

Working paper



International  
Growth Centre

# Constraints faced by Industry in Punjab, Pakistan



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## **1 Performance, Structure and Impediments to Industry in Punjab**

### **1.1 Performance of the Economy - *Stagnating growth***

The province of Punjab is the largest in the country both in terms of population and size of the economy. It accounts for almost 60 percent of Pakistan's annual production of goods and services and 55 percent of its population.<sup>1</sup> Since partition, Punjab has arguably been the most economically dynamic and vibrant province contributing significantly to the national economy. However, in the past five years GDP growth in the province decreased alarmingly and now has stagnated to an anaemic 2.5 percent. During the last decade the Gross Provincial Product (GPP) of Punjab grew at an average of 5.5 percent, slightly higher than the 4% growth rate of the Gross Domestic Product (GDP) of the country.<sup>2</sup> The growth performance of Pakistan 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.<sup>3</sup> As industrialization is imperative for income and employment generation and is a necessary condition for sustained economic growth and development, the performance 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 report is to identify the main impediments to investment and industrial productivity in Punjab which have contributed to this unprecedented decline in growth. This is done by analyzing the 2007 Investment Climate Assessment (ICA) data at the level of the seven main industrial zones of Punjab. The World Bank report based on this data had analyzed the impediments and constraints to productivity and investment at the country and the provincial level. This report focuses on the top constraints in the seven industrial zones of Punjab - analyzing the key constraint across different clusters, sectors and firm size which hamper industrial growth and productivity. This industrial zone analysis is followed by an analysis of a pilot survey of 100 firms conducted by the LUMS team in the Lahore district. This is meant to gauge the current situation of the industry in terms of the major constraints being faced, the cost of these constraints to firms and the coping mechanisms employed by these in response.

In terms of overall economic performance there has been a secular decline in the GDP growth rate of the country since 2007-2008. Looking at figure1-1 below what is clearly evident is the positive correlation between overall industrial growth and GDP growth. After an impressive surge in 2002,

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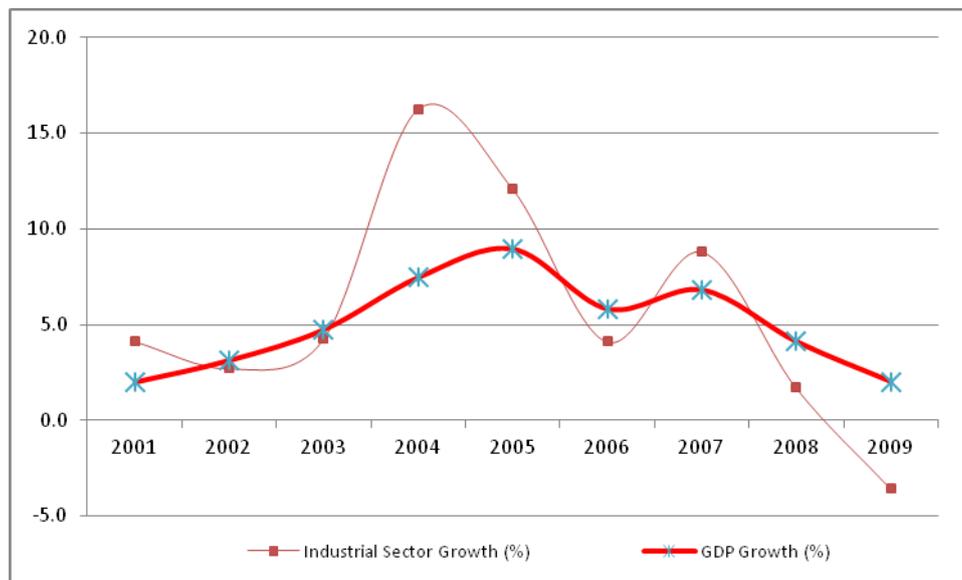
<sup>1</sup> Punjab Bureau of Statistics

<sup>2</sup> Punjab Bureau of Statistics

<sup>3</sup> Punjab Bureau of Statistics

industrial growth waned and fell drastically in 2007 pulling down GDP growth rate of the country within a period of two years from 6 percent to just above 2 percent. There have been structural reasons behind the fragility of economic growth in Pakistan leading inexorably to the periodic boom and bust cycles. Some of the underlying structural weaknesses are a narrow and domestically oriented industrial base and a highly concentrated export basket i.e., textiles and garments account for almost 50 percent of exports. However, this time it was a mixture of many factors which have perversely contributed towards a prolonged recession - the main ones being a deteriorating political and security environment, a binding energy constraint and macro-economic instability<sup>4</sup>.

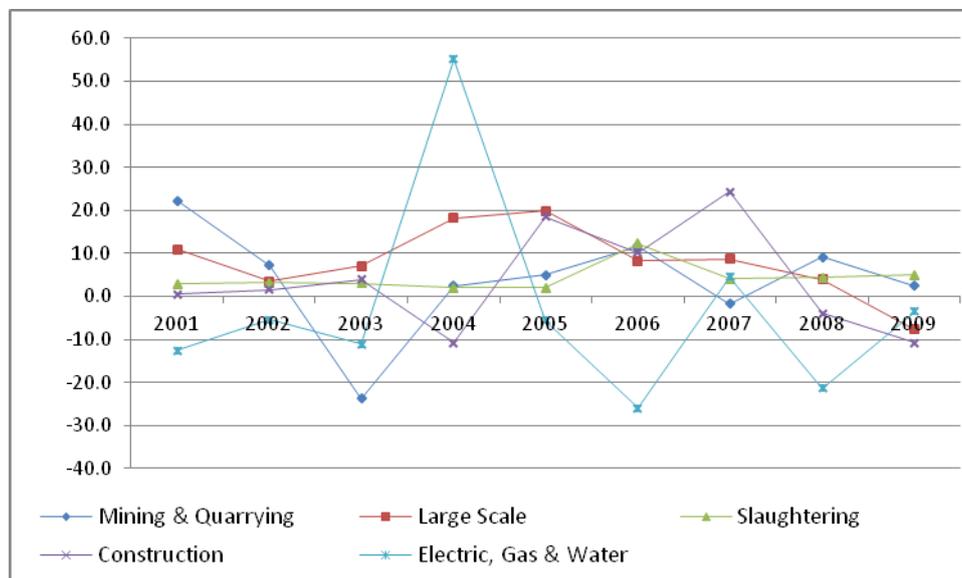
**Figure 1-1: Industrial and GDP growth**



The province of Punjab reflects the conditions in the country at large. The growth rate in industrial sector remained strong from 2003 to 2007 with growth in the large scale sector peaking at almost 20 percent in 2005. Since 2007 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 cost, as well as lower domestic and external demand on account of recessionary conditions both locally and globally, were responsible for this decline. Export-oriented industries also suffered due to loss in competitiveness and a fall in external demand.

<sup>4</sup> Macroeconomic instability results in inflation, exchange rate depreciation and depletion of foreign exchange reserves.

**Figure 1-2: Industrial Performance- Punjab**



Source: Punjab Bureau of Statistics

### 1.2 Constraints to Investment and Productivity – A short 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 competitiveness of the industry which is bound to have serious implications on future employment, income and export earnings of the country. A substantive improvement in the investment climate and a drastic enhancement in industrial productivity are now essential prerequisites to compete in an increasingly globalised 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 1-1: Firm Perceptions have changed dramatically since 2002**

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

<b>Deterioration</b>	<b>2007</b>	<b>2002</b>
<i>Electricity</i>	<b>79.6</b>	<b>39.3</b>
<i>Corruption</i>	<b>56.7</b>	<b>40.3</b>
<i>Macro Instability</i>	<b>56.6</b>	<b>34.5</b>
<i>Political Instability</i>	<b>46.8</b>	<b>40.4</b>
<i>Crime, theft and disorder</i>	<b>32.5</b>	<b>21.4</b>

<b><i>Improvements</i></b>		
<i>Tax administration</i>	<b>23.2</b>	<b>39.3</b>
<i>Access to finance</i>	<b>17.6</b>	<b>38.3</b>
<i>Anti-competitive practices</i>	<b>14.1</b>	<b>21.4</b>
<i>Labor Regulations</i>	<b>5.9</b>	<b>15.8</b>
<i>Customs Regulations</i>	<b>5.8</b>	<b>24.4</b>

**Source: Investment Climate survey 2002 and 2007, WB.**

The table above depicts changes in firms' perception on constraints identified in the World Bank ICA survey in 2002 and 2007. In 2007, more than three quarters of the firms interviewed ranked electricity (power shortages) as the most serious obstacle as compared to 2002, when less than 40 percent of firms considered electricity to be a major constraint. Similarly, macroeconomics instability was identified by more than half of the firms in 2007 as a serious constraint as compared to one third of the firms in 2002. Despite some improvement in business environment, perceptions on 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 investment climate in 2007. On the other hand, constraints which in 2007 became relatively less important for firms were tax administration, access to finance, anti-competitive practices and labour and custom regulations.

The results of 2007 ICA were also consistent with other surveys such as the Global Competitiveness Report (GCR). In 2008 GCR, government instability, corruption, inefficient bureaucracy and inflation were listed as major constraints faced by the private sector in Pakistan.

Power sector issues have been identified as the most important obstacle facing Pakistan's investment climate. In Punjab almost 77 percent of the firms identified electricity to be the 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 of the firms had to resort to other means of power generation which mitigated the impact somewhat, however, it increased the cost of the firms and the resultant financial loss was estimated to be 9 percent of sales in Punjab.

According to ICA 2007 and Private Sector Development Strategy for Punjab (PSDS) macroeconomic, political and governance issues, all of which play a crucial role in strengthening 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 of the manufacturing firms' ranked macroeconomic instability and political instability as a major constraint while 43 percent of the manufacturing firms considered it to be among the top 3 constraints. Corruption was listed as a major constraint by more than half of the firms surveyed and a third ranked it among the top three obstacles. Though there was improvement in certain areas but corruption in

business-government interface remained high. Industrial zones, while solving many other problems, have apparently failed to provide a corruption-free business environment.

Some of the other important constraints which have been hampering investment in Punjab are tax rates and tax administration, business licensing and permits, access to finance and functioning of the courts.

### **1.3 Main Industrial Clusters in Punjab and their Importance**

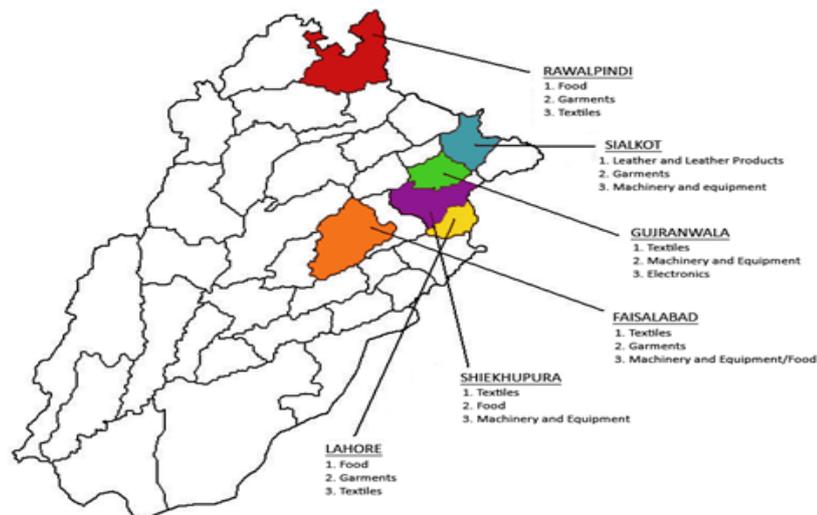
Punjab's centuries old agrarian dominance tends to eclipse the province's contribution and potential towards industrial development in the country. Manufacturing industries in Punjab contribute almost 58 percent to the overall industrial productions of Pakistan and account for about 60 percent of value added in the country's 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 the private enterprises are SMEs which employ 78 percent of the non-agricultural workforce and contribute approximately 40 percent to the GDP.<sup>5</sup>

Punjab has numerous large industrial concentrations such as in textiles, leather and light engineering goods. There are also geographically distinct industrial clusters in the province, the most famous of which is the 'industrial triangle' which includes Gujranwala, Sialkot and Gujrat. In total there are seven industrial zones/clusters in Punjab, these are, Lahore, Gujranwala, Faisalabad, Sialkot, Sheikhpura, Wazirabad and Islamabad/Rawalpindi.

Lahore district is one of the most diversified with industries ranging from food, carpets, auto parts, textile, machinery and equipment, furniture and printing. Faisalabad is the textile centre of the country with concentration also in light engineering products. Gujranwala specializes in electronics and textile while Wazirabad in the manufacturing of cutlery.

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<sup>5</sup> World Bank Survey 2010



Sialkot, is perhaps the most dynamic and competitive of all the industrial clusters in the province. The district is the manufacturing and export hub of the country, concentrating in leather, surgical and sports goods. Finally, the three main industries in Sheikhupura district are textile, food and machinery and equipment. The map of Punjab above shows six of these seven industrial zones and their three major industries.

Clusters are a fundamental economic unit in the economy and an important driver of competitiveness. The importance of clusters stem from the fact that these play a ‘fundamental role in knowledge creation, innovation, the accumulation of skills, and the development of pools of employees with specialized expertise’.<sup>6</sup> In Pakistan, clusters have been contributing significantly towards the overall industrial development of the country. However, more recently, cluster level development and industrial competitiveness has been seriously hampered due to 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 larger 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 therefore be not as binding for another. Hence cluster-level studies by identifying sector-specific obstacles or constraints help in designing more specific and targeted policy interventions.

In the following section we briefly outline the methodology of the ICA survey 2007 and the Lahore pilot survey 2012. This is followed by section 3 which identifies the top four major constraints faced

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<sup>6</sup> Clusters and Economic Policy: Aligning Public Policy with New Economics of Competition. by Porter, Michael. E, HBS, 2007.

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 from the Lahore pilot survey of 101 firms across various sectors, to assess the current constraints and their impact, albeit on a smaller sample of industry. The report concludes with a short policy brief for the Punjab government derived from the analysis of both the ICA, 2007 cluster level data and the recent pilot survey in Lahore.

## 2 Methodology

The main objective of the ICA survey was to identify 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. There were sixteen constraints identified in the survey which were categorized into four broad areas – infrastructure, economic governance, finance and labour 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 effecting productivity of firms.

The World Bank conducted the ICA survey in 2002 and then subsequently in 2007 in 13 major cities of Pakistan.<sup>7</sup> The report based on this data analysed the constraints facing industry at the national and provincial level. The analysis did not go deeper into the industrial clusters within each province. This particular report aims to fill that gap by focusing exclusively on the Punjab and its seven major industrial clusters by using the ICA 2006-07 data and supplementing it by a recent pilot survey of industries in Lahore.

The Punjab's main industrial clusters contain a diverse range of sectors, from low value added food products to high value added products like machinery and equipments. The identification of constraints hampering growth and productivity of firms at the cluster level is imperative for designing appropriate and targeted policy interventions. Since these clusters are heterogeneous in terms of type of industries, average size of firms, legal status, and geographical locations, an identical 'one size fit all' industrial policy might not be suited for all of these. Therefore the identification of constraints at the cluster level serves two important purposes. Firstly, it will help policy makers identify and prioritize constraints at the cluster and sector level. Secondly, this more 'microscopic' view would 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 constraints faced by industries this report has conducted a fresh pilot survey in the Lahore region. The survey questionnaire is available separately to this report. The survey covered 101 enterprises and focused mainly in and around the Lahore region. The purpose of conducting a fresh survey was firstly to verify the prioritization of constraints identified by the Investment Climate Assessment (ICA – 2006-07) conducted by the World Bank. Secondly, it was done to identify and evaluate any changes in impact of these constraints on industry

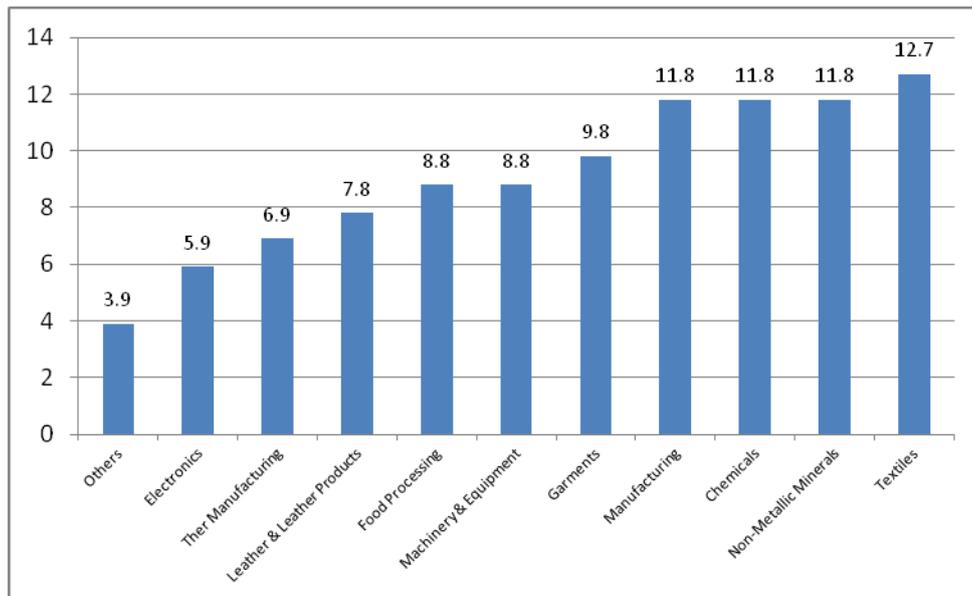
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<sup>7</sup> World Bank, *Investment Climate Assessment II*, Washington, DC, 2009.

since 2007. Finally, the survey helped explore and assess the cost and effectiveness of the coping mechanisms adopted by enterprises in the Lahore zone.

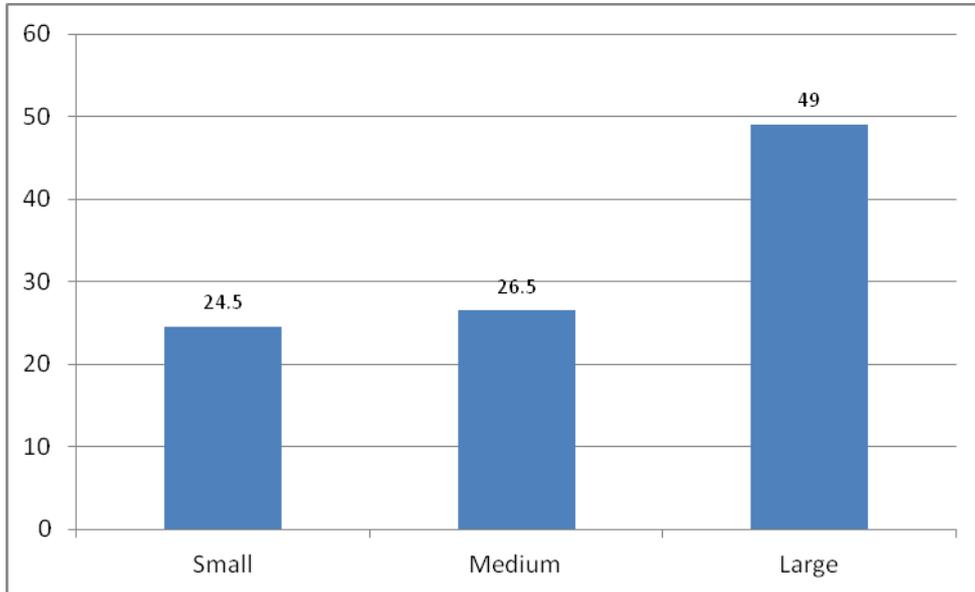
Figure 2-1 below provides the sector composition density of the survey respondents. The survey comprised ten key sectors with maximum concentration in Textiles, Non-Metallic Mineral, Chemicals, Manufacturing and Garments.

**Figure 2-1: Sector Coverage of the Pilot Survey (%)**

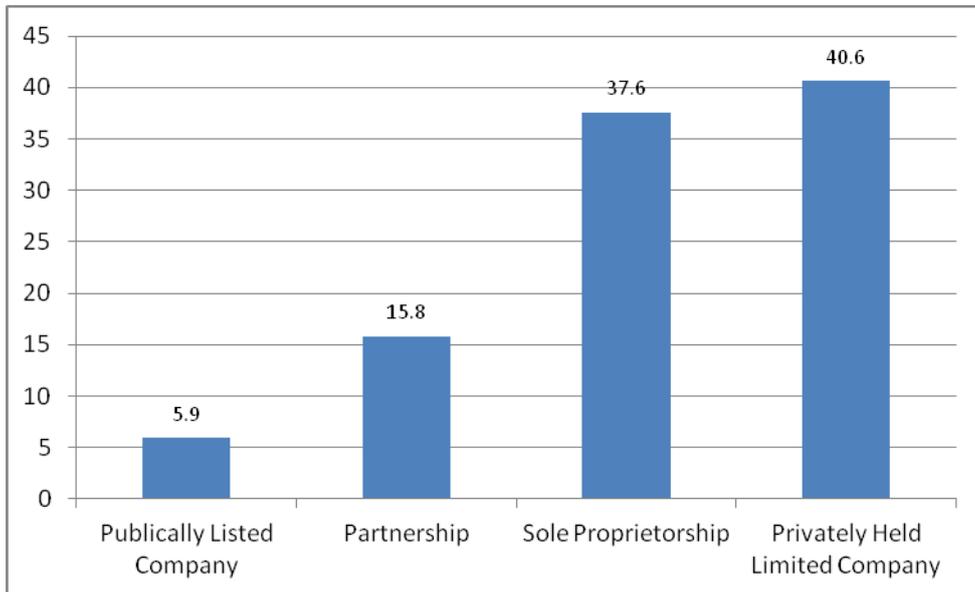


Building sector diversity in the sample was crucial as it helps highlight the relative severity of constraints faced by different types of industries. For example, the sectors which are heavy consumers of power are likely to suffer more due to load-shedding as compared to those sectors that are not high 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 splits each sector into small, medium and large scale units. As shown in Figure 2-2 below the survey comprised around 50% large scale manufacturers and around 25% medium and small enterprises. Moreover, figure 2-3 shows that the enterprise coverage was mainly privately owned and sole proprietorship (78%) enterprises.

**Figure 2-2: Survey Coverage by Size of Industries (%)**

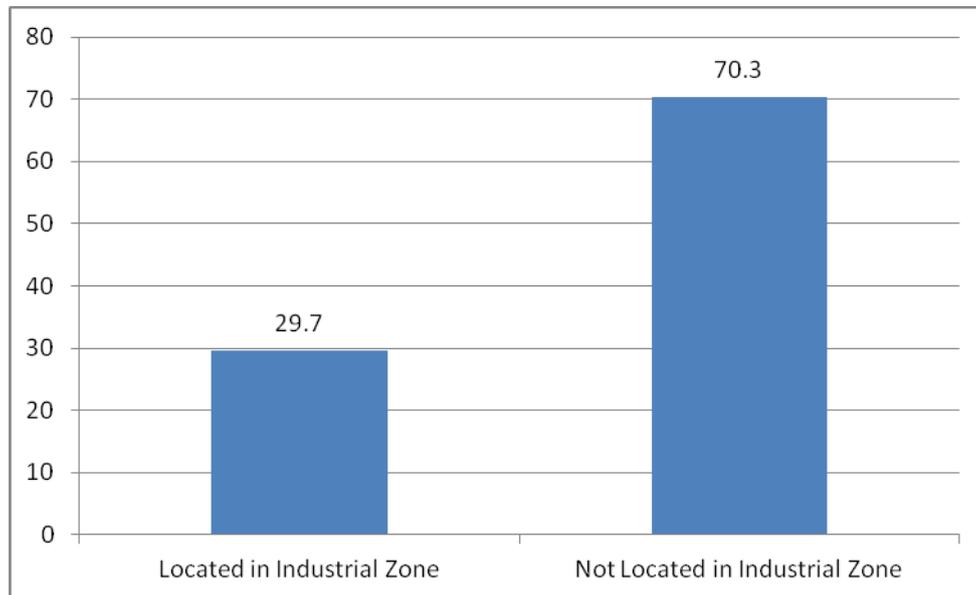


**Figure 2-3: Survey Coverage by Ownership Structure (%)**



Finally, the data collected is also sensitive to location of firms within an established industrial zone and outside an industrial zone. This information can help in identifying if there are any significant merits for firms to locate inside an established zone. Figure 2-4 below presents the coverage of the survey in terms of location inside and outside an industrial zone.

**Figure 2-4: Survey Coverage by Location within or outside an Industrial Zone (%)**



### **3 Constraints Faced by Industries in Seven Key Regions of Punjab**

#### **3.1 Introduction**

The objective of this analysis is to identify the major constraints impeding the output and productivity of firms in the major industrial clusters/zones of Punjab. By using the ICA 2006-07 data, the World Bank report had analyzed the impediments and constraints to productivity and investment at the country and the provincial level. This section focuses on the Punjab by taking the analysis deeper into industrial zones in the province – 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 the fact that most of the constraints faced by 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 which are currently inhibiting growth and productivity of firms and to reassess the impact of these on the manufacturing sector in the Lahore zone.

#### **3.2 Major constraints and challenges faced by manufacturers located in key industrial zones – analysis of 2006-07 ICA survey**

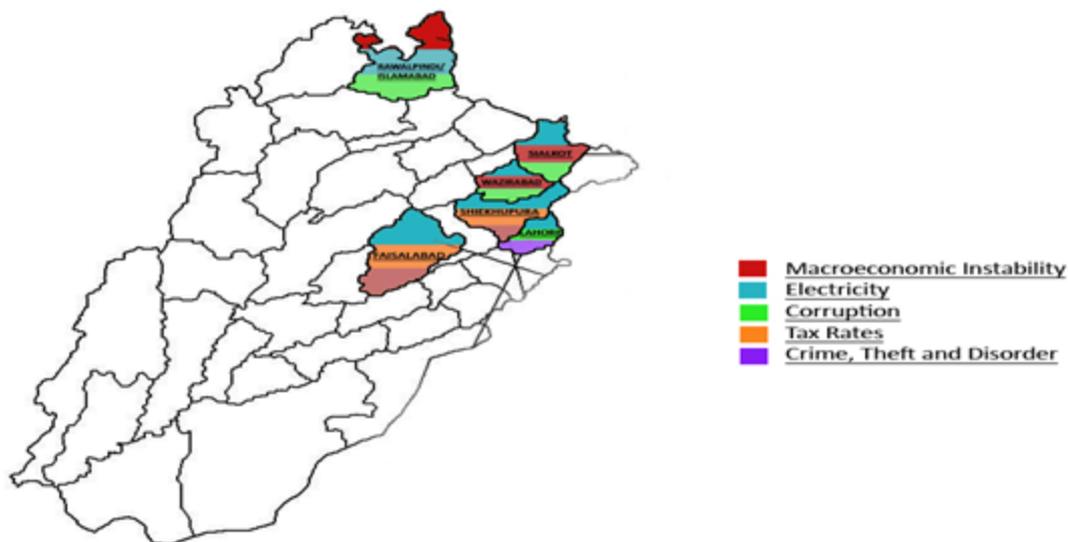
Electricity, macroeconomic instability, and corruption emerge as the highest rated constraints by the firms surveyed in the Punjab (Figure 2-1) in 2006-07. Among the list of constraints, the lack of electricity is considered the first and the most serious issue by firms in the province. More than 50 percent of total firms identified electricity shortages as the most serious obstacle out of the given list of 16 business environment obstacles. The huge gap of rating between electricity and the other obstacles identified in the list is quite evident.

Macroeconomic instability emerges as the second highest rated constraint by all firms in the Punjab. In this category about 15 percent of firms rated macroeconomic instability as the most serious constraint while 16 percent and 13 percent of firms reported it as their second and third most serious constraint respectively.

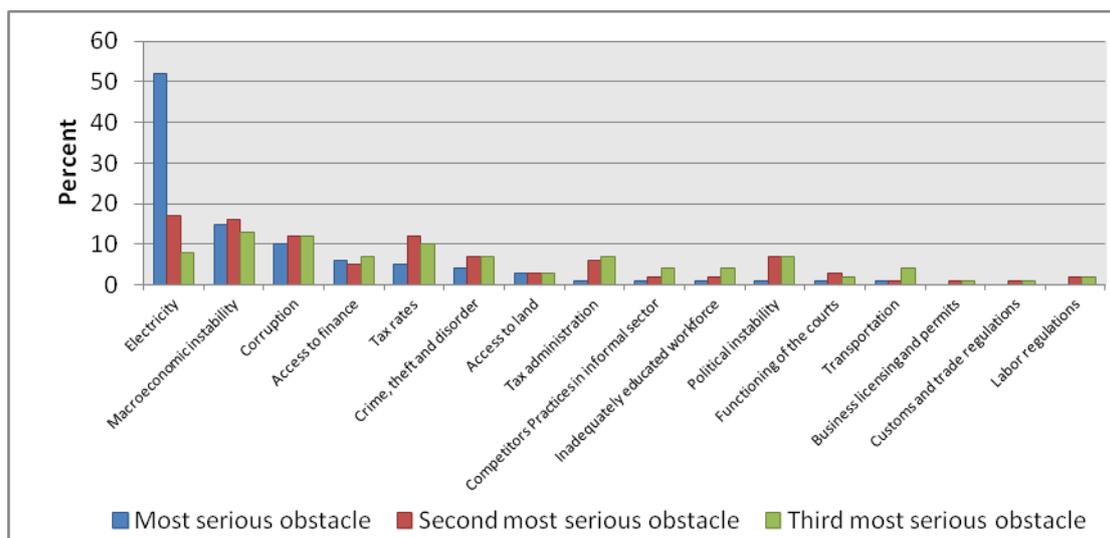
Corruption is considered the third highest rated constraint selected by 10 percent as the most serious obstacle. Around 12 percent chose it as the second most serious constraint and 12 percent as the third most serious. The other notable constraints identified by firms are access to finance, tax rates and crime, theft and disorder.

Figure 3-1 shows the major constraints in each of the six industrial clusters in the Punjab.

**Figure 3-1: Summary of overall constraints faced by all firms in Punjab**



**Figure 3-2: Major Constraints of Punjab’s firms**



Source: Authors’ calculation based on ICA 2007 survey data

### 3.3 Major constraints and challenges faced by manufacturers located in the Lahore zone – pilot survey 2012.

At the aggregate level the survey asked the respondents to rank their top most constraint, second most serious constraint and the third most serious constraint. The results show that at the aggregate level electricity is by far the most critical constraint with over 70% of the firms classifying it as most

important and about 20% as the second most important constraint. Table 3-1 below summarises the aggregate results of constraints prioritization.

**Table 3-1: Aggregate Constraint Prioritization (% of Firms)**

<b>Aggregate Constraint Analysis</b>	
<b>Top Most Constraint</b>	<b>% of Firms</b>
Electricity	71.3
Macroeconomic/Political Instability	7.9
Inadequate Workforce	5.0
<b>Second Most Serious Constraint</b>	<b>% of Firms</b>
Electricity	20.0
Macroeconomic/Political Instability	17.0
Inadequate Workforce	12.0
<b>Third Most Serious Constraint</b>	<b>% of Firms</b>
Access to Raw Material	18.2
Inadequate Workforce	15.2
Corruption	13.1

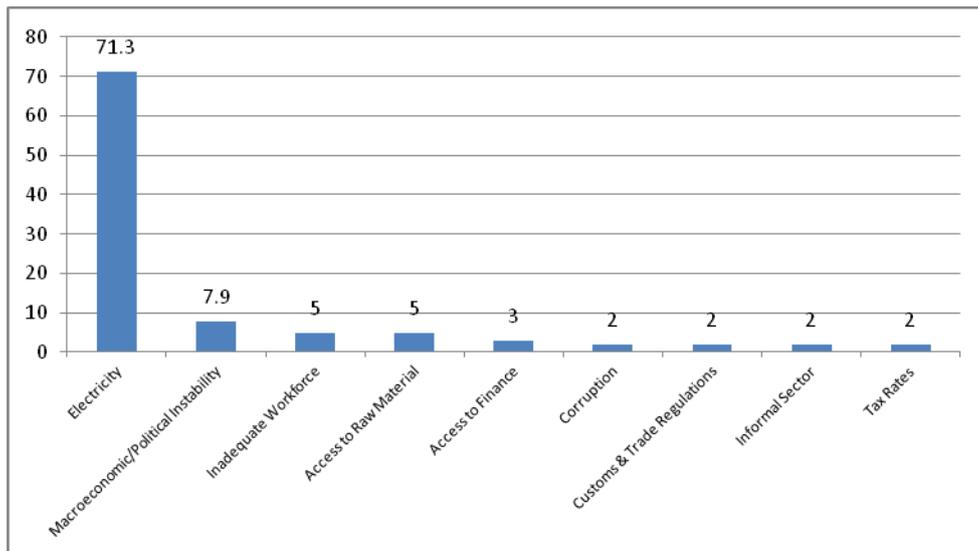
These constraints are consistent with the finding of ICA 2006-07 with the exception of inadequate workforce and access to raw material which were not identified as a serious constraint at that time. Based on the summary results presented above at the aggregate level the top five constraints hampering industrial activity in Lahore in terms of priority comprise the following: Electricity / Power, Macroeconomic and Political Instability, Inadequate Workforce, Access to Raw Material and Corruption.

Discussions with the private sector and a large amount of recent literature on industrial constraints in Pakistan show that a major impediment to its growth is the lack of skilled labour, particularly high 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 is there an inadequacy in skills but also the understanding of manufacturing excellence is completely absent. The 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 the Punjab is the Technical Education and Vocational Training Authority (TEVTA). The industry has identified several shortcomings in the way TEVTA operates to provide skilled workforce to the industry.

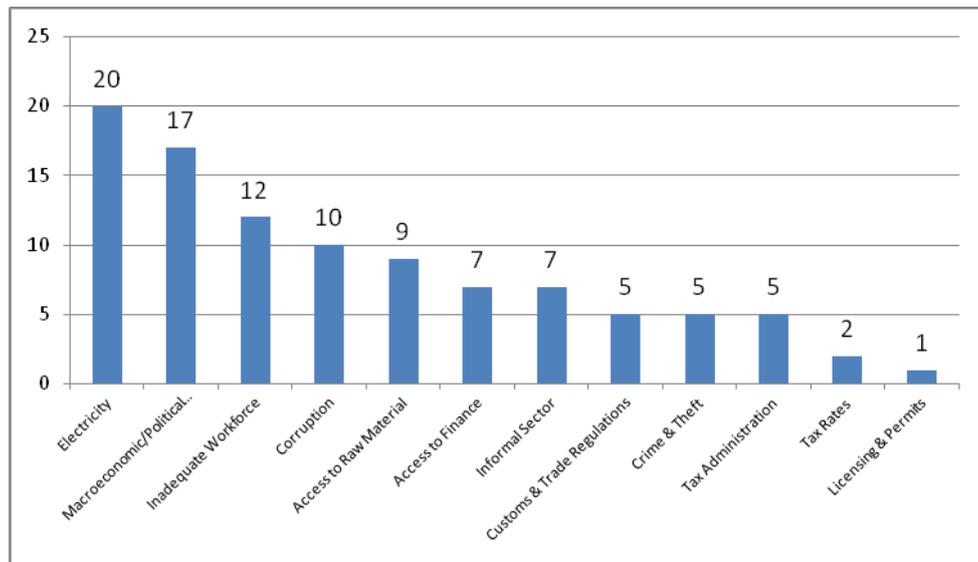
Moreover, the quality, availability and price variance of raw material are key factors that distort input costs and decisions of manufacturers. Industries have to invest heavily to store sufficient amounts of inputs to guard against frequent price hikes and issues of non-availability. This is more so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

Figures 3-3,3-4 and 3-5 present the prioritisation of all the key constraints faced by the industrialists in Lahore.

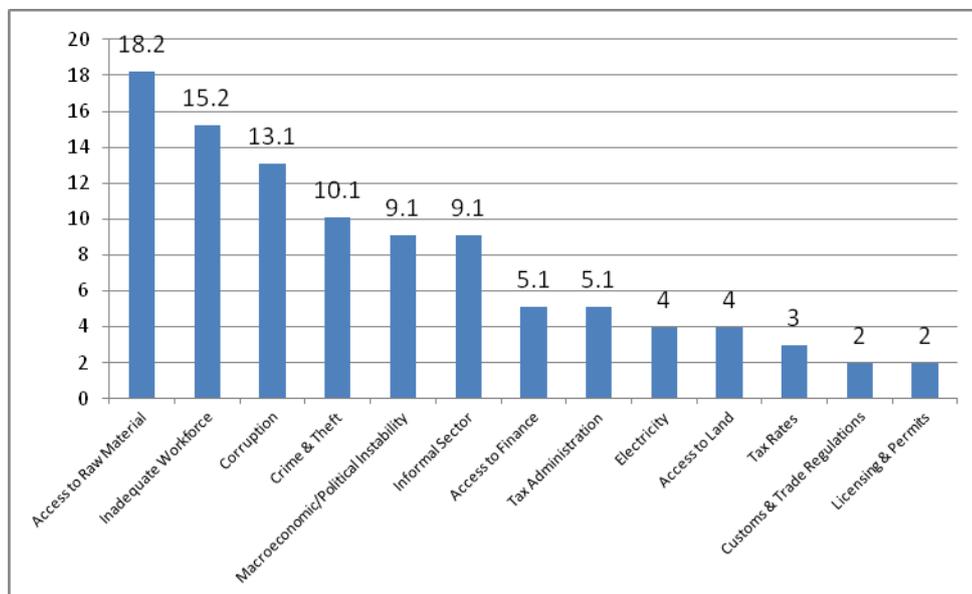
**Figure 3-3: Top Most Serious Constraint (% of Firms)**



**Figure 3-4: Second Most Serious Constraint (% of Firms)**



**Figure 3-5: Third Most Serious Constraint (% of Firms)**



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 there is 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 current Lahore survey.

### **3.4 Electricity**

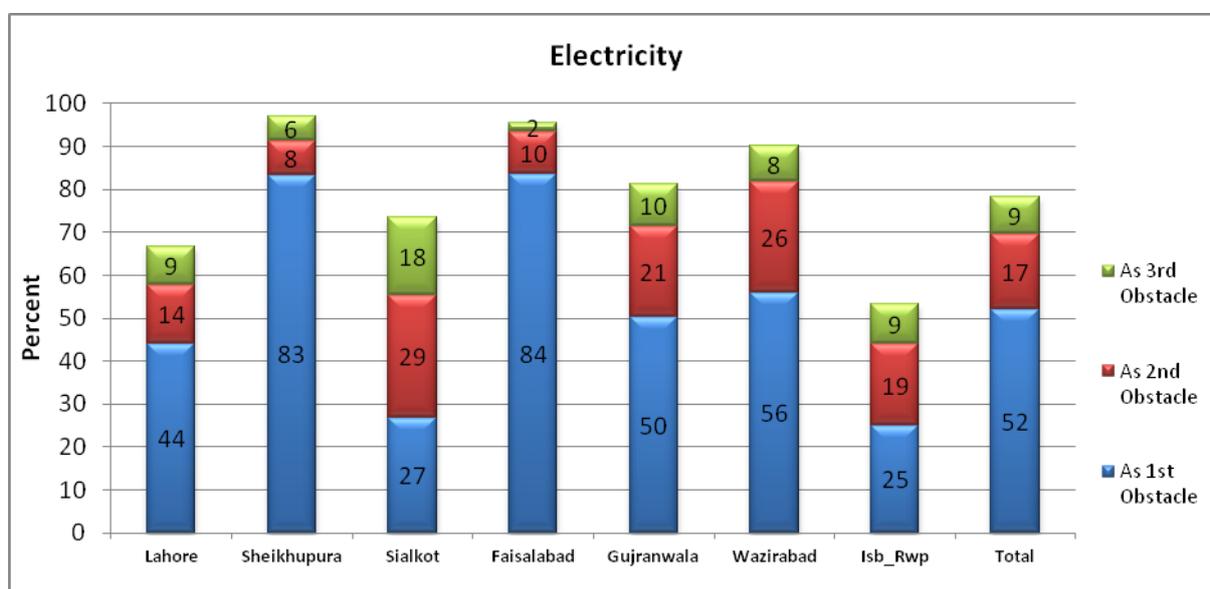
#### **3.4.1 Introduction**

The nationwide shortage in electricity is the most damaging and chronic problem facing industry across the country. The impact of electricity shortages on Industry in Punjab is very acute and needs immediate attention and redress by both the provincial and the federal government. This section is divided into two parts, the first looks at the impact of electricity shortages at the cluster and sector level in the Punjab province using the ICA survey 2006-07. The second part uses the latest Lahore zone pilot survey of firms to analyse and assess the current situation of industry vis-a vis electricity shortages.

In the data collected for the World Bank Investment Climate Survey in 2006-07 electricity shortage has been consistently reported as the most important obstacle to industrial growth in Punjab across different clusters, sectors and firm sizes. This is evident from the figure below which shows that five

out of the six industrial zones in the Punjab reported electricity as the most severe constraint hampering their growth and productivity. Across Punjab as a whole almost 80 percent of firms considered electricity as being amongst the top three most serious constraints out of which 52 percent identified it as the most serious one. Across clusters, Sheikhupura 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. This is followed by Wazirabad, Gujranwala and Lahore, where more than 40 percent of firms regarded electricity as the most severe constraint. Interestingly in both Sialkot and Rawalpindi, only a quarter of firms reported electricity as the most serious obstacle, although more than 50 percent of firms in both these cluster still considered it amongst the top three most severe constraints.

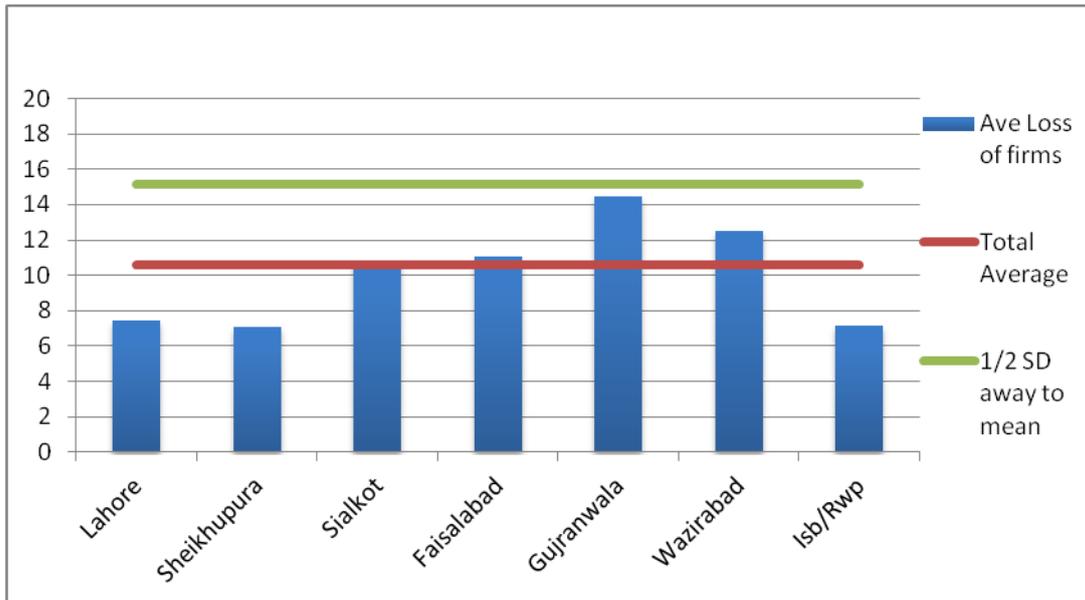
**Figure 3-6: Firms reporting electricity as most serious constraint (%)**



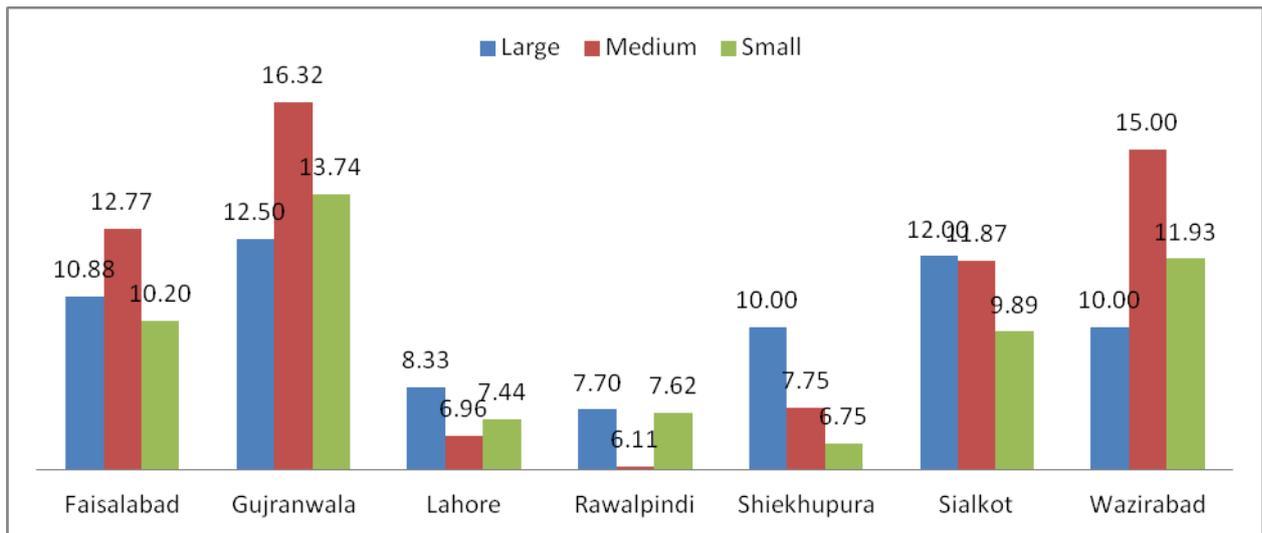
### 3.4.2 Impact of electricity across clusters

The severity of electricity 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 outages. The sales loss was most acute in firms located in the Gujranwala zone with an average loss of around 14 percent which is 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 below). Although more than 80 percent of firms in Sheikhupura reported electricity as the most serious constraint, the losses reported by firms in that zone were on average around 7 percent which is the lowest in the Punjab. Firms in Lahore and Rawalpindi fared relatively better with reported losses less than 8 percent of annual sales.

**Figure 3-7: All firms average loss due to power outage (%)**



**Figure 3-8: Sales loss due to power outage across zones (%)**



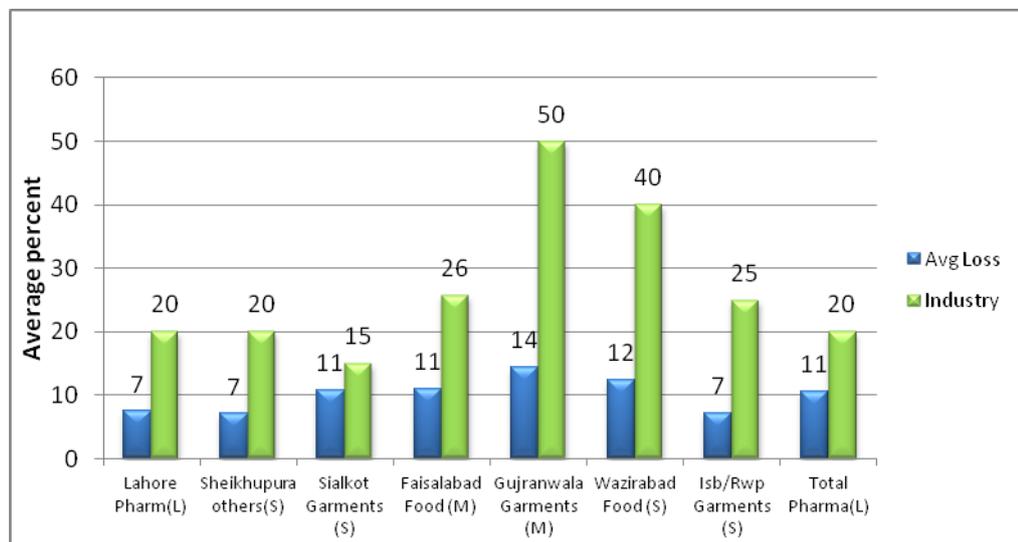
Source: Author's calculation based on ICA 2007 survey

From the figure above it is clear that across different industrial zones, the small and medium sized firms are more vulnerable to electricity shortage than large firms. In Gujranwala, Faisalabad and Wazirabad, which constitute the ‘golden triangle’ of Punjab’s industry, losses incurred by small and medium sized firms were substantially higher as compared to the 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 are much more reliant on the national grid.

### 3.4.3 Impact of electricity across sectors

The following figure shows the sector within each of the six clusters worst effected by electricity shortages. For example, in Lahore, it’s the Pharmaceutical sector which suffered the most, with almost 20 percent of annual sales lost as a consequence of electricity outages. In Sialkot, Gujranwala and Rawalpindi, the garments industry was a clear outlier. In fact, the garment industry in Gujranwala reported on average 50 percent loss as a result of electricity shortages, which is by far the highest amongst industrial sectors. The food sector, in both Wazirabad and Faisalabad was the worst hit with average losses of 26 percent and 40 percent respectively. Other sectors, not shown in the figure, but which also suffered significant losses were Electronics and Cutlery in Gujranwala and Cutlery and Machinery Equipment in Wazirabad.

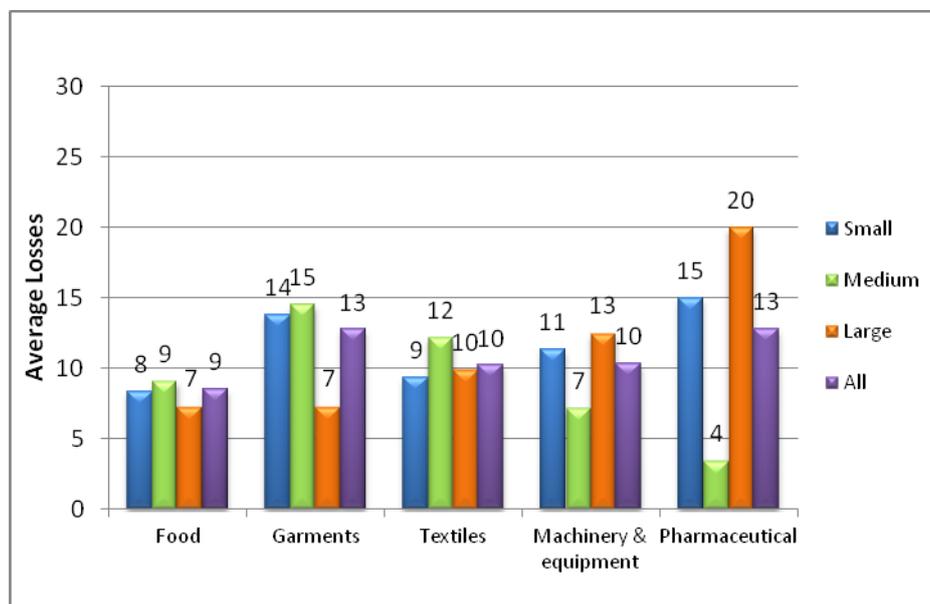
**Figure 3-9: Highest annual sales loss due to power outages (%)**



The figure below compares losses due to electricity shortages in the five major sectors of Punjab reported in the 2007 ICA survey. These sectors are Textiles, Garments, Pharmaceuticals, Food and Machinery and Equipment. According to the survey the Pharmaceutical industry and the Garments industry report the highest losses in terms of annual sales. Interestingly, within the Pharmaceutical

industry it's the large firms which report the highest annual losses amounting to 20 percent of annual sales. On the other hand in the Garments industry it's the small and medium enterprises which bear the highest loss as a consequence of electricity shortages. Machinery and Equipment, Textiles and the Food sector report on average losses of around 10 percent of annual sales and the variation of losses across firm size in these industries is not significant. It is worth noting that the industries which report 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 costs of production.

**Figure 3-10: Loss as percent of total annual sales due to power outages**



Therefore according to the 2007 ICA survey, the zones which suffered the most as a result of electricity shortages were Gujranwala, Wazirabad and Faisalabad. Within these zones the sectors which registered the highest annual sales loss were Pharmaceutical, Garments and Food. Across the five major industrial sectors of Punjab, the Pharmaceuticals industry reported the highest annual losses followed by the Garment industry and the Textile sector. Machinery and Equipment and the Food sector were fourth and fifth in terms of average annual sales loss.

The following sub-section analyses the current situation of the industry located in the Lahore zone in terms of electricity shortages.

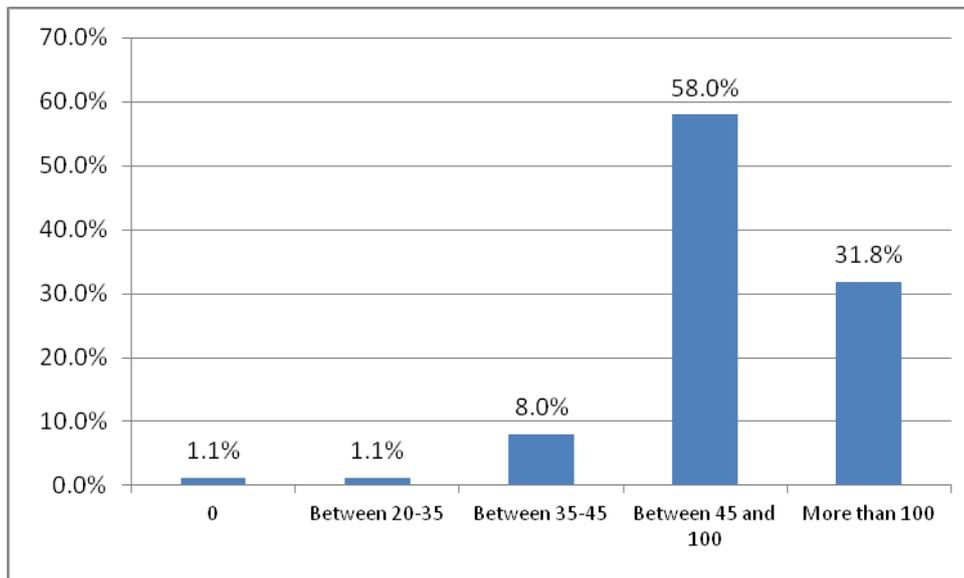
### **3.4.4 The current situation - Analysis based on the Lahore survey**

Power is the dominating issue that has emerged even more strongly since the ICA survey back in 2006-07. Power shortage has multiple impacts on the performance of industries. Non-availability results in loss of production reducing the amount of output produced by firms. Unannounced outages have increased wastages and wear and tear of machines, especially in sectors where there is more

automation such as plastics, chemicals, etc. Sudden power outages result in breakdown of more sensitive equipment of machines. In some cases the damaged equipment requires repair by suppliers located outside Pakistan resulting in significant loss of production time. Moreover, lack of power at homes has a negative impact on workforce efficiency and productivity. Firms have reported that over the summer months the productivity of workers goes down 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 is causing issues for firms especially in the SME sector.

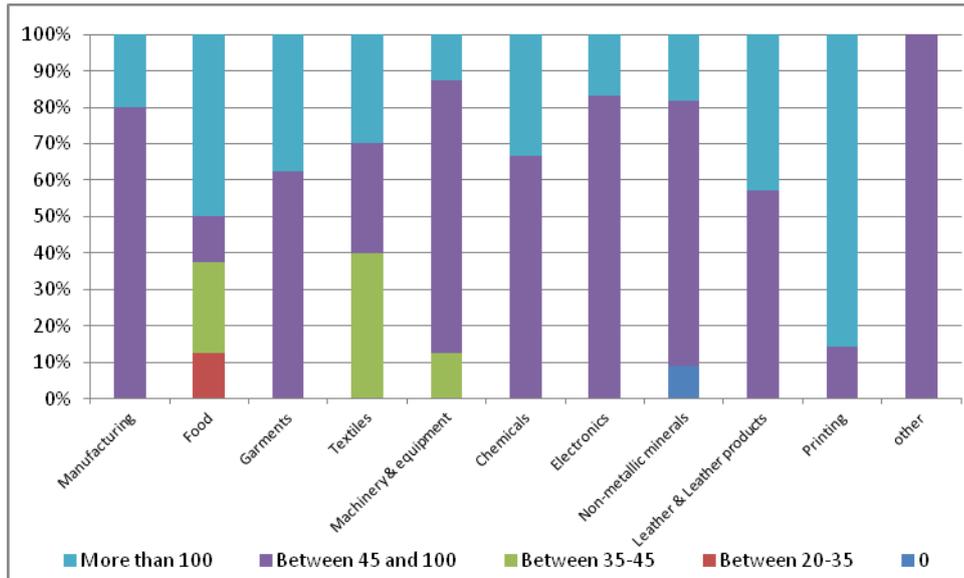
Power/Electricity has been identified as the key constraint faced by all major sectors and across all firm sizes in Lahore. In terms of the extent of the problem, some 58% (Figure 3-11) of the firms feel that the average number of outages vary between 45 to 100 times in a months – in other words it averages out to more than twice a day.

**Figure 3-11: Average Number of Outages during a Month**



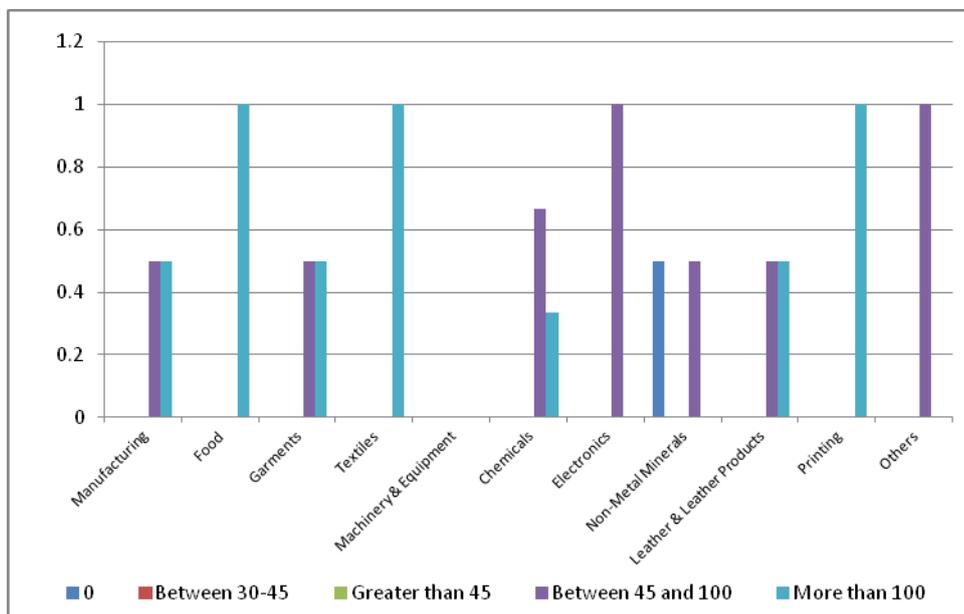
This number has slightly worsened since the ICA 2006-07 where majority firms reported that outages were around 45 per month. Figure 3-12 breaks down the information on outages at the sector level as shown below.

**Figure 3-12: Average Number of Outages per Month per Sector**



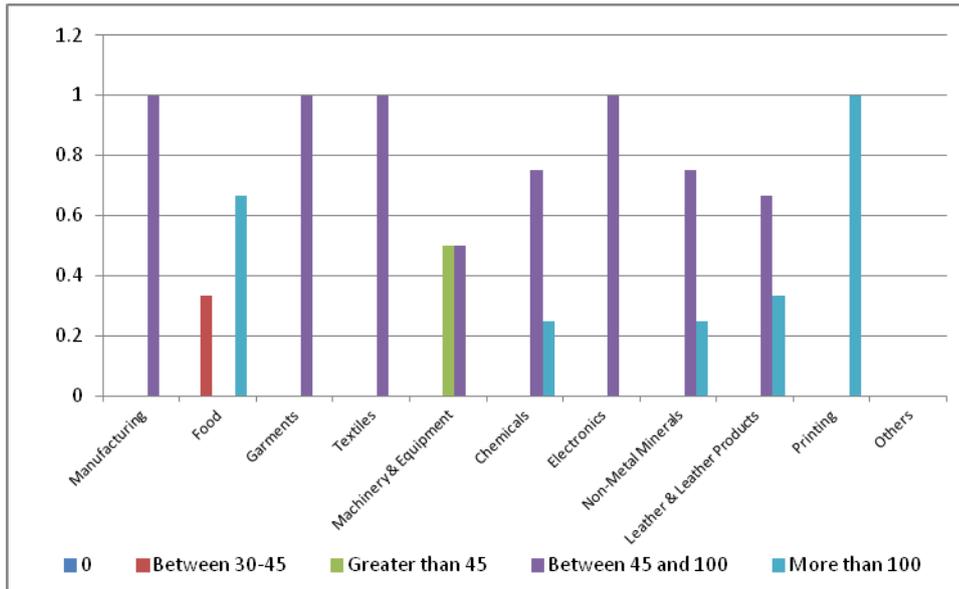
All the sectors with the exception of printing, food and textiles reported that number of outages per month was between 45-100. Majority of the firms in the printing and the food sector reported that number of outages were greater than 100, whereas in textiles the response was evenly split between greater than 100, between 45-100 and between 35-45.

**Figure 3-13: Number of Outages per Month per Sector (Small Firms)**

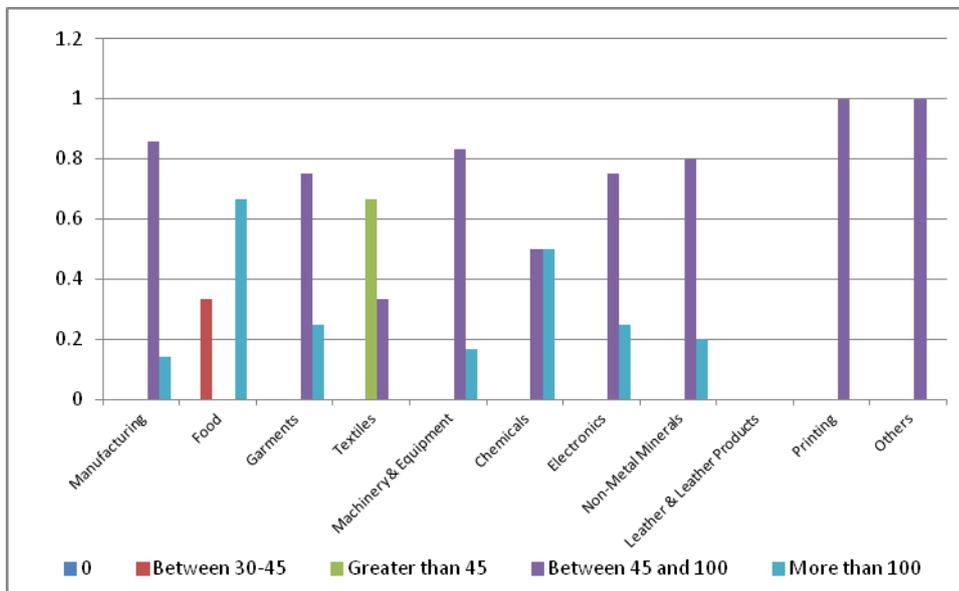


Interestingly, across all sectors small firms report the highest number of outages, averaging more than a 100 per month. As small firms are more likely to be located outside industrial zones it can be inferred that outages are much higher and also more random in areas outside these zones.

**Figure 3-14: Number of Outages per Month per Sector (Medium Firms)**



**Figure 3-15: Number of Outages per Month per Sector (Large Firms)**



In case of medium and large firms majority firms report outages to be between 45 and 100, except for food and chemical industry where around 50% of firms report outages to be greater than 100.

#### **3.4.4.1 Impact of Power Outages**

In order to assess the impact of the power outages on the performance of the industry the survey estimates the losses to sales experienced by firms in Lahore. As it was not possible for the firms

to estimate the exact amount of loss the survey reports losses as a broad range to identify the maximum and the minimum possible losses experienced.

**Figure 3-16: Percentage of Sales Lost due to Power Outages (%)**

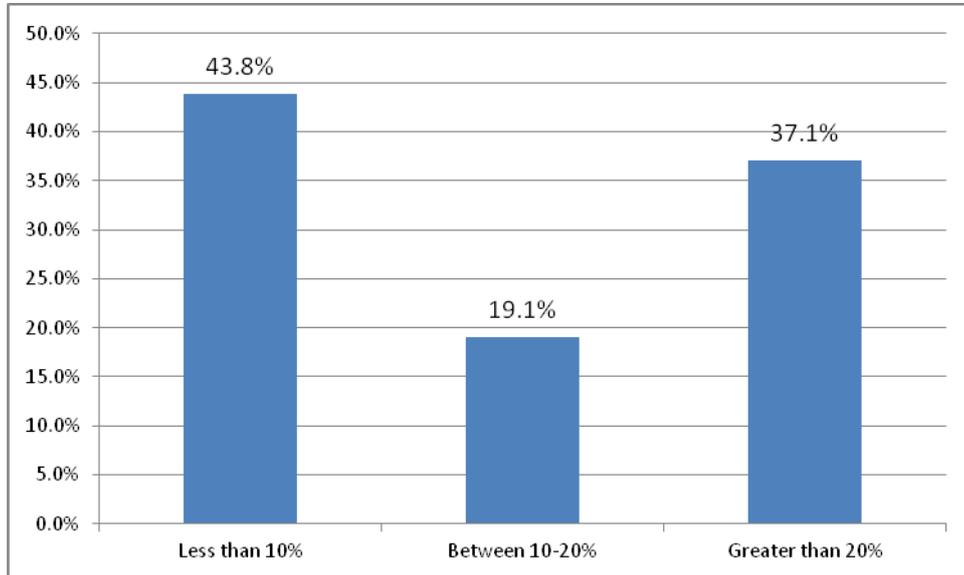
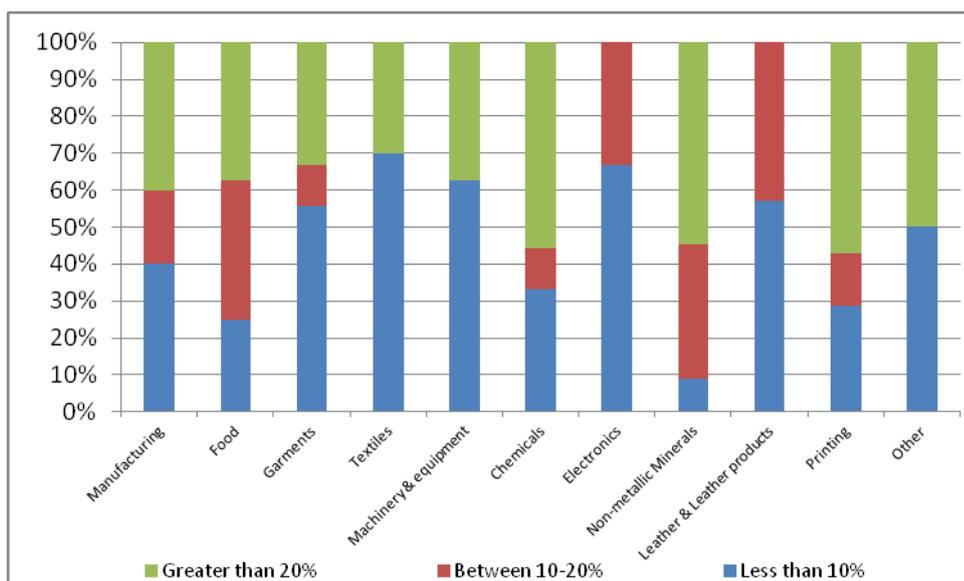


Figure 3-16 above shows percentage of sales lost due to power outages at the aggregate level. About 43.8% of the firms reported that the loss was less than 10%, about 19% reported losses between 10-20% and around 37% firms reported losses of greater than 20%. Using conservative weights this translates into an average of loss of 15% of sales. This loss is twice as much compared to 2007, when it was around 7% in the Lahore zone.

**Figure 3-17: Percentage of Sales Lost due to Power Outages by Sectors (%)**



The reported data (Figure 3-17) above shows that chemicals, non-metallic minerals (includes plastic), printing and others suffer the most from power outages. More than 50% of the firms in each of these sectors have reported that losses due to power outages were greater than 20% of the sales. This is to be expected as the manufacturing processes of all these three industries require uninterrupted power supply. Interruptions either result in loss of material or a significant loss as a consequence of increased production downtime.

**Figure 3-18: Percentage of Sales Lost due to Power Outages per Sector (Small Firms) %**

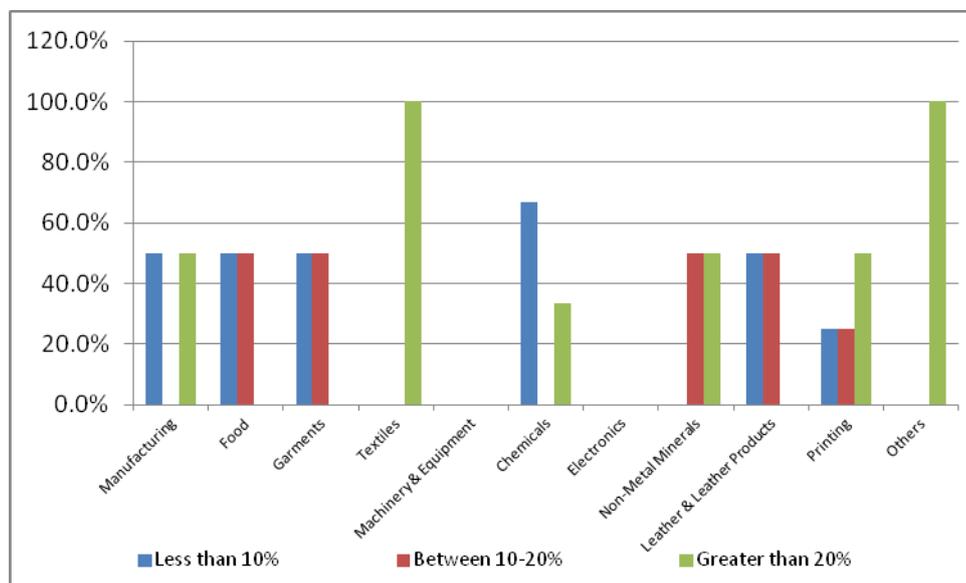
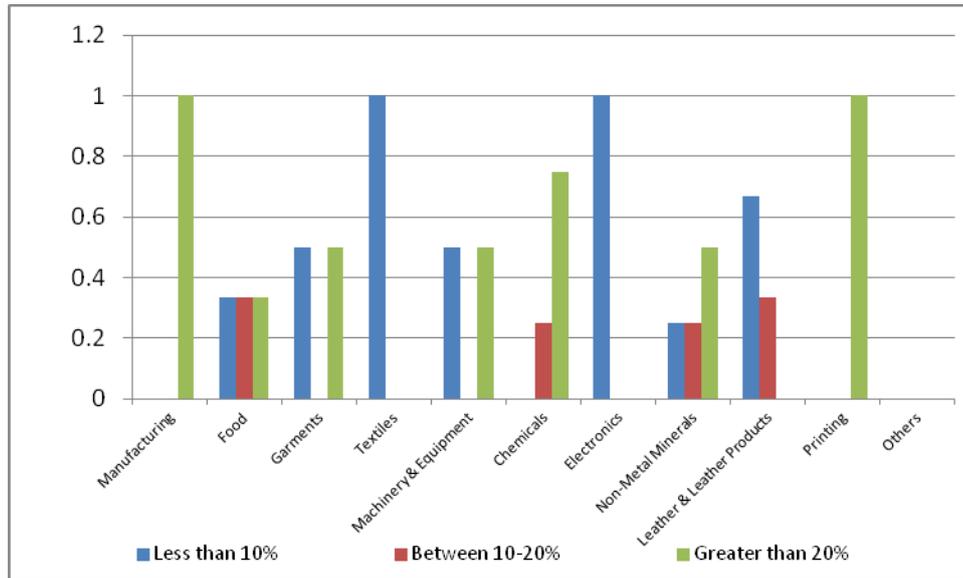


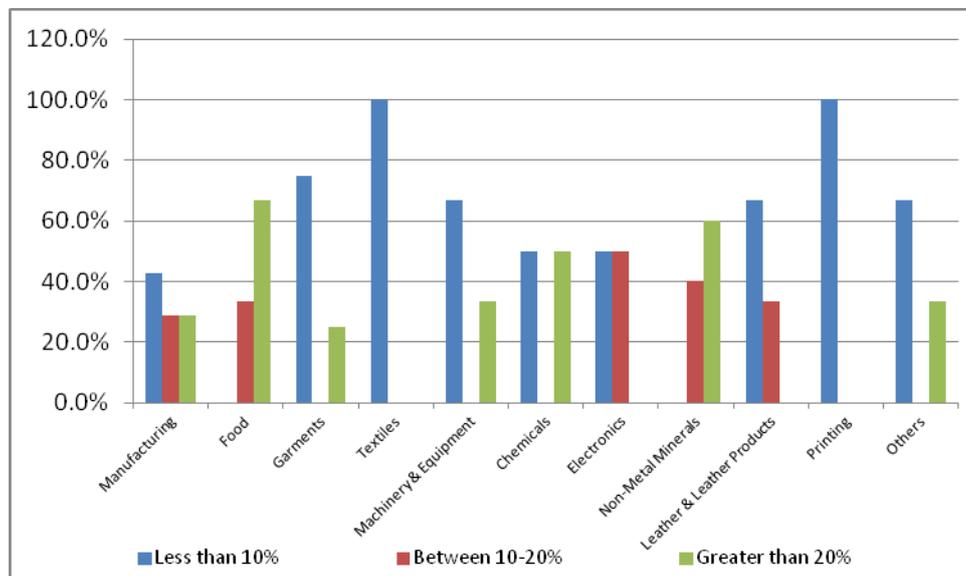
Figure 3-18 reports data on small firms in various industrial sectors. Textiles, manufacturing, chemicals, non-metallic minerals and printing are most affected by power outages.

**Figure 3-19: Percentage of Sales Lost due to Power Outages per Sector (Medium Firms) %**



In the medium size category, firms in manufacturing, garments, machinery & equipment, non-metal minerals and printing suffer sales losses greater than 20% as a result of power outages. While in the case of large firms, food, chemicals and non-metallic minerals are sectors where a greater proportion of firms report losses higher than 20%.

**Figure 3-20: Percentage of Sales Lost due to Power Outages per Sector (Large Firms) %**



### 3.4.4.2 Alternative Source of Power

The alternative source of power to electricity is gas. However, even with gas the country is running a severe shortfall in production and currently no new industrial gas connections are being granted. The industries that have existing gas connections suffer due to high level of load-shedding for gas as well. Textile sector is one of the biggest users of gas and it was reported that in 2011 they faced 168 days of gas load-shedding.

**Figure 3-21: Gas Load-Shedding (% of Firms)**

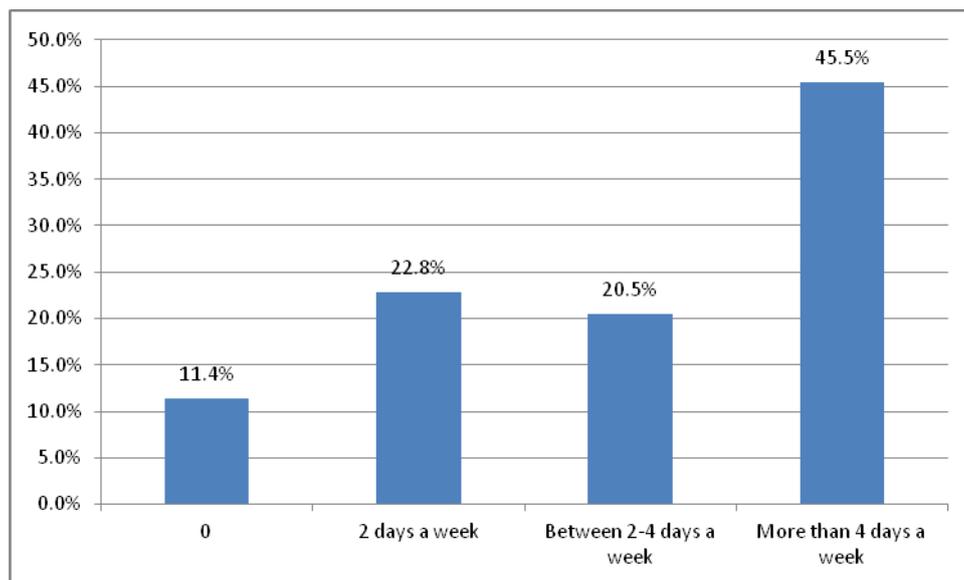
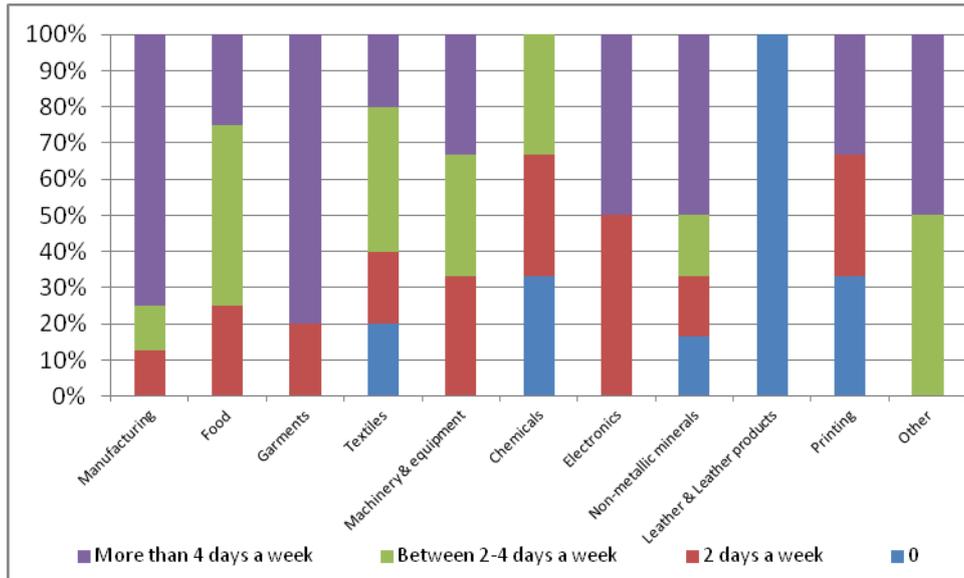


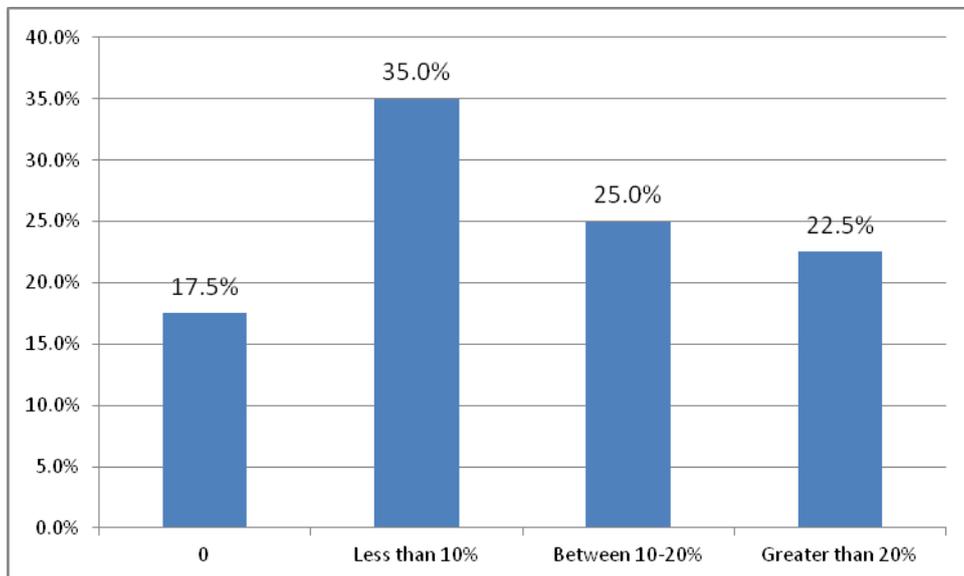
Figure 3-21 above shows that more than 45% of the firms have reported that gas is not available to the industry for more than 4 days a week.

**Figure 3-22: Gas Load-Shedding per Sector (% of Firms)**



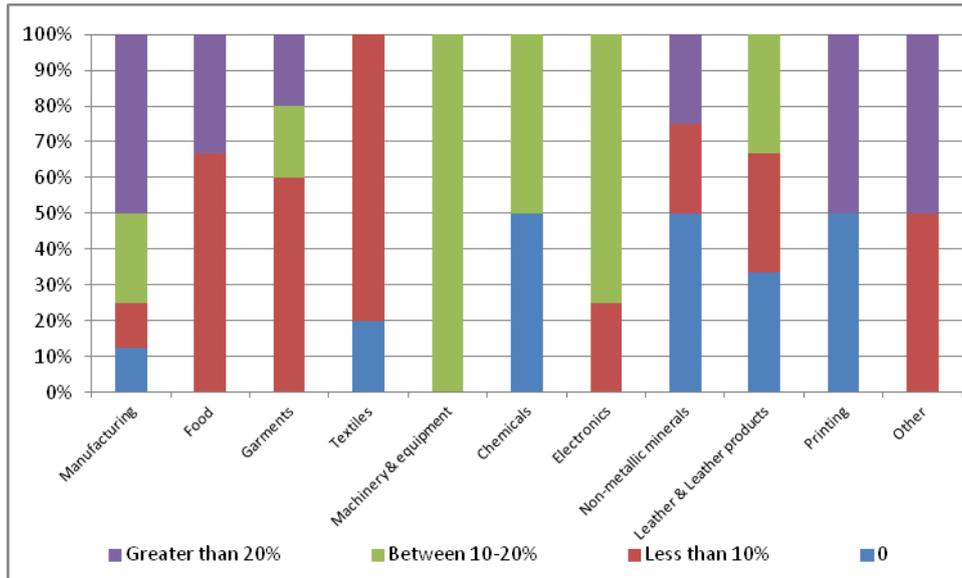
In terms of sectors, more than 50% of the firms in the manufacturing, garments, electronics and non-metallic minerals sectors reported that gas load shedding was more than 4 days a week. The above data represents the perspective of large firms as the survey data reports that 90% of the small and medium firms do not have industrial gas connection, whereas around 55% of the large firms were operating their factories on industrial gas connections.

**Figure 3-23: Percentage of Sales Lost due to Gas Load-Shedding (%)**



Majority of the firms report (35%) that the losses due to gas non-availability is less than 10% of their sales, about 22.5% of the firms report that losses were greater than 20% of the sales.

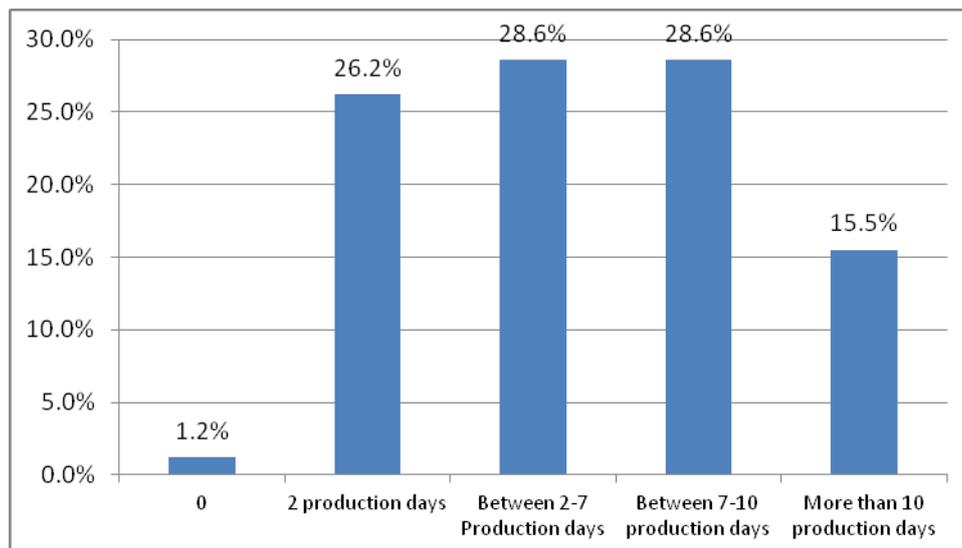
**Figure 3-24: Percentage of Sales Lost due to Gas Load-Shedding Per Sector (%)**



Around 50% of the firms in the manufacturing and in the printing sectors reported losses due to gas shortage greater than 20%. Based on discussions with the industry it is more likely that losses are less than 10% due to gas shortages. The information above is at the aggregate level but is more representative of large firms as there were hardly any medium or small firms in the survey which had industrial gas connections.

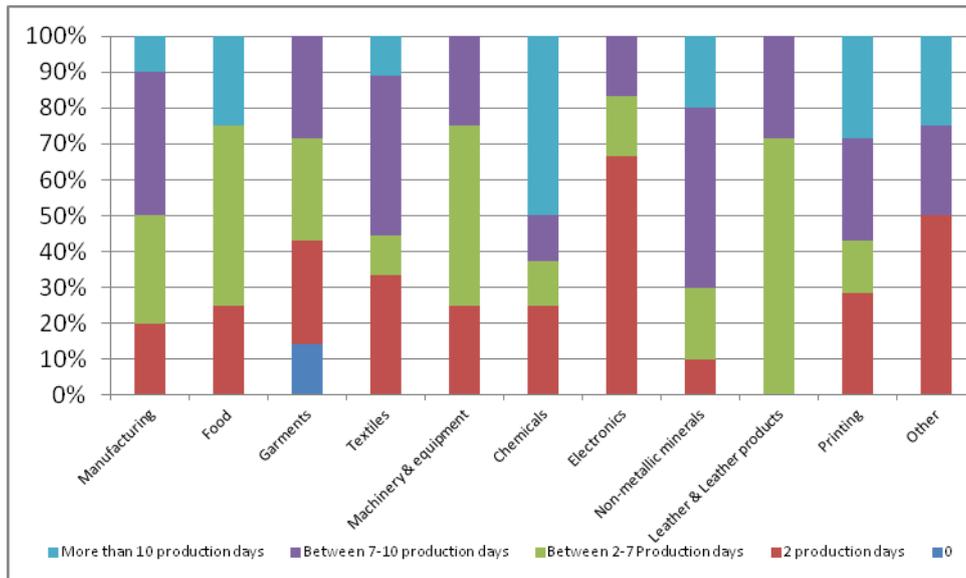
In order to further assess the impact of power shortages the survey also reports data on number of production days lost.

**Figure 3-25: Number of Production Days Lost due to Power Shortage (%)**



According to the data, more than 28% of the firms report losing 7-10 days of production time due to power shortfall. The same percentage reports that they lose 2-7 days of production time. On average around 5-7 days are lost due to power issues.

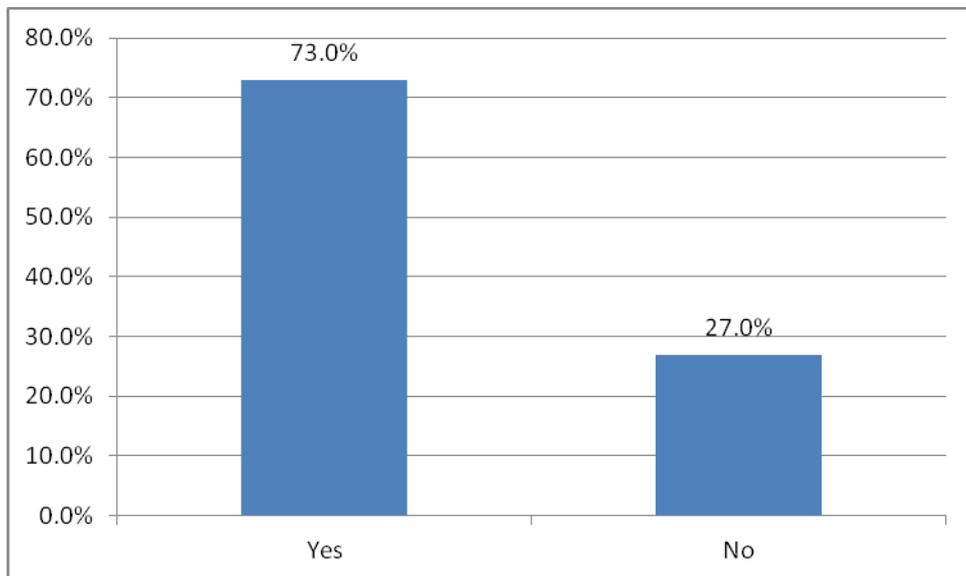
**Figure 3-26: Number of Production Days Lost due to Power Shortage per Sector (%)**



### 3.4.4.3 Key Coping Mechanism

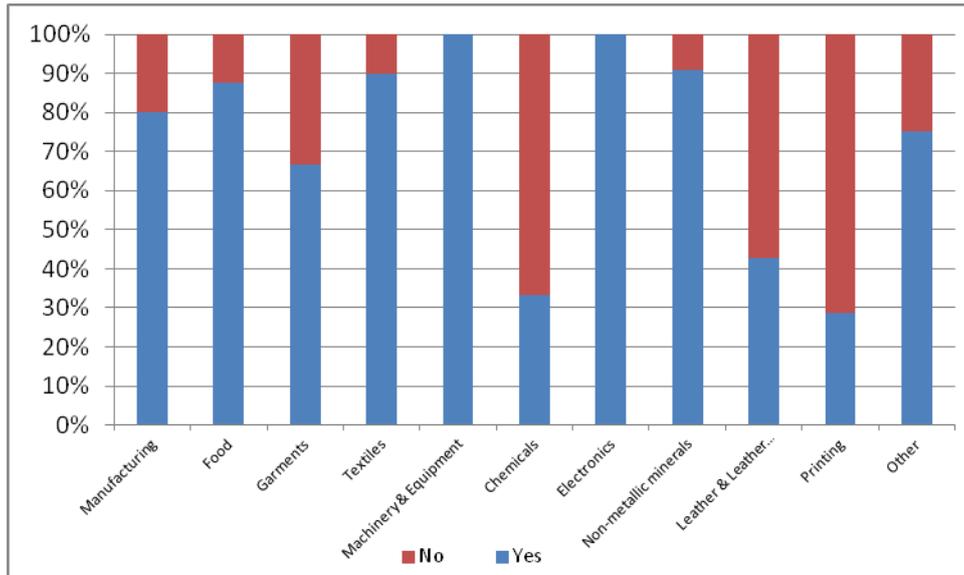
The key coping mechanism for power shortage is self generation of power by using generators.

**Figure 3-27: Use of Generator to Support Power Shortage (% of Firms)**



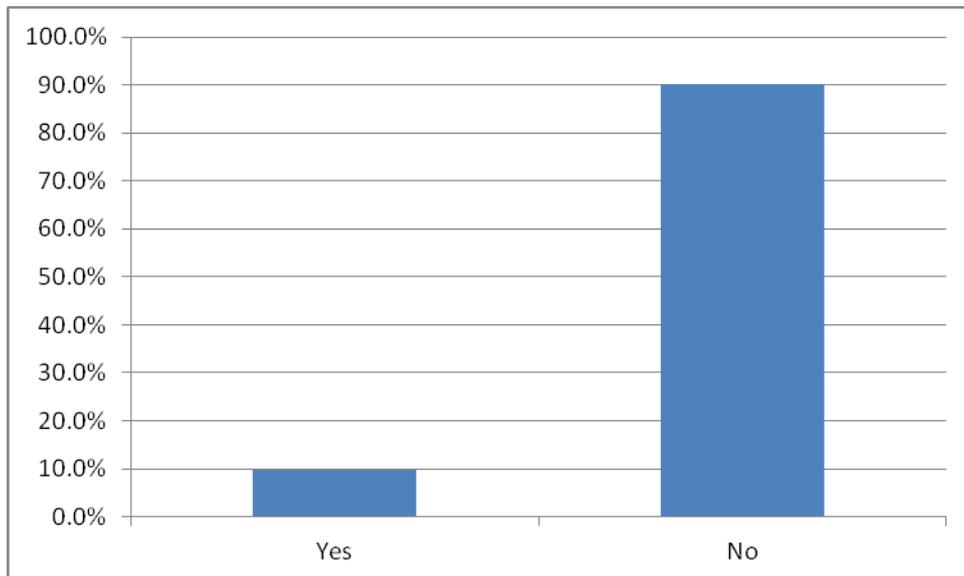
73% of the firms reported that they use generators as a key coping mechanism to meet the power shortfall.

**Figure 3-28: Use of Generator to Support Power Shortage per Sector (%)**



The data reports that except for chemicals, leather & leather products and printing in all other sectors more than 70% of the firms own generators. Moreover, majority of the generators (90%) are fuelled by diesel and very few by gas.

**Figure 3-29: Are the Generators Gas Fuelled (%)**

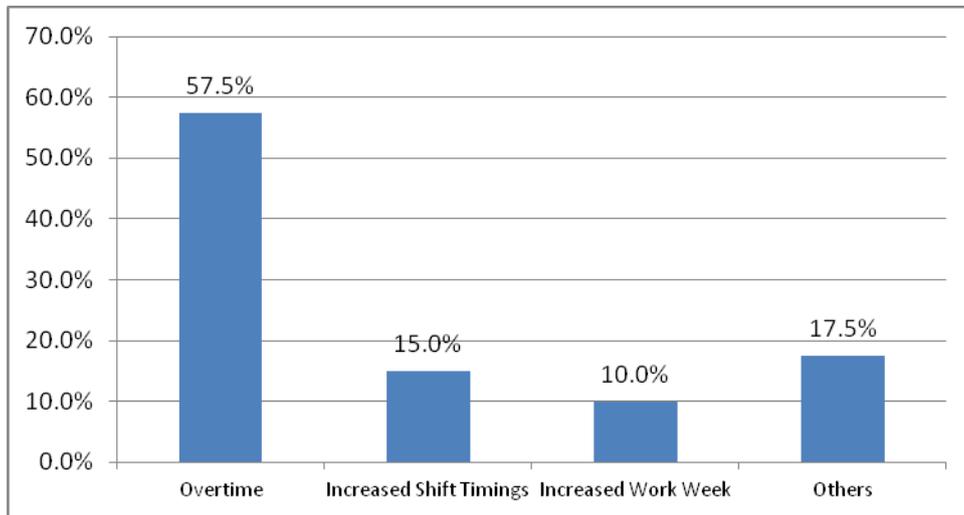


This has an important implication for cost of power generation. The power generation cost using a generator fuelled by diesel is around Rs. 48 per unit of electricity, whereas the same unit if consumed from the national grid costs Rs. 13. So the costs increase more than 3 folds if generators are used as an alternative source. This cost does not vary across size or sectors.

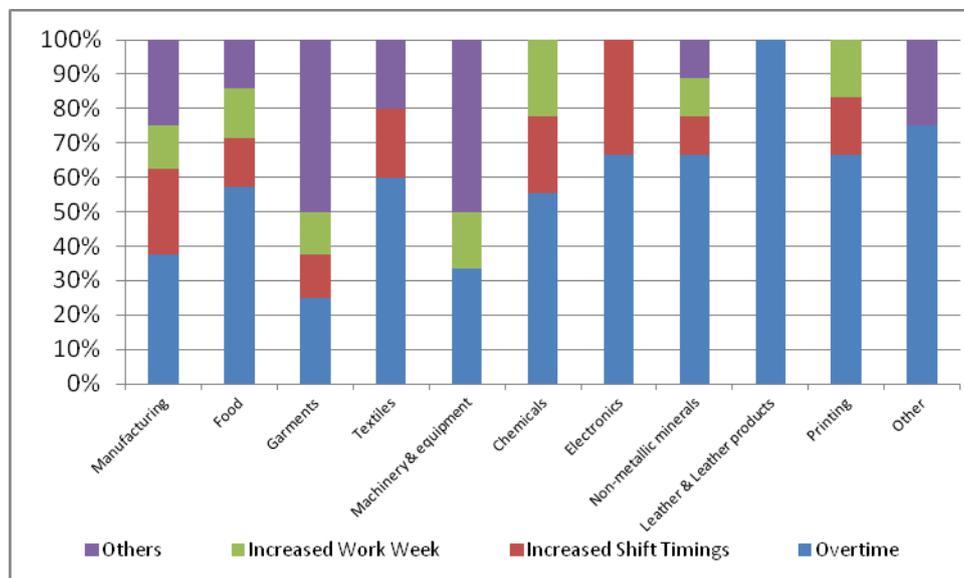
### 3.4.4.4 Other Coping Mechanisms

In addition to using generators, firms have to resort to alternative means to meet their production targets in the wake of electricity shortfall.

**Figure 3-30: Coping Mechanisms (% of Firms)**

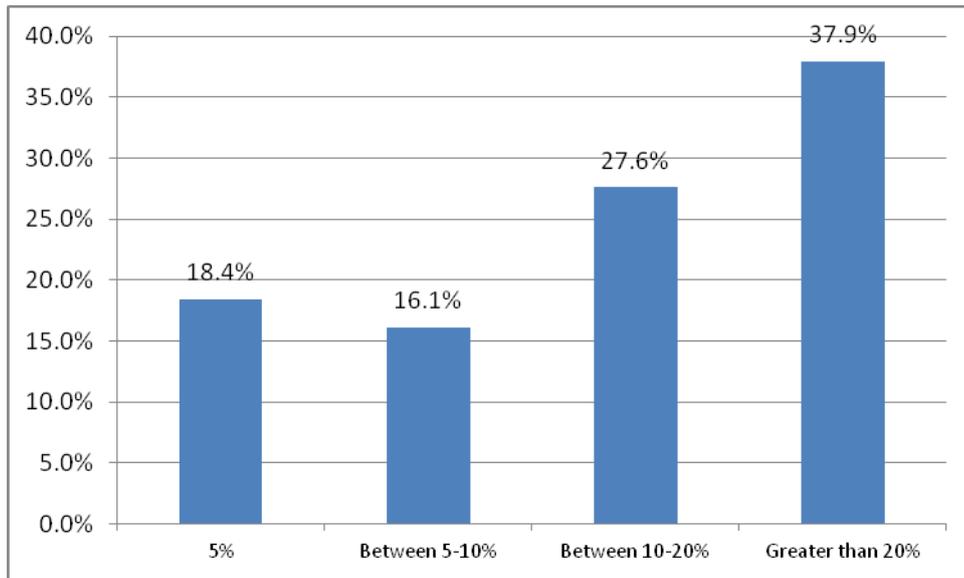


**Figure 3-31: Coping Mechanisms per Sector (% of Firms)**

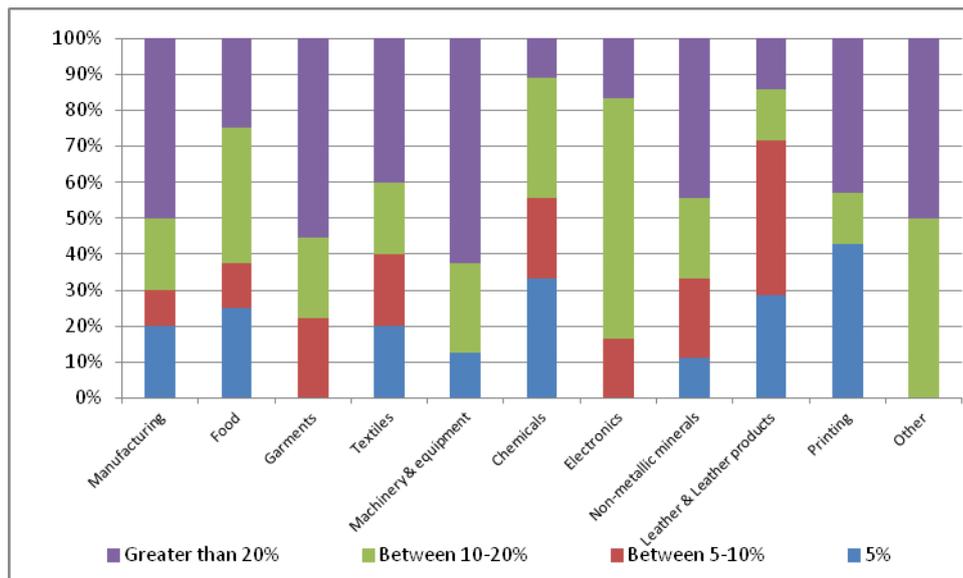


Over 55% of firms at an aggregate level across all sectors have to rely on overtime to meet the production shortfall due to power outages. Other mechanisms include increased work week (moving to 7 days working) or increased standard shift timing. All of this results in higher worker costs and also larger overheads.

**Figure 3-32: Impact on Overhead Costs of Implementing Coping Mechanisms (%)**



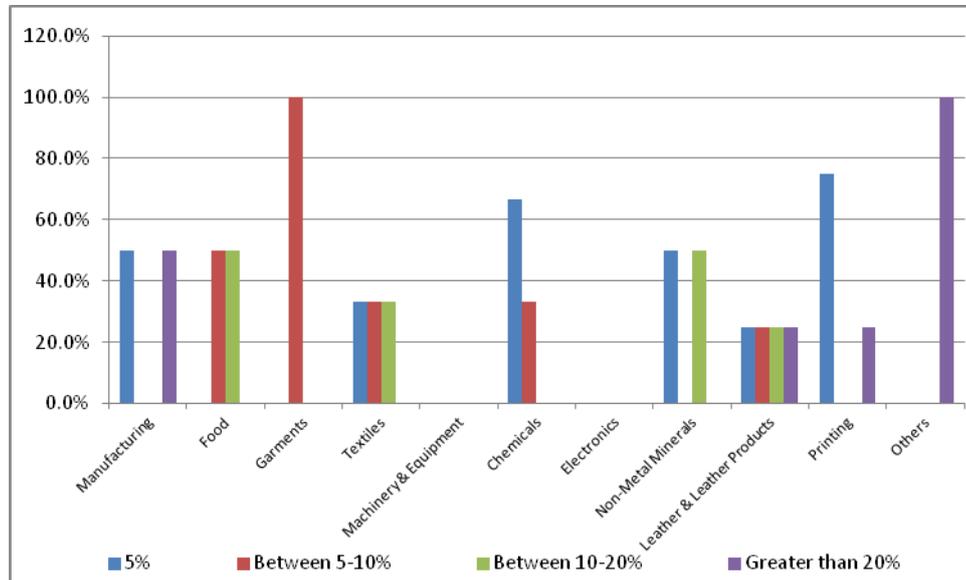
**Figure 3-33: Impact on Overhead Costs of Implementing Coping Mechanisms per Sector (%)**



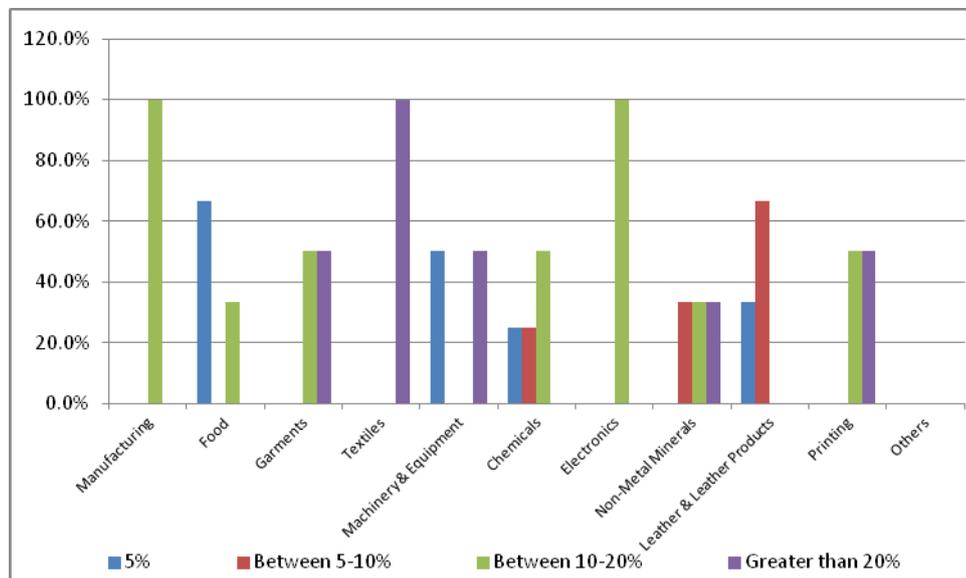
Around 38% of the firms reported that in implementing these coping mechanisms the overhead costs have increased by more than 20%. In terms of sectors, majority of the firms in the manufacturing, garments, textiles, machinery & equipment, non-metallic minerals and printing report the greatest increase in overhead costs as a result of implementing these coping mechanisms.

For small firms across all sectors the impact on costs due to coping mechanisms mostly varies between 5% and 10%. For medium firms the impact on cost for almost all sectors varies between 10% and 20%, whereas, for large firms the impact on costs across most sectors is greater than 20%.

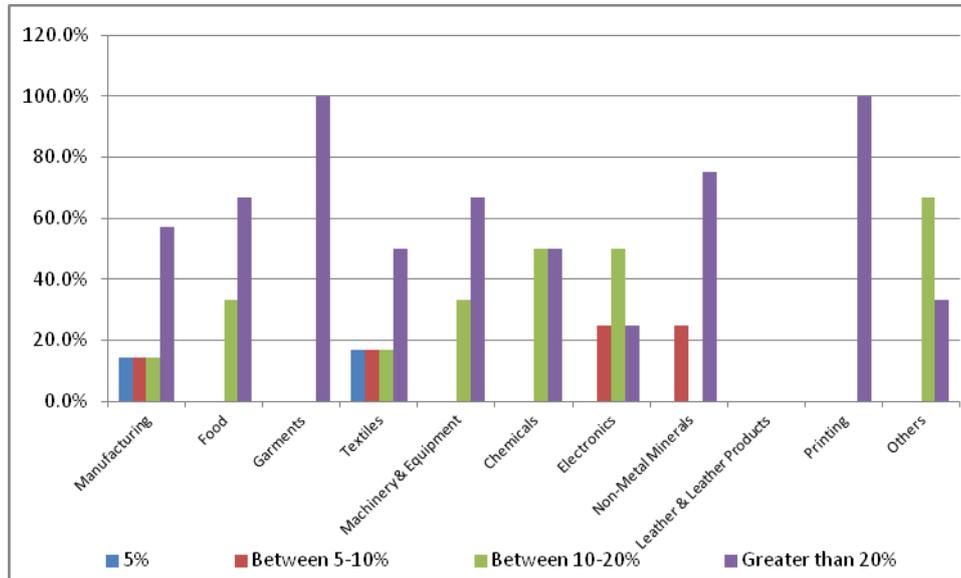
**Figure 3-34: Impact on Overhead Costs of Implementing Coping Mechanisms per Sector (Small Firms) (%)**



**Figure 3-35: Impact on Overhead Costs of Implementing Coping Mechanisms Per Sector (Medium Firms) (%)**



**Figure 3-36: Impact on Overhead Costs of Implementing Coping Mechanisms per Sector (Large Firms) (%)**

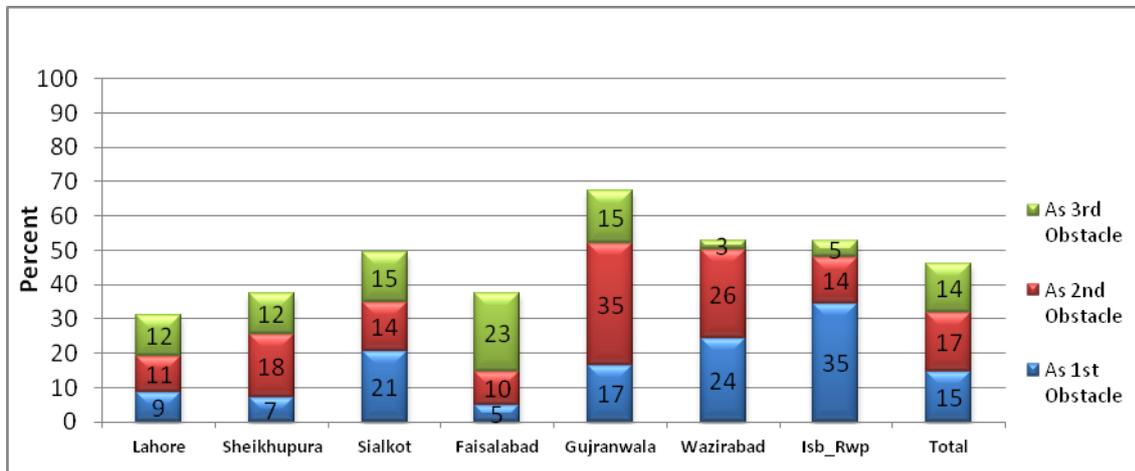


The increasing extent and magnitude of power shortages faced by industry is fast eroding its competitiveness. Industries are not only losing valuable production time, but due to the additional costs associated with the coping mechanisms, are facing significantly higher costs of production. Given the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

### 3.5 Macroeconomic Instability

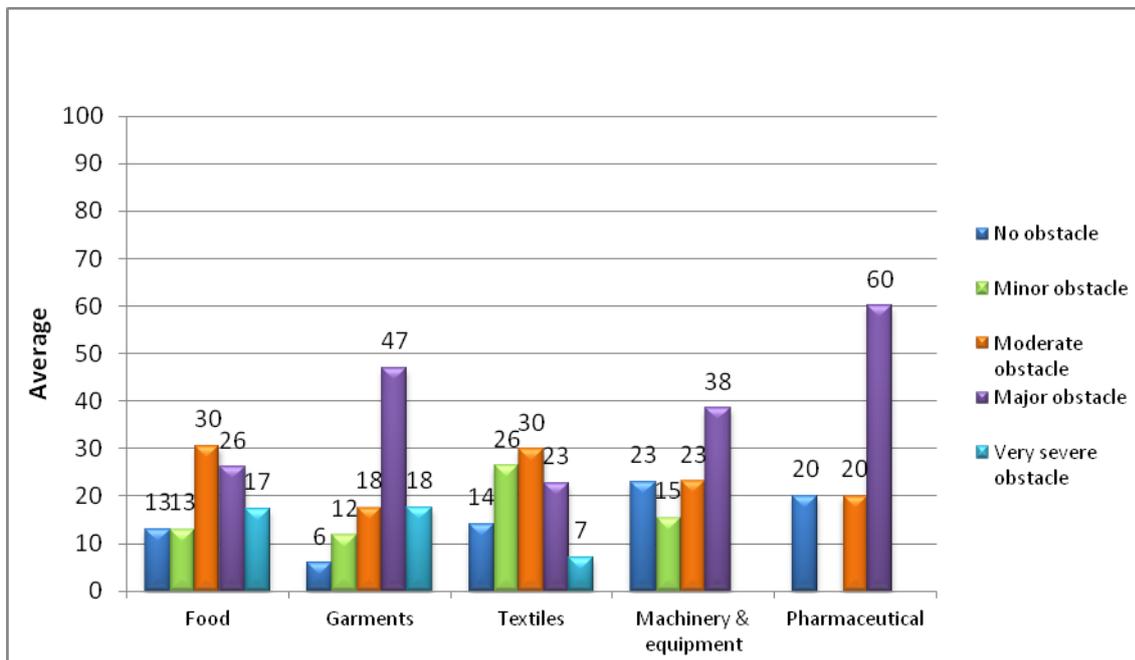
A strong and viable macroeconomic environment in the country is critically linked with investment and growth in the manufacturing sector. On the other hand a volatile macroeconomic environment with rising inflation, burgeoning budget deficits, increasing external debt obligations and an unstable exchange rate threatens to retard investments, manufacturing and output growth in the country. The overall investment climate in a country is negatively affected by macroeconomic instability as it increases uncertainty of future returns. This uncertainty which comes in the form of instability and volatility in demand and relative prices adds to the cost of doing business.

**Figure 3-37: Firms Reporting Macroeconomic Instability as a Constraint (%)**



Authors' calculation based in ICA (2007) survey

**Figure 3-38: Macroeconomic Instability as an Obstacle (All Firms)**



Authors' calculation based in ICA (2007) survey

Macroeconomic instability has been identified after electricity as the top constraint obstructing productivity and output growth in the ICA (2007).

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

In terms of sectoral variation of the constraint, across Punjab, the Pharmaceutical industry overwhelmingly declared macroeconomic instability as one of the major constraints. Pharmaceutical industry relies heavily on imported raw material (chemicals) as a primary input. Continued depreciation of the rupee has significantly increased the price of chemicals which in turn has increased the costs of production. Garments and Machinery & Equipment were the other two important sectors identifying macroeconomic instability as the most important constraints. Finally almost 30 percent manufactures in the Food and Textile sectors see macroeconomic instability as a moderate constraint.

Though there is no specific information given in the data regarding macroeconomic variables affecting business growth, it can be inferred that inflation and exchange rate volatility are perhaps affecting business environment the most. Higher inflation increases the cost of production and also decreases demand due to an increase in general price levels. Exchange rate volatility particularly affects the price of tradables. Firms using imported raw material as intermediate good pay higher prices which increases the costs of production. Also due to instability in exchange rate, expected prices of the goods to be exported may vary which might discourage the demand for domestically produced goods in the foreign markets.

In the pilot survey of firms in Lahore, macroeconomic stability continues to be identified as one of the major impediments to industrial growth. In the Lahore district, 25 percent of the businesses identified macroeconomic instability among the top two constraints.

**Table 3-2: Macroeconomic & Political Instability Impacting Industrial Performance**

Industry						
			Does Not Apply	Minor Obstacle	Moderate obstacle	Major Obstacle
Manufacturing	Size	Small		100.0%		
		Large		50.0%	50.0%	
	Total			66.7%	33.3%	

Food	Size	Small			100.0%	
		Medium			100.0%	
		Large			100.0%	
	Total				100.0%	
Garments	Size	Small	100.0%			
		Large			100.0%	
	Total		33.3%		66.7%	
Textiles	Size	Medium		100.0%		
		Large			100.0%	
	Total			20.0%	80.0%	
Machinery & equipment	Size	Medium		50.0%		50.0%
	Total			50.0%		50.0%
Chemicals	Size	Small				100.0%
	Total					100.0%
Non-metallic minerals	Size	Medium			100.0%	
	Total				100.0%	
Leather & Leather products	Size	Small			100.0%	
	Total				100.0%	
Other Manufacturing	Size	Small		50.0%	50.0%	
		Medium				100.0%
	Total			33.3%	33.3%	33.3%

Table 3-2 above shows that chemical sector and machinery & equipment both view macroeconomic and political instability as a key impediment to industrial growth. A reason for this perhaps is low levels of investment in these sectors as businesses perceive it to be risky in an unstable economic environment characterised by variable and high rates of inflation, uncertain exchange rate and high mark-up rates. Most of the other sectors view macroeconomic and political instability as moderate obstacles. The survey results estimates that on average around 15% of productivity is lost due to macroeconomic and political uncertainty. This impact is quite consistent across sectors as well as firm size.

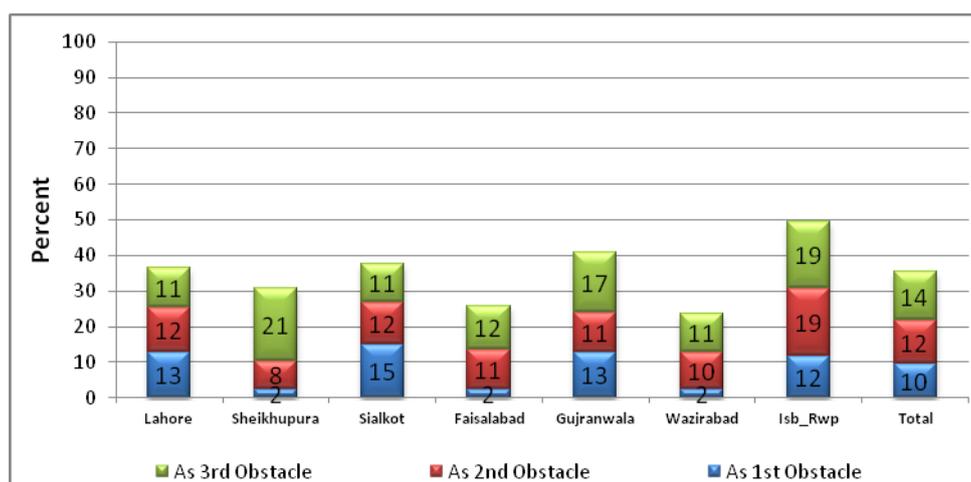
A caveat to the reporting of numbers on perceived losses is that firms, in particular smaller enterprises, surveyed had little capacity to understand the exact implications of macroeconomic and political instability. It is quite likely that firms when responding would have considered poor security condition as part of macroeconomic and political instability in the country. The security situation has significantly hurt the industry especially the exporter manufacturers. Due to poor security conditions in the country the importers are becoming increasingly sceptical about Pakistan's capacity to supply goods in a timely manner. This has resulted in several export orders (especially in textiles) shifting from Pakistan to other countries.

### 3.6 Corruption:

After electricity and macroeconomic instability, corruption emerges as the third most critical constraint faced by the manufacturing industries of Punjab. Government officials interfacing with industry normally exploit the lack of awareness on the part of industry about technical issues in regulations to extract rents. The industry reports that it bears high costs which come in the form of informal payments to concerned officials. The ICA 2007 survey as well as Lahore based survey 2012 had specific questions designed to gauge the degree and extent of corruption related to Industry in Punjab. In the discussion below, the report elaborates the extent of corruption as well as informal payments made to officials across key clusters and industries.

Across the seven key industrial hubs in Punjab, more than one third of the firms identified corruption as first, second or third most serious constraint (Figure below). Rawalpindi (50%) and Gujranwala (42%) are reported to suffer most from corruption followed by Sialkot and Lahore.

**Figure 3-39:** Incidence of corruption across clusters



Source: Author's calculation based on ICA 2007 survey

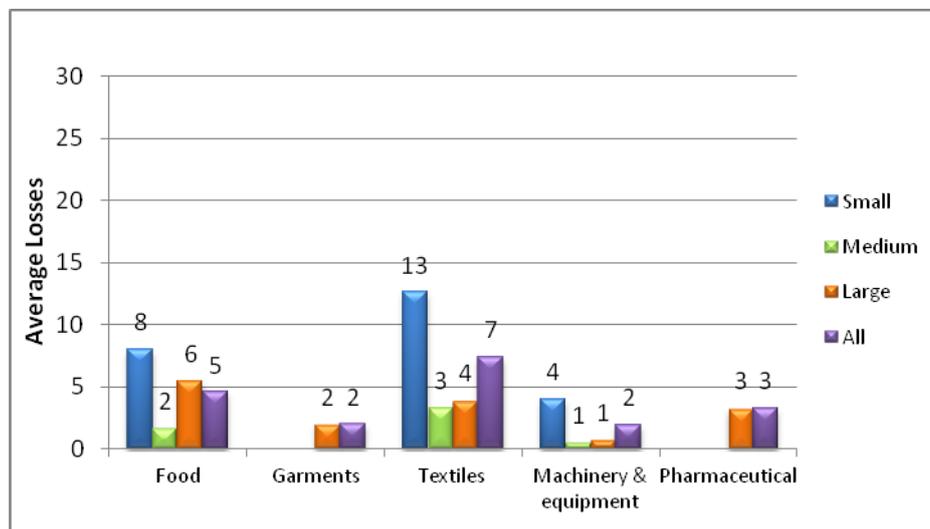
The firms report that the most common method of corruption is through inconsistent interpretation and ad-hoc application of government regulation and policies related to tax, labor, and other licensing issues. An overwhelming majority of Punjab's manufacturers believe that officials interpret policies and regulations inconsistently. The application of policies by government officials is purposely complicated to extract as much rent as possible by threats 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 sized firms report a much greater contact both in terms of time and number of offices that they have to deal with as

compared to the small sized firms. A slight anomaly in the ICA 2007 data is that it is the medium and small sized firms rather than the large ones that end up paying more bribes and informal payments to get things done. This may be the case because it's relatively easier for the lower bureaucracy to extract rents from poorly informed smaller manufacturers than it is from larger businesses.

The reported data by firms also suggest variation in cost of corruption across key sectors. The Textile sector reportedly pays around 7% of its annual sales as informal payments to get things done, with smaller firms in the sector spending almost 13% of annual sales. The Food sector, especially the small sized firms, bears the second highest costs due to corruption. The results are not surprising – the textile sector is the biggest employer of labour and has the highest frequency of visits by labour inspectors. While the food industry faces most visits by health and quality regulators.

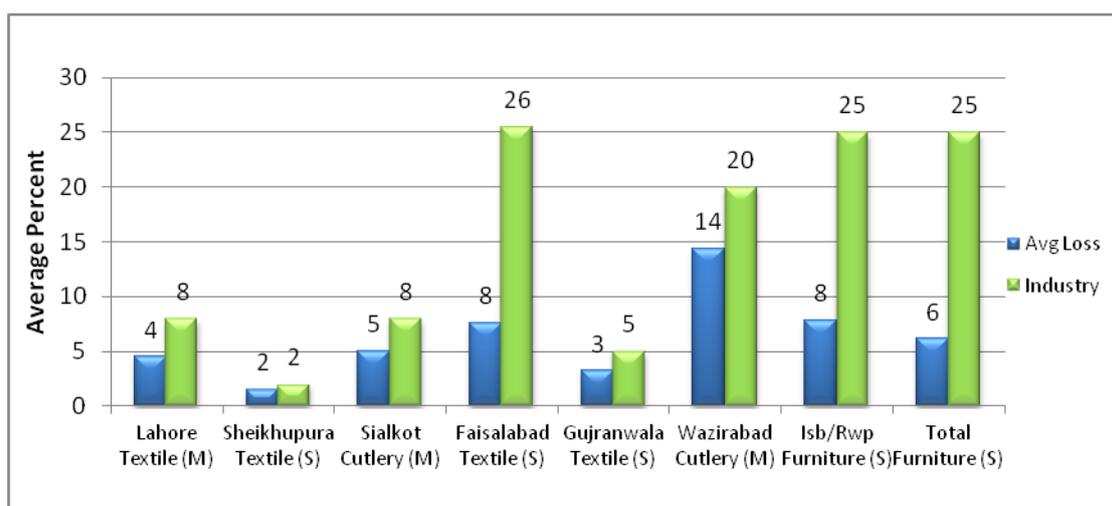
**Figure 3-40:** Percent of total annual sales paid as informal payment



Source: Author's calculation based on ICA survey 2007

In terms of cluster averages, firms in Wazirabad report the highest cost of corruption paying on average 14% 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%). While medium sized cutlery industry in Wazirabad pays around 20% of their annual sales as informal payments. Textile sector in Faisalabad pays most to labour inspectors whereas 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 3-41: Percent of total annual sales paid as informal payment**



Source: Author's calculation 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.

### 3.6.1 Findings from Lahore Pilot Survey

The fourth key obstacle to industrial growth identified in the Lahore based survey was corruption. As mentioned before, the major source of this corruption is government officers not interpreting rules and regulations clearly in order to create room and opportunity for corruption.

**Figure 3-42: Do Government Officers Interpret & Implement Rules Consistently (%)**

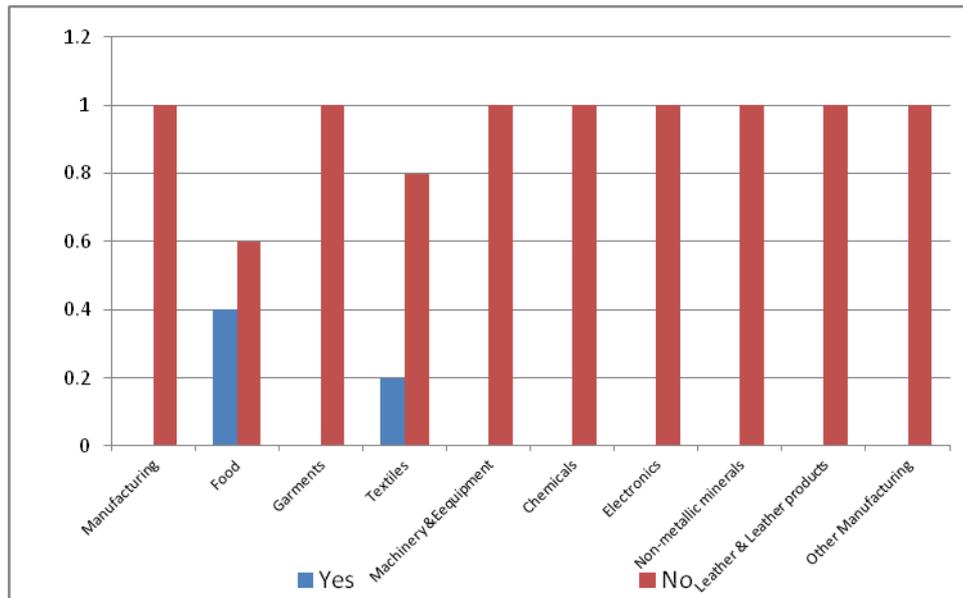
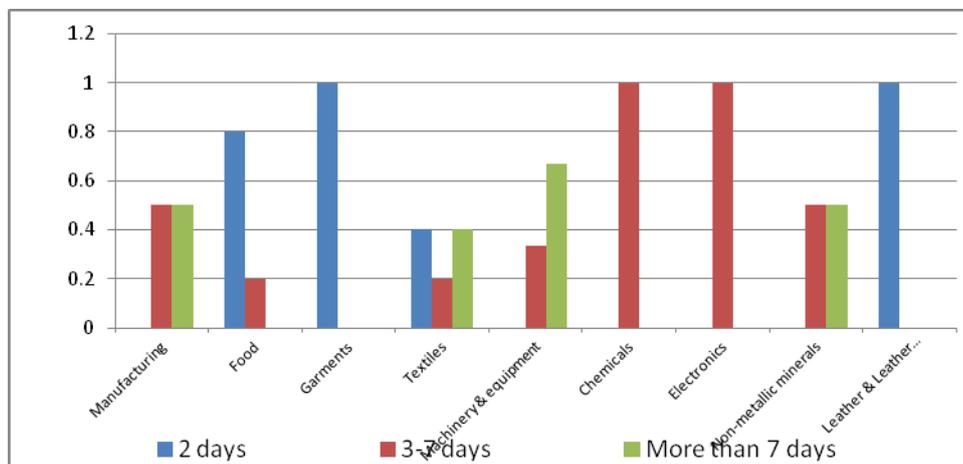


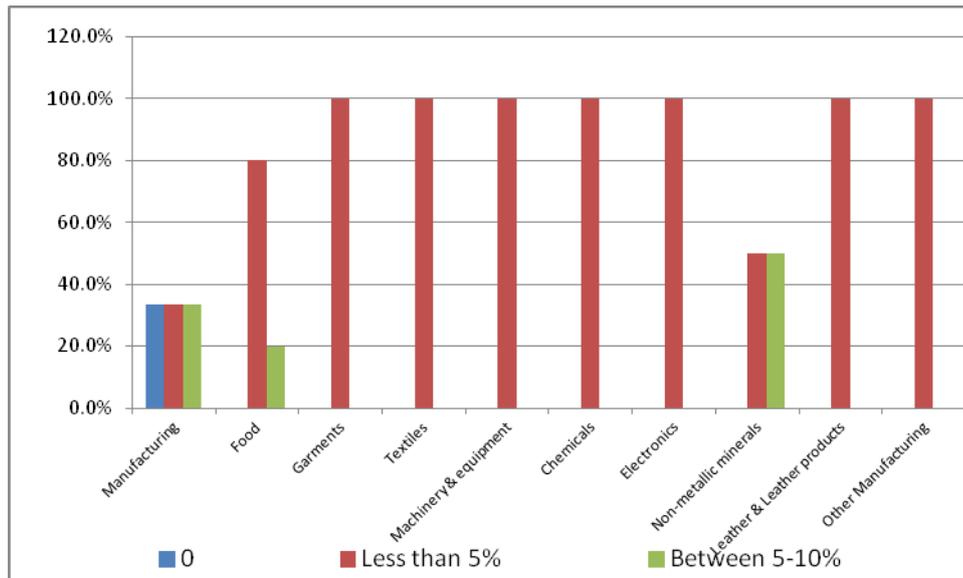
Figure 3-42 shows that all the sectors unanimously feel that government is weak in interpreting and implementing regulations. And this is the case for all firm sizes across all sectors.

**Figure 3-43: Wastage of Time due to Over Bureaucratic Procedures (%)**



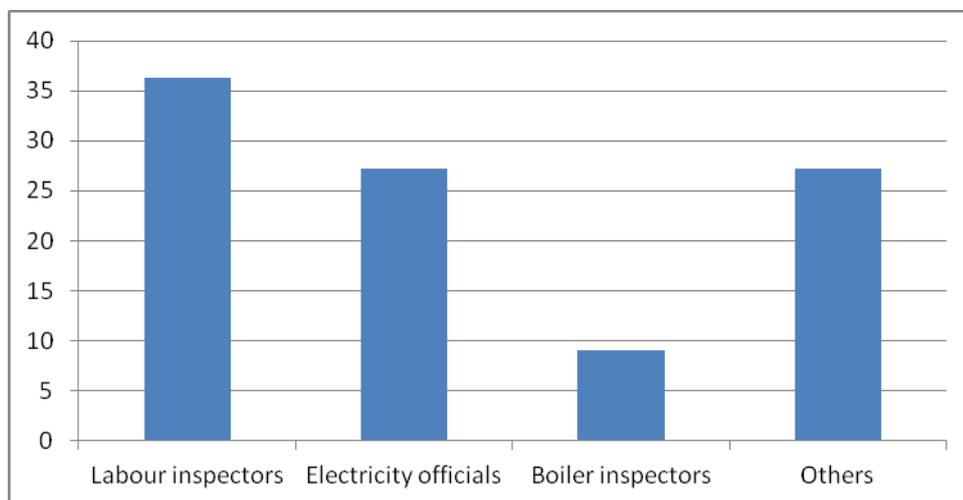
A key impact of the above behaviour by the government officials is the loss of productive time of factories. All sectors feel that engaging repeatedly with government officials for simple matters wastes precious time and resources that could have been used more productively. Most of the sectors feel that anywhere between 3-7 days are wasted in dealing with any single issue with a government department. The data does not vary much across firm size.

**Figure 3-44: Percentage of Sales Given as Bribe to Get Things Done (%)**



All the sectors across all sizes consistently report that up to 5% of sales are usually spent on bribes to various government departments/officials. Figure 3-45 shows where most of these payments are being made.

**Figure 3-45: Most Bribes Given to Officials (%)**



The figure above shows that most bribes are given to labour inspectors and then electricity inspectors. This data is invariant at the sector as well as size level.

### 3.7 Access to Finance

#### 3.7.1 Introduction

Based on the data from the World Bank ICA, 2007 some 7% of the firms across Punjab listed access to finance as a key constraint to their business. Most of these firms were located in Lahore and

Sialkot. Moreover, the pilot survey done for Lahore based firms reported that around 3% firms categorized access to finance as a key constraint. The World Bank ICA, 2007 data and the Lahore survey data had 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, the report provides a qualitative analysis of the issue and makes a case on how lack of access to finance is impeding industrial performance.

### **3.7.2 The Issue**

The pilot survey done for Lahore suggest that it is more of the medium and small sized firms that complain about access to viable finance as compared to large firms. The problem of larger firms is more to do with the 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. The firms suffer from typical SME related asymmetric information issues and limited capacity to manage and provide reliable financial and balance sheet data. Most of the financial transactions of the firms are recorded informally with much of this information residing only with the owner. The banks generally refuse to trust even audited statements as they are assumed to be fictitious. Hence, in most cases the banks secure lending against 100 per cent collateral which is not always available with the small and medium enterprises.

Even in cases where firms want to disclose their information fully they do not have the capacity to comply with a bank's documentation requirements. Moreover, the sector is not that disciplined or scrupulous when it comes to the use of credit. In several cases the working capital limits or short term business loans are 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 is not only with the capacity of the industry, the commercial banks also have limited capacity to serve the requirements of SME credit in Pakistan. Commercial banks do not have any special schemes for SME development finance and all lending is done on commercial basis, which is too expensive for the SME sector.

Secondly, there has never been any pressure on commercial banks to extend development/long-term credit to the SME sector. With large fiscal deficits of the federal and provincial governments and the presence of attractive spreads the commercial banks are comfortably maintaining large exposures to AAA rated debt.

The commercial banks also use the broad nature of the SME definition/classification to their advantage.<sup>8</sup> Most of the lending done to SMEs includes clients that are at the margin of being classified as an SME.

### **3.7.3 Impact on Industry**

The lack of access to finance has resulted in industry following non-innovative and low technology production techniques. The major production of 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, lack of access to long term loans has resulted in limited investment if any in technology; hence most of the medium and the small sector 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 international competitors and over time lose its domestic and export market share to low cost and more innovative producers in India, China and Vietnam.

### **3.8 Inadequate Workforce**

Notwithstanding acute shortage of electricity/power and uncertain macroeconomic conditions a factor that can still drive competitiveness is skilled labour force. Punjab is endowed with a young and a fast growing labour force. This demographic trend presents an immense challenge for the economy which is to both educate and train this young labour force and to produce enough jobs to absorb their growing numbers. Keeping this challenge in mind the Government of Punjab has recently formulated the Youth Skills Development Council that will work as a regulatory authority in tandem with TEVTA to train the workforce of Punjab.

The survey conducted for this report has identified inadequately trained workforce as one of the key impediments to industrial performance.

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<sup>8</sup> 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 Rs 300 million and it must not possess assets worth more than Rs 50 million for a trading concern and Rs 100 million in the case of a manufacturing concern. The State Bank is now working on revising this definition.

**Figure 3-46: Inadequate Workforce as an Obstacle (%)**

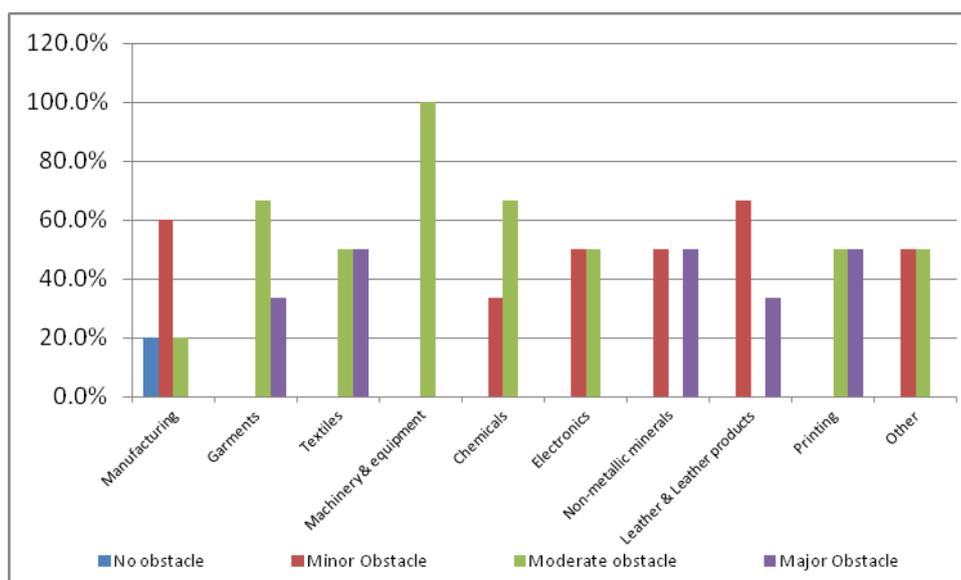


Figure 3-46 above shows that almost all sectors list inadequate workforce as a moderate to major obstacle. More specifically table 3-3 below shows the diversity of this problem across sectors and across various sizes of the firms. Textiles and leather and leather products are the two main sectors where, regardless of the size of the firm, inadequate workforce is considered a major obstacle to industrial performance. Most of the other sectors across different sizes view it as a moderate obstacle.

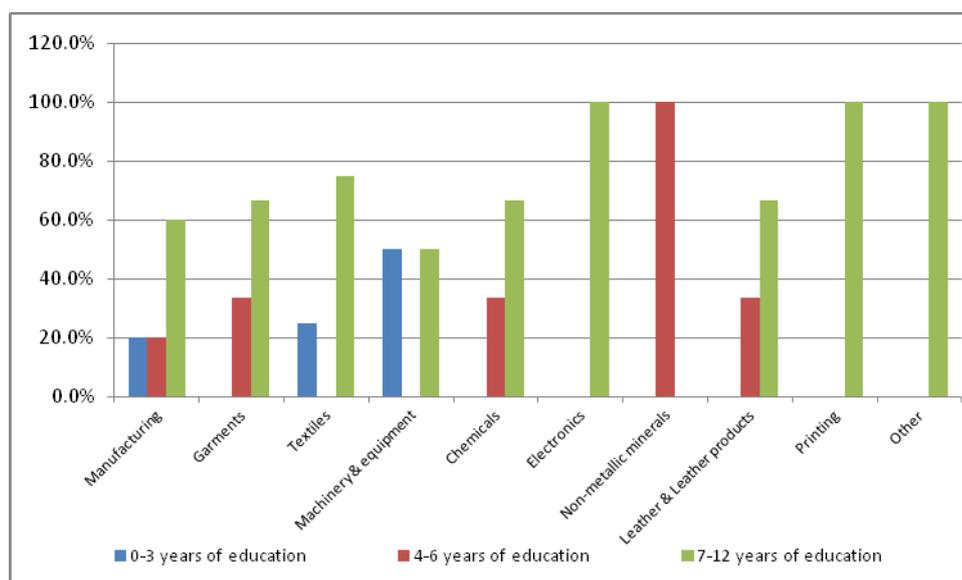
**Table 3-3: Inadequate Workforce as an Obstacle (%)**

Industry			No obstacle	Minor Obstacle	Moderate obstacle	Major Obstacle
Manufacturing	Size	Small	100.0%			
		Medium			100.0%	
		Large		100.0%		
	Total		20.0%	60.0%	20.0%	
Garments	Size	Medium			100.0%	
		Large			50.0%	50.0%
	Total				66.7%	33.3%
Textiles	Size	Small				100.0%
		Medium				100.0%
		Large			100.0%	
	Total			50.0%	50.0%	
Machinery & equipment	Size	Large			100.0%	
	Total				100.0%	
Chemicals	Size	Medium		50.0%	50.0%	
		Large			100.0%	
	Total			33.3%	66.7%	

Electronics	Size	Large		50.0%	50.0%	
	Total			50.0%	50.0%	
Non-metallic minerals	Size	Small		50.0%		50.0%
	Total			50.0%		50.0%
Leather & Leather products	Size	Small		66.7%		33.3%
	Total			66.7%		33.3%
Other Manufacturing	Size	Medium			100.0%	
		Large				100.0%
	Total				50.0%	50.0%

The development of worker skills has a strong correlation with basic education attainment. If workers have a good quality basic education before entering the Labour force, there is a greater likelihood of them developing stronger skill sets. Figure 3-47 below shows that across all the sectors majority of the firms report workers education in the range of 7-12 years. It is most likely that majority of the workers would have 8 years of education (middle pass). This is a critical reason why skills deficiency exists at all levels in Punjab’s workforce. The school dropout rates are high and the quality of education as indicated by several recent studies is inadequate in the province. Hence the students are ill prepared academically to acquire skills comparable to international benchmarks. An example from textile industry shows that in Pakistan the stitching operator is middle pass whereas the stitching operator in Singapore has a minimum of A ‘level as education. The worker in Singapore because of his/her education can easily read through the machine operations guide book and can pick up operating skills much quicker than the workers in Pakistan.

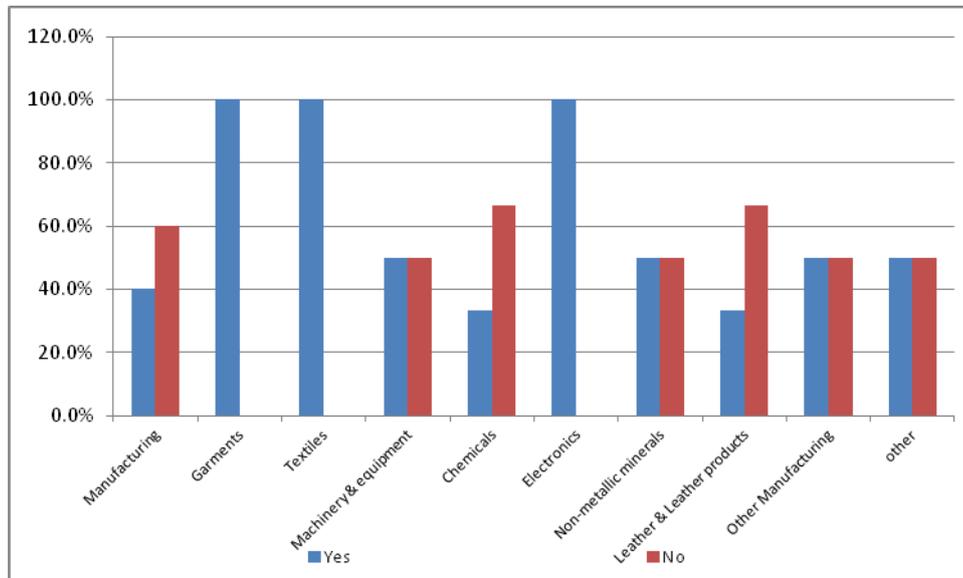
**Figure 3-47: Average Education Attainment (%)**



### 3.8.1 Coping Mechanism

The key coping mechanism that is used by firms to address the issue of inadequate workforce is to offer own or in house training programmes.

**Figure 3-48: Firms Running Training Programmes (%)**



The data clearly suggests that majority of the firms across all sectors offer some form of training to their workers to address the issues of inadequately trained workforce. Textiles, garments and electronics are the sectors where all the firms in the survey offered some form of training to their workers.

#### 4 Policy Brief

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

Currently the industrial sector of Punjab employs around 23 percent of the provinces labour force and contributes just over 24% in the provincial GPP. Over the last 10 years average growth in the manufacturing sector has been over 5% per annum with 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 provincial GPP. This abysmal performance is a consequence of serious domestic issues and constraints which have stunted the sector's contribution to the economy. The ICA 2007 WB report identified power shortages, macroeconomic and political instability along with bureaucratic corruption as the most important constraints to investment and industrial productivity at both the national and provincial level.

The objective of this particular report was an in depth analysis of industry in Punjab through the identification of the major constraints impeding the output and productivity of firms located in the seven major industrial clusters/zones of the province. By using the data from ICA 2007 this study 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.

Moreover, to reassess the findings of the ICA 2007 data, the study conducted a pilot survey in the Lahore region covering 101 firms across 10 different sectors. The results of the pilot survey were not significantly different from the findings of ICA 2007. Electricity has been identified as the most severe obstacle faced by the industries in the Lahore region. Almost 71 percent of the firms declared electricity as the most important constraint. Macroeconomic stability has been identified as the second important constraint by 8 percent of the firm's surveyed. Inadequate workforce, access to raw material and corruption were ranked third, fourth and fifth constraints respectively.

The most chronic and binding constraint to industry in Punjab is thus the nationwide energy crisis. As evident from the recent pilot survey on firms in Lahore, the shortfall in power has worsened over the past 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 affecting process based industries relatively more than others due to increased wastage of raw material. Macroeconomic and political instability which manifest itself 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 labour inspectors and low tier customs officers. Inadequately trained labour has also been identified in the recent pilot survey as a critical factor impeding industrial performance.

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

#### **4.1 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 have reported that they lose up to 15% of their annual sales due to power outages and unscheduled power cuts. All these sectors have continuous manufacturing processes and at any one point in time significant amount of raw material is under process. A sudden unannounced tripping of electricity can result in wastage of raw materials and increased time of operation due to cleaning and restarting of processes. Moreover, sectors that are more automated face high repair and maintenance costs as sudden electricity outages damage the more sensitive and costly electronic parts. Most of these parts have to be sent abroad for repairs which add significantly to costs. This is not a Lahore specific issue but is also present in the other industrial hubs of Punjab. For example in Faisalabad, Food and Machining sectors suffer most due to electricity. In Gujranwala it is the Electronics and Cutlery sectors that are worst hit while in Sialkot it's the Leather Garments industry. Food Processing suffers the most due to outages in Sheikhpura and Wazirabad.

## **Policy Recommendation**

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. The 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 process based industries identified above.

Provincial government should facilitate linkages between the Electronics Department of the University of Engineering and Technology, Lahore and Lahore University of Management Sciences to work closely with sectors on prefabricating and developing complicated Programmable Logic Controllers (PLC's) that are used in all automatic machinery. Factories can provide access to researchers from universities and the Government may fund research grants to work on developing the PLC technology casted to local requirements.

The Lahore firms pilot survey suggests that firms located in industrial zones, to some extent, suffer fewer losses due to electricity shortages as compared to those located outside industrial zones. A key reason for this is strict scheduling of load management in industrial zones. The Punjab Government based on industrial concentration should declare major industrial areas as zones and provide priority treatment to these.

## **4.2 Corruption**

Almost all the industrial sectors in the seven industrial hubs have identified corruption by government officials as a key cost to business and an impediment to industrial growth. In Lahore, Pharmaceutical and Chemical sectors complain the most about undue contact with government officials. They receive the most visits by labour inspectors and drug regulatory inspectors. All these contacts with inspectors entail some form of gift or even a direct payment to the inspectors. In Faisalabad, textile industries receive the highest number of visits by labour inspectors and boiler inspectors. The other regions have complained about unnecessary visits by labour inspectors and in most cases have reported that inspectors directly ask for bribes or compensation. On average the industry loses anywhere between 3-7 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% of total annual sales. In terms of degree of corruption amongst officials - labour inspectors are considered to be the most corrupt, followed by electricity officials (mostly lineman and XEN) and boiler inspectors. The electricity officials often threaten cutting power supplies if not compensated appropriately by the firm. Moreover, over billing is a common problem and cases remain unresolved for several months meanwhile every month the industry owner has to pay bribes to get the bill corrected.

### **Policy Recommendations :**

The Government of Punjab in the short term should set up an effective monitoring mechanism for labour inspectors devised in consultation with the private sector to reduce the incidence of harassment and bribery.

Over the medium term, the Government of Punjab will have to devise a more transparent mechanism of collecting labour 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 interaction of industry with the lower bureaucracy (labour inspector). One way of simplifying the existing system is to categorise industries in broad bands and then charge a fixed tax based on the upper value of the band. This will reduce incentives for industries to hide information and will also make it easier to pay taxes. The broader band range would also facilitate verification of industry status for tax collection purposes.

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

The Government of Punjab needs to develop minimum service standards for industries and these should be displayed in all government offices and circulated widely through mass advertisement campaign. This will help the industry understand their rights and obligations and will also give clarity on the obligations and standards the government has to meet, making it easy to evaluate the performance of government service delivery.

### **4.3 Access to Finance**

Given that the provision of finance and managing the banking sector falls under purview of the State Bank, the provincial government of Punjab can take some direct measures and also strongly advocate measures which would improve and enhance the provision of finance to its industry. Some of the policy interventions are suggested below.

### **Policy Recommendations**

The Government of Punjab through its Department of Industries, Commerce and Investment and the Punjab Small Industries Corporation can conduct a credit and product need assessment of key sectors

located in the seven main industrial hubs of Punjab. Based on this information it can suggest to the State Bank to initiate product and programme based lending at single digit mark-ups in these sectors.

Through its Department of Industries, Commerce and Investment, Punjab Government can run training and capacity building courses for the small and medium sized industry on formulating financial information in templates that are acceptable to commercial banks for loan processing.

**Punjab Government should strongly advocate to the State Bank the following regulatory changes to improve access to finance:**

- Loans of up to Rs15 million for plant, machinery and equipment for registered industries should be approved through a ‘one window’ operation.
- The State Bank should make it mandatory that at least 50% of their lending requirement to SME’s must be fulfilled by including small accounts. The maximum size for an account to qualify as a small account may be set at Rs 20 Million.
- Borrowing may be facilitated against guaranteed export orders.
- State Bank should work with commercial banks to improve and enhance service provision to all industry. This may involve developing new lending guidelines for different sectors and different sizes of firms. These guidelines should also include lending principles which clearly set out the minimum standards for small-sized, medium-sized and large businesses.
- Set up lending targets in each of the key industries located in Punjab and progress should be monitored for targets to be achieved over the next three years.

#### **4.4 Inadequately Trained Workforce**

Textiles, garments and leather are the three main sectors across all seven regions that have identified inadequate workforce as a key constraint to industrial growth. All these sectors are labour intensive and also require specific levels of skills. Inadequately trained workforce has become a more serious problem over time. As evident from the survey results, in 2006 it was viewed as less important compared to 2012, when it has been reported as one of the most critical issues. A key reason for this is both declining quality and level of school education in Pakistan and the introduction of technically advanced and more complicated machinery in factories. As the workers entering into industry have low educational attainment their ability to understand complex machines is fairly limited. The firms have to spend significant amount of resources to train labour on these newer machines. The TEVTA model has failed as it has not been able to keep pace with the advancement in technology at the

industry level. Without appropriately trained workforce, industry in Punjab will find it increasingly difficult to remain competitive internationally.

**Recommendations:**

The Punjab government should start pilot programmes for the Textile and Leather sectors which suffer the most due to shortage of skilled workforce. Punjab Government can develop a model on the framework of the Machine Operators Stitcher Training (MOST) programme of the Ministry of Textiles, Government of Pakistan. The TEVTA trainer should work on factory floors with a group of workers to provide them with class room based training while the factory provides on the job training. The workers trained under the programme are contracted to continue working in the factory for a certain amount of time after the training. The programme was piloted for women stitcher's and proved to be one of the most successful modelsof labour training. A similar model can be worked out for the leather sector.

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

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