	Total	20.0	60.0	20.0	
Garments	Medium			100.0	
	Large			50.0	50.0
	Total			66.7	33.3
Textiles	Small				100.0
	Medium				100.0
	Large			100.0	
	Total			50.0	50.0
Machinery and equipment	Large			100.0	
	Total			100.0	
Chemicals	Medium		50.0	50.0	
	Large			100.0	
	Total		33.3	66.7	
	Large		50.0	50.0	
Electronics	Total		50.0	50.0	
	Small		50.0		50.0
Nonmetallic minerals	Total		50.0		50.0
	Small		66.7		33.3
Leather and leather products	Total		66.7		33.3
	Medium			100.0	
Other manufacturing	Large				100.0
	Total			50.0	50.0

The development of worker skills is strongly correlated with basic education attainment. If workers have obtained a good basic education before entering the labor force, they have a greater likelihood of developing stronger skill sets. Figure 54 shows that, across all the sectors surveyed, the majority of firms reported their workers' education as being in the range of 7–12 years. It is likely that most of these workers would have had eight years of education, i.e., passed middle school. This is a critical reason why skills deficiency exists at all levels in Punjab's workforce. School dropout rates in the province are high and the quality of education as indicated by several recent studies is inadequate. Hence, students are academically ill prepared to acquire skills comparable with international benchmarks.

Figure 54: Average education attainment

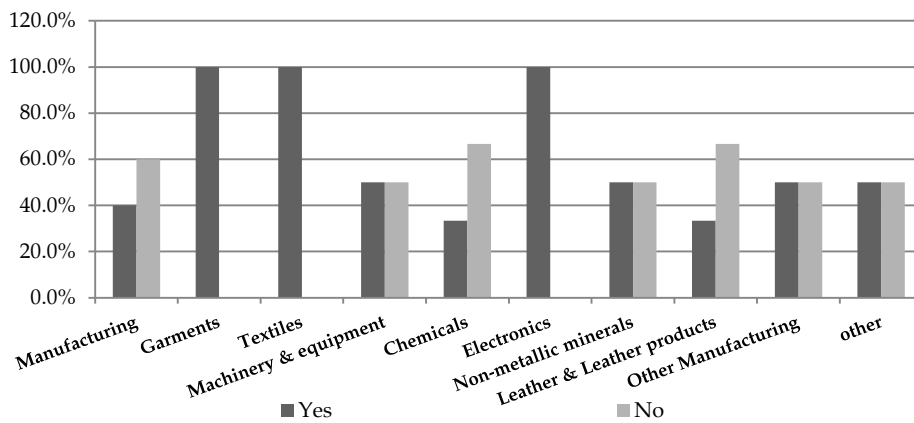


An example from the textile industry shows that, in Pakistan, the average stitching operator has only completed middle school whereas his or her counterpart in Singapore has at least completed their ‘A’ levels. The latter, being better educated can easily read the machine operations guide book and acquire operating skills much faster than a worker in Pakistan.

3.7.1. *Coping Mechanism*

The key coping mechanism that firms use to address the issue of an inadequate workforce is to offer their own or in-house training programs. The data clearly suggests that most firms across all the sectors surveyed—including textiles, garments, and electronics—offer some form of training to their workers.

Figure 55: Firms offering training programs



4. Policy Brief

4.1. An Overview

Punjab's population has grown rapidly over the past three decades; according to some projections, it will have increased to 128 million by 2025. A key challenge facing the province is to create a sufficient number of jobs every year to absorb the increasingly large number of entrants into the labor force. A significant and sustained increase in investment and productivity in the manufacturing sector is, therefore, imperative to create employment and income for the province's burgeoning population.

Currently, Punjab's industrial sector employs around 23 percent of the province's labor force and contributes just over 24 percent to GPP. Over the last 10 years, average growth in the manufacturing sector has been over 5 percent per annum with the highest growth registered in the early years of the last decade. However, since 2006/07, industrial performance has shown an unprecedented deterioration, contributing negatively to GPP. This abysmal performance is a consequence of serious domestic issues and constraints that have stunted the sector's contribution to the economy. The ICA 2007 identified power shortages, macroeconomic and political instability, and bureaucratic corruption as the most important constraints to investment and industrial productivity at both the national and provincial level.

Our objective was an in-depth analysis of industry in Punjab by identifying the major constraints impeding the output and productivity of firms located in the seven major industrial clusters/zones of the province. Using data from the World Bank's ICA for 2007, this study has closely analyzed each of the seven major industrial zones in Punjab, identifying in each of these the key constraints hampering growth and productivity across various industries and firm sizes, and estimating, where possible, the impact of these constraints on firm/industry output.

To reassess the findings of the ICA 2007, we conducted a pilot survey in the Lahore region, covering 101 firms across 10 different sectors. The results of the pilot survey are not significantly different from the ICA's findings. Electricity was identified as the most severe obstacle facing industries in the Lahore region. Almost 71 percent of the firms surveyed declared electricity to be the most important constraint. Macroeconomic stability was ranked as the second-most important constraint by 8 percent of the firms surveyed. An inadequate workforce, access to raw materials, and corruption were ranked third, fourth, and fifth, respectively.

The most chronic and binding constraint to industry in Punjab is, thus, the nationwide energy crisis. As evident from the recent pilot survey of firms in Lahore, the power shortfall has worsened over the last year and a half with an increase not only in the number of outages but also in the duration of each shutdown. These irregular and unannounced power cuts have an adverse impact on firm output and productivity, and affect process-based industries relatively more than others due to the increased wastage of raw material. Macroeconomic and political instability, which is manifested in the form of high investment risk, inflation, and increased interest rates, are the other two important factors contributing to industrial slowdown. Moreover, industries in Punjab remain hostage to bureaucratic inefficiency and rent seeking. This is especially the case with labor inspectors and low-tier customs officers. Inadequately trained labor has also been identified in the recent pilot survey as a critical factor impeding industrial performance.

For sustainable industrial growth, it is imperative that the government frame appropriate policy interventions that will resolve these issues in the long term. At the same time, the government needs to take immediate steps to mitigate the negative impact of these constraints on industrial output and productivity in the short run. This policy note puts forward the main contours of the Government of Punjab's strategy to address the problems that fall within its ambit. However, some of the key constraints faced by Punjab's industries do not fall under the direct jurisdiction of the provincial government. Fiscal and monetary policy and energy policy, for instance, are in the domain of the federal government. The Punjab government should, therefore, maintain a permanent contact/dialogue with the federal authorities to advise and play an active advocacy role on such issues. A set of constraint-wise policy recommendations for the Punjab government is given below.

4.2. Electricity

In the Lahore zone, industrial sectors that suffer the highest loss due to electricity outages include food processing, plastics, pharmaceuticals, printing, and chemicals. These sectors report that they lose up to 15 percent of their annual sales as a result of power outages and unscheduled power cuts. All these sectors have continuous manufacturing processes and, at any one point in time, a significant amount of raw material is under process. A sudden, unannounced tripping of electricity can result in the wastage of raw materials and increased operation time due to cleaning and process restarting.

Moreover, sectors that are more automated face high repair and maintenance costs as sudden electricity outages can damage the more sensitive and costly electronic parts. Most of these parts have to be sent abroad for repair, which adds significantly to costs. This is not a Lahore-specific issue; it affects the other industrial hubs of Punjab as well. For example, in Faisalabad, the food and machining sectors suffer most due to electricity shortages. In Gujranwala, the electronics and cutlery sectors are worst hit while in Sialkot, the leather and garments industries suffer most. Food processing is the worst affected by power outages in Sheikhpura and Wazirabad.

Policy Recommendations

In the short term, the Punjab government should work closely with electric supply companies and continuous process sectors to work out a harmonized load-shedding schedule. These sectors, especially those worst hit, should be provided electricity for a continuous stretch depending on their requirements. This schedule must be worked out sector by sector for all the process-based industries identified above.

The provincial government should facilitate linkages between the various university engineering departments to work closely with sectors on prefabricating and developing complicated programmable logic controllers (PLCs) that are used in all automatic machinery. Factories could provide access to university researchers and the government could fund research grants to work on developing PLC technology casted to local requirements.

The Lahore pilot survey suggests that, to some extent, firms located within industrial zones suffer fewer losses due to electricity shortages than those located outside industrial zones. A key reason for this is the strict scheduling of load management in industrial zones. The Punjab government should declare major industrial areas “zones” based on industrial concentration and afford them priority treatment.

4.3. Corruption

Almost all the industrial sectors in the seven industrial hubs have identified corruption among government officials as a key cost to business and an impediment to industrial growth. In Lahore, the pharmaceuticals and chemical sectors appear to be the worst affected by undue contact with government officials. They are apt to receive the most visits by labor inspectors and drug regulatory inspectors, all of which entail some form of gift or even direct payment to the visiting inspector. In Faisalabad, textile

industries receive the highest number of visits by labor inspectors and boiler inspectors. The other regions, too, complain about unnecessary visits by labor inspectors and, in most cases, report that inspectors ask directly for bribes or compensation.

On average, the industry loses anywhere between three to seven days resolving a single issue with government officials. The survey also reports that bribes and gifts given throughout the year amount to around 1–5 percent of total annual sales. In terms of the degree of corruption among officials, labor inspectors are considered the most corrupt, followed by electricity officials (mostly lineman and XEN) and boiler inspectors. Electricity officials often threaten to cut power supplies if not compensated appropriately by a firm. Over-billing is also a common problem and cases remain unresolved for several months while every month the industry owner has to pay bribes to have the bill corrected.

Policy Recommendations

In the short term, the Government of Punjab should set up an effective monitoring mechanism for labor inspectors devised in consultation with the private sector to reduce the incidence of harassment and bribery. In the medium term, the provincial government will have to devise a more transparent mechanism for collecting labor-related taxes. The system should be fair and simple so that it is easily understandable by the industry, increases incentives to pay taxes, and reduces the industry's interaction with the lower bureaucracy (labor inspectors). One way of simplifying the existing system would be to categorize industries into broad bands and then charge a fixed tax based on the upper value of the band. This would reduce the incentive for industries to hide information and make it easier to pay taxes. The broader band range would also facilitate the verification of industry status for tax collection purposes.

The Government of Punjab's Industries, Commerce, and Investment Department already has a consumer complaints cell, whose role could be further enhanced to cater for violations of the rights of industrial consumers. The cell should collect and receive information from industries concerning unfair treatment and corruption by government inspectors. Where cases pertain to the provincial domain, the provincial government should take direct action; where they pertain to the federal domain, the government should use the evidence to advocate appropriate action.

The Government of Punjab needs to develop minimum service standards for industries and ensure that these are displayed in all government offices and circulated widely through mass advertisement campaigns. This would help industries understand their rights and obligations, and clarify the obligations and standards the government has to meet, making it easy to evaluate the performance of government service delivery.

4.4. Access to Finance

Given that the provision of finance and managing the banking sector falls under the State Bank's purview, the Government of Punjab can take some direct measures while strongly advocating other measures that would improve and enhance the provision of finance to its industry. Some of these policy interventions are suggested below.

Policy Recommendations

Through its Department of Industries, Commerce, and Investment and the Punjab Small Industries Corporation, the provincial government could conduct a credit and product need assessment of key sectors located in the seven main industrial hubs of Punjab. Based on this information, it could suggest to the State Bank that the latter initiate product- and program-based lending at single-digit mark-ups in these sectors.

Again, through the Department of Industries, Commerce, and Investment, the Punjab government could also run training and capacity building courses for small and medium industries on formulating financial information in templates that are acceptable to commercial banks for loan processing.

Finally, the Punjab government should strongly advocate the following regulatory changes to the State Bank, to improve access to finance:

- Loans of up to PKR 15 million for plant, machinery, and equipment for registered industries should be approved through a "one-window" operation.
- The State Bank should make it mandatory for at least 50 percent of its lending requirements to SMEs to be fulfilled by including small accounts. The maximum size for an account to qualify as a small account could be set at PKR 20 million.
- Borrowing should be facilitated against guaranteed export orders.

- The State Bank should work with commercial banks to improve and enhance service provision to all industries. This could involve developing new lending guidelines for different sectors and different firms sizes. These guidelines should also include lending principles that clearly set out minimum standards for small, medium, and large businesses.
- Lending targets should be set up for each of the key industries located in Punjab; progress on achieving these targets should be monitored over the next three years.

4.5. Inadequately Trained Workforce

Textiles, garments, and leather are the three main sectors across all seven regions in Punjab that have identified an inadequate workforce as a key constraint to industrial growth. All these sectors are labor-intensive and, moreover, require specific levels of skills. The problem of an inadequately trained workforce has become increasingly serious. As evident from the survey results, in 2006 it was viewed as less important than in 2012, when it was reported as one of the most critical issues that firms were facing.

A key reason for this is both the declining quality and level of school education in Pakistan as well as the introduction of technically advanced and more complicated machinery in factories. Since the workers entering industry have attained only a low level of education, their ability to understand complex machines is fairly limited. Firms have to spend a significant amount of resources to train labor to use newer machines. The TEVTA model has failed because it has not been able to keep pace with the advances in technology at the industry level. Without an appropriately trained workforce, industry in Punjab will find it increasingly difficult to remain internationally competitive.

Policy Recommendations

The Punjab government should initiate pilot programs for the textile and leather sectors, both of which suffer the most due to the shortage of skilled labor. The government could develop a model based on the Machine Operators Stitcher Training (MOST) program run by the federal Ministry of Textiles. The TEVTA trainer should work on the factory floor with a group of workers and provide them with classroom-based training while the factory provides on-the-job training. The workers trained under the program could then be contracted to continue working in

the factory for a certain amount of time after having been trained. The program mentioned was piloted for women stitchers and proved to be one of the most successful models of labor training. A similar model could be developed for the leather sector.

In the medium term, the Government of Punjab will have to restructure TEVTA's model entirely by closing down outdated service centers and using the resources saved to upgrade curricula, develop international linkages, and integrate courses with on-the-job (factory floor) training.

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