

**ESTIMATING THE DISTRIBUTIONAL BURDEN OF
INDIRECT TAXES IN PAKISTAN**

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ABSTRACT

Pakistan's tax regime heavily relies on indirect taxes that constitute 60 percent of total tax receipts. This research assess who bears how much burden of these taxes. For this, the research examines the extent of overall incidence and the distributional burden of indirect taxes across deciles of household expenditures for the year 2018-19. The research uses an input-output model based approach as it allows tracing the cascading effect of indirect taxes. Hence, even if final product is exempted from tax, it incorporates the impact of taxes levied on intermediate inputs it uses.

The research estimates the incidence of indirect taxation from various perspectives that is by: (1) components of indirect taxes – General Sales Tax, Custom Duty, and Federal Excise – for the country overall and by rural-urban areas, (2) commodity groups for the country as a whole, and (3) provinces.

The results show that combined incidence of all indirect taxes is on average 20.7 percent in Pakistan. The distribution of incidence of all indirect taxes combined is regressive across the board and as well as by rural and urban areas. Components-wise, the overall incidence is highest for GST-Imports, followed by GST-Local, Customs Duty and FED-Local and Imports. Except FED-Local, all components of indirect taxes exhibit regressive pattern. Basic food items bear the highest magnitude of incidence and display highest extent of regressivity across all deciles. Province-wise, the highest incidence is in Sindh and the lowest in Khyber-Pakhtunkhwa.

This regressivity of taxes suggests that the poorer segments of society relatively bears the greater burden of indirect taxes in Pakistan.

PREFACE

Taxes are an integral component of fiscal policy of any economy. They are classified into two broad types – direct and indirect. Direct taxes – i.e. on factors of production such as on land, labor, capital and entrepreneurs – reduce personal income. Indirect taxes – i.e. on products and services such as sales tax, custom duties, excise duties, etc. – increase product and factor prices. Both types of taxes impose a burden on tax payers in the form of decline in their purchasing power and, thereby, cause a change in the behavior of individuals and firms. However, this burden often is not uniformly distributed. Who bears higher and who bears lower burden in proportion to their income depends on how the tax regime is structured. Examining the extent of this burden is the study of incidence of taxes and its distribution across different tiers of economic groups.

In Pakistan, nearly two-thirds of total tax revenue collection is indirect in nature, the burden of which according to literature, largely falls on the poorer segment of population. Recent estimates point out that the poverty ratio in Pakistan is about 40 percent and the rate of inflation is persistently high. This demands an assessment as to how indirect taxes are affecting ordinary households.

Research on estimating incidence of taxes has not been undertaken since 2008. As such, it was deemed pertinent to examine the latest estimates of incidence of indirect taxes in Pakistan, which is the topic for my Ph.D. dissertation. This research is part of Ph.D. dissertation. The research covers overall incidence of indirect taxes for Pakistan by rural-urban areas, commodity and province-wise.

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LIST OF ABBREVIATION

CD	Custom Duty
FED	Federal Excise Duty
ETR	Effective Tax Rates
GST	General Sales Tax
GVA	gross value added (GVA)
HIES	Household Integrated Economic Survey
IOT	Input-Output Table
POL	Petroleum, Oil, Lubricant
WHT	Withholding tax

INTRODUCTION¹

The literature suggests that the burden of indirect taxes often is not evenly distributed. Who bears higher and who bears lower burden in proportion to their income depends on the design of tax regime. And, investigating who actually bears the burden of a tax requires to study the incidence of taxation across different tiers of economic groups. This research is an attempt to investigate this in case of Pakistan.

Since, indirect taxes are levied on goods and services that are (ultimately) consumed, they can be shifted forward (to consumers). Hence, they place an economic burden on tax payers. Incidence analyses, generally focus on the economic incidence as it tells who bears the final burden of taxes that are shifted forward. A tax is progressive if the final tax burden as a percentage of incomes is higher for high income individuals relative to lower income individuals, regressive if it is higher for low income individuals relative to high income households, and proportional if it is with same percentage of income for all individuals.

Progressive tax is considered to be equitable because those with a greater ability to pay would pay a higher proportion of their income in the form of taxation. However, a proportional tax may also be viewed as equitable to the extent that all taxpayers would pay the same proportion of their income as tax. Consequently, higher income taxpayers would be paying a higher absolute amount of tax than the lower income taxpayers (Jamal and Javed, 2013).

The tax structure of Pakistan heavily relies on indirect taxes that constituted 62 percent of total tax receipts in 2018-19 whereas direct taxes constituted 38 percent (Table 1). Of the 62 percent indirect taxes, General Sales Tax (GST) dominated with a share of 38 percent whereas Customs Duties (CD) and Federal Excise Duty (FED) constituted 18 percent and 6 percent respectively.

Table 1: Composition of Federal Taxes (% Share)

Tax Head	2000-01	2004-05	2009-10	2014-15	2018-19
A. Direct Taxes	31.8	31.1	39.6	39.9	37.8
B. Indirect Taxes	68.2	68.9	60.4	60.1	62.2
General Sales Tax (GST)	39.1	40.4	38.9	42.0	38.1
Customs Duty (CD)	16.6	19.5	12.1	11.8	17.9
Federal Excise Duty (FED)	12.5	9	9.4	6.3	6.2
Total (A+B)	100	100	100	100	100.0

Source: Annual Report, Federal Board of Revenue (FBR), various issues.

Among direct taxes, an important source is withholding taxes (WHT) – which are deducted and collected at source. This mechanism is considered effective as it is a timely source of revenue. At present, important WHT provisions having varying tax rates comprise contracts, imports, salary, bank interest, dividend, exports, telephone, electricity bills, technical fee, commission and brokerage, utilities, vehicles tax, cash withdrawal, stock exchange-related provisions, etc. But, of the heads, WHT on contracts, imports, telephone, electricity bills, technical fee, exports, cash withdrawal, and advance tax on banking transactions, together constituting over 60 percent of

¹ The research is part of author's on-going Ph.D. research.

total collection,² are indirect in nature as these can be shifted forward to consumers.³ The indirect nature of these taxes create doubts about their progressivity and make them candidates for rigorous incidence analysis.

The literature on the incidence of taxation advocates that direct taxes (such as income tax) impose relatively a greater burden on the richer segments and hence they are generally considered progressive. On the other hand, indirect taxes (such as taxes levied on goods and services) impose relatively greater burden on the poorer segments of society as large part of the income of the poor is spent on consumption, particularly food; hence, these are generally considered regressive.

A number of analyses examining the patterns of distributional burden of indirect taxes have been carried out for Pakistan. Among the recent researches, Jamal and Javed (2013) estimated the incidence of GST, Wahid and Wallace (2008) of all taxes and Refaqt (2008) of all federal indirect taxes. In the methodological perspective, results of these studies (in terms of tax progressivity) are based on an average rate of progression where they compared average tax rate across different income group.

The major limitation in the Refaqt (2008) and Jamal and Javed (2013) work is that while estimating the incidence of GST they considered taxes levied on final consumption only and did not incorporate taxes levied intermediate inputs used in the production of final output, which constitute a substantial part of total tax revenue. Further, since they did not consider the taxes on intermediate inputs, hence did not incorporate the items that are exempted from tax into their analysis. It is argued that even if the final output is exempted from tax, its price includes an implicit tax which transfers through taxes levied on inputs that were used to produce it. Estimating the incidence of indirect taxes without capturing the impact of taxes on inputs may likely portray misleading results.

Though, Wahid and Wallace (2008) accommodated the taxes levied on intermediate inputs, they did not estimate the incidence at disaggregated level, i.e. by considering different consumption items such as food, utilities and etc.. It is felt that analyzing the distribution of incidence by item or commodity group help understanding tax burden as per the consumption pattern of poor and rich.

This research intends to estimate the incidence of indirect taxes in Pakistan for the year 2018-19 by filling this gap. That is, it takes into account the cascading effect of indirect taxes by employing Input-Output Table (IOT) that captures the effect of input taxes on final consumers. In addition, it looks at the distributional burden of indirect taxes by different commodity groups related to household consumption.

The report is organized as follows. Section 2 spells out the objective of research; section 3 presents the review of recent research; section 4 lays out the methodology used to estimate the incidence of indirect taxes and its distribution; section 5 furnishes the results of estimation and their explanation; and section 6 gives conclusion and recommendations.

² Source: Year Book 2019-20, Federal Board of Revenue, Government of Pakistan.

³ Provision of WHT that are direct in nature comprise salary, bank's interest, dividend, commission and brokerage, vehicles tax, stock exchange-related provisions, etc., having varying tax rates.

OBJECTIVE OF RESEARCH

This research assesses the incidence of federal indirect taxes and its distributional burden in Pakistan across deciles of households for the year 2018-19.

Specifically, the research examines the extent to which federal indirect taxes in Pakistan can be considered as *progressive* (i.e. placing higher tax burden on higher income groups), *regressive* (i.e. placing higher tax burden on lower income groups) or *proportional* (i.e. placing same tax burden on each income groups).

The research analyzes this by capturing implicit taxes as well, i.e. taxes paid on intermediate inputs, by using the latest available IOT for the year 2010-11.

The research estimates incidence and its distribution for,

- each component of indirect tax – GST, CD, FED – for overall Pakistan and rural-urban areas,
- various commodity groups of household consumption items, and
- overall indirect tax system in Pakistan and provinces.

The research also estimates the distributional burden of indirect components of WHT. However, this estimation is possible for those heads only where data at the household level are available.

REVIEW OF LITERATURE

Numerous studies have examined the distribution of incidence of taxes or distributional burden of taxation both nationally and internationally. Majority of the studies have employed the conventional approach, i.e., average rate of progression. This approach uses a priori assumptions from economic theory to ascertain that who bear the final burden of taxes (i.e. the tax shifting assumptions), and employs household survey data to compute Effective Tax Rates (ETR) of each household by dividing the tax liability of a household by its total income/expenditures. ETR is then compared across households on the basis of welfare scale (consumption or income). A tax structure is said to be progressive when ETR rises along with the rise in the scale of individual/household income or expenditure; regressive when ETR falls against rise in the scale of individual/household income or expenditure; and proportional when ETR remain constant across all individuals/households.

The work by Pechman and Okner (1974) is considered a standard analysis that computed ETR using microdata to assess the burden of taxation for the US economy. They ordered taxpayers by their annual income groups, specified the tax shifting assumptions that the final burden of sales and excise taxes lies on households as per their consumption patterns, and utilized taxable consumption items. Their result showed that the US tax system is nearly proportional. Later, studies followed the same set of shifting assumptions to examine the distribution of tax burden again for the US, by addressing some of the methodological issues such as Musgrave et al. (1974) and Browning (1978 and 1985).

Lovejoy (1963), McLure (1977), Wasylenko (1986), Sjoquist and Green (1992) and Alleyne (1999) and Alleyne et al. (2004) assessed the incidence of direct and indirect taxes in Jamaica. They took households as the unit of analysis; employed standard assumption of full shifting of indirect taxes to consumers, i.e., the burden of indirect taxes to be borne by consumers, used income as welfare indicator to compute effective tax rates. All these studies suggest indirect taxes to be proportional. Some studies show taxes to be slightly progressive in the lower income group and slightly regressive in the upper income groups while some indicated the opposite. Kaplanoglou and Newbery (2003) studied the distributional impact of indirect taxation in Greece. They considered household non-durable expenditure as welfare indicator to compute average tax rates across household deciles. Employing similar assumption of tax shifting, they found that poorer households pay a higher proportion of their total expenditure in indirect taxes while richer households pay lower proportion.

In addition, studies also assessed incidence of various indirect taxes by comparing tax concentration curves of different types of tax categories for African countries. These include: Sahn and Younger (1999), Younger et al. (1999), Chen et al. (2001), and Rajemison et al. (2003). They all found that indirect taxes such as commodity tax, imports taxes, excise duty on alcoholic and non-alcoholic drinks, tobacco and automobiles were consistently progressive in African countries. Taxes on gasoline and diesel were by far highly progressive and on kerosene (or paraffin) regressive, widely used as a fuel for lighting and cooking by the poor and has a very low income elasticity of demand.

Besides these approaches, studies have also used General Equilibrium (GE) approach pioneered by Harberger (1962) to assess incidence of taxation. These include: Mieszkowski (1969), McLure (1975), Bovenberg (1987), Deverajan et al. (1980).

Some studies have also incorporated the taxes on inputs while assessing the incidence of taxes on final goods. In such cases their incidence analyses are not based on nominal tax but on tax rate computed by using an input-output framework. These include: Ahmad and Stern (1989); Malik and Saqib (1989); Bahl (1991); Rajemison et al. (2003); Alleyne et al (2004), SPDC (2004), Wahid and Wallace (2008).

Studies with Reference to Pakistan

Studies undertaken in Pakistan employed Peckman and Okner (1974) methodology, i.e. computed effective or average tax rates to examine the incidence of indirect taxes by considering household as a unit of analysis and assuming that indirect taxes are to be borne by consumers who consume taxable commodities i.e. full forward shifting of indirect taxes.

One of the earliest studies on tax incidence for Pakistan was conducted by Jeetun (1978) that provided the distribution of tax burden across different income groups by rural and urban areas for the year 1972-73. His results showed that total tax incidence exhibits slight progressivity but indicates that the higher-income groups in rural areas are greatly undertaxed not only compared to their urban counterparts but also compared to the low-income rural households.

Malik and Saqib (1989) also focused on the distributional aspect of federal taxes by estimating their incidence on households belonging to different income groups for rural and urban areas by computing ETRs. They also employed an input-output table to take in to account the taxes on intermediate inputs. Their findings indicate a regressive tax system in rural areas where all components of indirect taxes (import duties, sales taxes and excise duties) exhibited a regressive pattern. In urban areas, the behavior of import duties and excise duties is regressive while that of sales tax is slightly positive. SPDC (2004) also employed input-output table to incorporate the effect of taxes on intermediate inputs while estimating the distributional burden of tax across income groups. The ETRs showed that all components of indirect tax system along with the overall tax system are clearly regressive.

Refaqat (2008) analyzed indirect taxes in Pakistan with the perspective of equity and distributional considerations as a result of tax reform strategy initiated in 1990s. The computed ETRs illustrate progressivity of GST for 1990-91 (pre-reform era) with small magnitudes of incidence. However, despite exemptions of basic food items, proportionality of GST/VAT emerged in 2001-02 (post-reform era). The results portray regressivity of GST on food items, clothes, fuel and utilities, progressivity on durable items, and POL products, and proportionality on tobacco and personal care items. The ETRs computed by Wahid and Wallace (2008) indicate that incidence of all indirect taxes combined is relatively proportional. Individually, the ETR of GST, customs and excise duties suggest that GST and customs are proportional in the lower deciles and progressive in the upper deciles while excises are regressive. Jamal and Javed (2013) findings indicate proportionality of GST structure which is associated with progressivity at upper end of deciles of per capita expenditure. The urban incidence of GST is higher than rural incidence.

RESEARCH METHODOLOGY

The research follows an input-output model based approach to estimate incidence of indirect taxes. This approach allows to trace the cascading effects of indirect taxes on intermediate inputs. Hence, it measures how much income of a household goes away because of both explicit taxes on taxable items and implicit taxes on exempted items.

To incorporate this feature, an input adjusted ETRs for each sector of input-output table (IOT) is computed by employing IOT input coefficient matrix [see Ahmed and Stern (1991)].

In the simple input-output model of production with perfect competition and constant return to scale, equilibrium price condition can be written as,

$$P_s = P_b A + V \dots\dots\dots (1)$$

Where, vector P_s represents the seller's price i.e. price received by producers for sales, P_b represents the buyer's price i.e. price paid by consumers on buying goods for final consumption as well as by producers for buying intermediate inputs, A is fixed coefficient matrix of IOT, and V is vector of payments to factors of production or value added.

In the presence of taxes the buyer's prices becomes

$$P_b = P_s + T \dots\dots\dots (2)$$

Or
$$P_s = P_b - T \dots\dots\dots (3)$$

Substituting 3 into 1 gives,

$$P_b - T = P_b A + V \dots\dots\dots (4)$$

Or
$$P_b = T(I - A)^{-1} + V(I - A)^{-1} \dots\dots\dots (5)$$

This indicates that purchaser's price is the sum of two components. The term

$$T_e = T(I - A)^{-1} \dots\dots\dots (6)$$

is the input adjusted ETRs vector (product of statutory tax rates and inverse of the (I-A) matrix). The term

$$V_c = V(I - A)^{-1} \dots\dots\dots (7)$$

is per unit resource cost vector (product of per unit value added and inverse of the (I-A) matrix), which is the basic price vector or prices in the absence of tax. This ETR is based on the assumption of full forward shifting of indirect taxes, i.e., the burden of indirect taxes is borne by consumers in proportion to their expenditures. And, these input adjusted ETRs are used to compute the tax payments of households in order to compute incidence of indirect taxes.

Following steps are undertaken to compute incidence of taxes and its distribution across households.

Computation of Nominal Tax Rates

Variable T in equation (6) is the prevailing tax rate. The question is whether to take statutory or nominal rate of taxes that are based on revenue collection. Studies have used either of the two

rates. However, nominal rate helps overcoming the issue of tax compliance and matching tax burden with revenue collection. This research compute nominal rates for sales tax, custom duty and federal excise duty instead of taking statutory tax rates.

- 1) In order to compute nominal tax rates mapping of revenue collections of each component of indirect tax is carried with 81 sectors in IOT to acquire revenue collection of each sector, i.e.
 - mapping of commodity-wise revenue collection of sales tax local (882 commodities); mapping of commodity-wise revenue collection of excise duty local and imports;
 - mapping of Pakistan Customs Tariff's chapter-wise data (99 chapters) on revenue collection of sales tax imports and custom duty.
- 2) Mapping of value of imports with sectors in IOT
Pakistan Customs Tariff's chapter-wise data (99 chapters) on value of imports.
- 3) Calculation of Value added
Shares of gross value added (GVA) for each sector were obtained from IOT 2010-11. These shares were then applied to total GVA (GDP at factor cost) for the year 2018-19 to obtain sector-wise GVA for 2018-19.
- 4) Nominal rates of each tax were computed using respective revenue collection and GVA.

Computation of Effective Tax Rate

Nominal rates and IOT coefficient matrix A are then used to compute IA-ETR for each sector as specified in equation (6).

Reference Unit

Household is taken as unit of analysis because it is assumed that household members collectively make decisions regarding work, consumption and saving, and they often pool their resources and share them equally (see Alleyene, 2004; Refaqt, 2005, 2008; Wahid and Wallace, 2008; and Jamal and Javed, 2013).

Welfare Indicator

Households' total expenditures are taken to measure their well-being and hence the indicator that ranks them by welfare level. Representing consumption as a proxy of household welfare is justified on the grounds that it reflects capacity to pay, is less volatile than current income, and less likely to be under-reported than income (see Deaton and Grosh, 2000; Refaqt, 2005, 2008; Wahid and Wallace, 2008; Cubero and Hollar, 2010).

Tax Shifting Assumption

The final burden of indirect taxes is assumed to be borne by consumers based on the view that owners of factors of production have perfectly inelastic supplies and consumers have perfectly inelastic demand for commodities. Lack of reliable information on these elasticities tends to the widespread adoption of the full forward shifting of indirect taxes (Gemmell and Morrissey, 2002).

Computing Households Tax Payments

Estimation of tax incidence requires tax payments for each household for each taxable and exempted consumption item. For this, household's consumption items are mapped with the

sectors in the IOT. The estimated input adjusted ETR for each sector is then assigned to each item in accordance with its mapping with the respective sector.

Tax payment for each item is computed by applying respective item's ETR to its expenditure in the following manner.

$$TP_{t,j,h} = EXP_{j,h} \times \frac{1}{1 + ETR_{t,j}} \dots\dots\dots (8)$$

Where *TP* is tax payment, *EXP* is household expenditure, *j* (*=1...n*) is consumption item, *h* (*= 1...m*) is household, and *t= type of tax* (GST-Local, GST-Imports, CD, FED-Local and FED-Imports).

Estimation of Tax Incidence

Tax incidence (INC) is computed by taking percentage share of tax payment on a particular item in household's total expenditures.

$$INC_{t,j,h} = \frac{TP_{t,j,h}}{EXP_h} \times 100 \dots\dots\dots (9)$$

Distribution of incidence or distribution of tax burden across households is assessed by comparing average rate of incidence across deciles of household expenditures.

This allows analyzing the progressivity or regressivity of taxes. A tax is progressive when ARP rises along with the rise in households' total expenditures; regressive when it falls and proportional when it remain constant.

Data Sources

- Household Integrated Economic Survey (HIES) 2018-19, Pakistan Bureau of Statistics, Government of Pakistan to observe households' consumption expenditures.
- Input-Output Table 2010-11, Federal Bureau of Revenue, Government of Pakistan to trace the impact of taxes on intermediate inputs.
- Tax schedules of the Sales Tax Act 1990 (amended up to 11 March, 2019), Federal Board of Revenue, to identify the taxable and exempted sectors/items.
- Income Tax Ordinance 2001 (amended up to 30th June, 2019) Federal Board of Revenue, Government of Pakistan to obtain WHT rates.

RESEARCH FINDINGS AND DISCUSSION

This section presents the estimation results. It first displays the computed nominal and estimated ETRs for each component of indirect taxes. It then furnishes results for incidence of taxes and its distribution across household deciles in the following sequence. Overall incidence of each component and its distribution for all Pakistan and rural-urban areas; distribution of incidence of each component by different commodity groups; and distribution of incidence of all indirect taxes combined by province.

5.1 Nominal and Effective Tax Rates

Comparison of computed nominal rates and estimated input adjusted ETRs for each tax is presented only for those sectors of IOT that are related to households' final consumption of goods.

The statutory tax rate of GST on domestically produced goods and imported goods is 17 percent. However, except a few sectors, the computed nominal tax rate for each sector, based on its revenue collection, is less than statutory rate (see Table A1: Annexure). This indicates the presence of leakage in tax revenue collection.

Table A1 also provides a comparison of nominal rates and computed ETRs for GST-Local and GST-Imports. It indicates that all sectors are affected by GST levied on intermediate inputs which is reflected by the higher ETRs compared to nominal rates. In other words, it means that households are paying taxes at a rate higher than the rate actually prevails due to cascading effect of taxes on inputs. In particular, to emphasize that the nine sectors – associated with crops, livestock, fisheries and milled grains – are exempted from GST-Local. But these sectors are, in fact, taxed at varying rates, in the range one to 3 percent as shown in Table A1, depending on the type and share of, and nominal tax rate on intermediate inputs they use.

Comparison of nominal and ETRs for CD is presented in Table A2 of Annexure. There is no uniform statutory rates of CD across all imports, the rates rather vary from as low as 2 percent to as high as 100 percent or more, depending upon the type and requirement of imported goods. Hence, the nominal rates of CD for sectors in IOT, computed on the basis of revenue collection of respective sector, demonstrate considerable variation across sectors. Nevertheless, the higher rate of ETRs than nominal rates for each sector reveal the cascading effect of CD on intermediate inputs.

FED-Local and FED-Imports are levied only on a few products, but their cascading effects appear across all sectors as portrayed by respective ETRs (see Table A3: Annexure).

5.2 Tax Incidence and Its Distribution across Households

Distribution of tax incidence or distribution of tax burden across households for each component of indirect taxes is presented in Table 2. Since, the distribution is presented by grouping households into deciles of their expenditures, each group represents 10 percent of households. The first decile specifies households in the lowest income group or with lowest amount of total expenditures while the tenth decile specifies households in the highest income group or with the highest amount of total expenditures. This section uses these terms interchangeably while explaining research findings.

According to Table 2, the overall incidence of all indirect taxes combined is on average 20.7 percent in Pakistan. The distribution of incidence of all indirect taxes is regressive ranging from 22 percent in the lowest decile to 19 percent in the highest decile. This suggests that households

in the first decile or the poorest 10 percent households on average devote Rs.22 for every Rs.100 expenditure in paying indirect taxes while the households in the tenth decile or the richest 10 percent on average devote Rs.19.

Among the components of indirect taxes, the overall incidence is highest for GST-Imports at an average rate of 7 percent followed by GST-Local at 6.7 percent and CD at 5.4 percent (Table 2). Since FED is levied on specific items and not across the board, its incidence is low in magnitude compared to GST and CD. The overall incidence of FED-Local, on average is 1.3 percent and that of FED-Imports 0.2 percent.

Table 2: Distribution of Incidence (%) - Indirect Taxes 2018-19 - Pakistan All Areas

Deciles of HH Expenditures	GST			FED			CD	All Indirect Taxes
	Local	Imports	Combined	Local	Imports	Combined		
1	6.90	7.63	14.54	1.23	0.27	1.50	5.92	21.96
2	6.88	7.47	14.35	1.28	0.25	1.53	5.77	21.66
3	6.90	7.44	14.34	1.36	0.24	1.60	5.70	21.63
4	6.81	7.29	14.10	1.38	0.21	1.59	5.54	21.22
5	6.74	7.20	13.93	1.36	0.20	1.56	5.46	20.95
6	6.65	7.06	13.71	1.36	0.19	1.55	5.35	20.61
7	6.61	6.98	13.59	1.39	0.19	1.58	5.25	20.42
8	6.57	6.89	13.46	1.40	0.19	1.59	5.17	20.21
9	6.47	6.70	13.18	1.42	0.17	1.59	5.01	19.77
10	6.34	6.43	12.77	1.47	0.13	1.60	4.83	19.20
Overall	6.69	7.11	13.80	1.36	0.20	1.57	5.40	20.77

As for the distribution of incidence, except FED-Local, all components portray a regressive pattern. The extent of regressivity, in terms of difference in the incidence on bottom and top deciles, is highest for GST-Imports where households in the bottom decile pay 7.6 percent while those in the top decile pay 6.4 percent of their total expenditures in taxes. This is followed by the distribution of incidence for CD where the poorest 10 percent households pay 5.9 percent while those in the top decile pay 4.8 percent of their total expenditures in CD. The extent of regressivity is somewhat mild in case of GST-Local where the poorest 10 percent household contribute 6.9 percent while the richest 10 percent contribute 6.3 percent of their total expenditures in GST-Local. Combining the incidence of GST, the Table shows that households in the lowest decile altogether pay 14.5 percent of their income for GST while the households in the highest decile pay 12.8 percent.

The distribution of incidence of FED-Local is progressive while that of FED-Imports is regressive. Since the incidence at each decile for FED-Local is higher than that of FED-Imports, the overall distribution of FED is mildly progressive. The households in the bottom decile allocate 1.5 percent of their expenditures for overall FED while those in the top deciles allocate 1.6 percent.

Table 3 and 4 display the distribution of overall indirect taxes and its component by locale, i.e. rural and urban areas respectively. Incidence for all indirect taxes combined shows regressive pattern in both rural and urban areas, where incidence is roughly one percentage point higher at each decile in rural areas than that in urban areas.

Table 3: Distribution of Incidence (%) - Indirect Taxes 2018-19 - Pakistan Rural Areas

Deciles of HH Expenditures	GST			FED			CD	All Indirect Taxes
	Local	Imports	Combined	Local	Imports	Combined		
1	6.93	7.66	14.59	1.16	0.28	1.44	5.99	22.02
2	6.95	7.65	14.59	1.30	0.27	1.57	5.89	22.06
3	6.93	7.52	14.45	1.32	0.25	1.57	5.80	21.82
4	6.92	7.47	14.39	1.36	0.24	1.60	5.72	21.71
5	6.85	7.39	14.24	1.39	0.23	1.62	5.62	21.48
6	6.85	7.34	14.19	1.37	0.23	1.60	5.61	21.41
7	6.71	7.18	13.88	1.36	0.22	1.58	5.47	20.93
8	6.66	7.12	13.78	1.41	0.21	1.61	5.40	20.79
9	6.59	7.01	13.60	1.42	0.19	1.62	5.27	20.49
10	6.50	6.80	13.30	1.50	0.17	1.67	5.11	20.08
Overall	6.79	7.31	14.10	1.36	0.23	1.59	5.59	21.28

The pattern of incidence for both GST-Local and GST-Imports is regressive in both rural and urban areas. The magnitude of incidence for GST-Imports is 0.5 to 0.6 percentage higher at each decile in rural areas than that in urban areas. And, for GST domestic it is higher by 0.2 to 0.3 percentage points in rural areas compared to that in urban areas. Incidence of CD in both rural and urban areas portray a regressive pattern where the extent of regressivity is slightly higher in rural areas. For example, the difference in incidence between rural and urban areas at each decile staying between 0.1 to 0.2 percentage points. In both rural and urban areas FED-Local exhibits progressive pattern associated with proportional pattern in the middle deciles. FED-Imports portrays regressive pattern in both rural and urban areas.

Table 4: Distribution of Incidence (%) - Indirect Taxes 2018-19 - Pakistan Urban Areas

Deciles of HH Expenditures	GST			FED			CD	All Indirect Taxes
	Local	Imports	Combined	Local	Imports	Combined		
1	6.71	7.24	13.95	1.29	0.23	1.53	5.55	21.03
2	6.72	7.10	13.82	1.36	0.22	1.58	5.39	20.80
3	6.62	7.00	13.62	1.35	0.21	1.55	5.25	20.42
4	6.59	6.89	13.48	1.33	0.20	1.53	5.19	20.20
5	6.57	6.83	13.40	1.36	0.19	1.55	5.10	20.05
6	6.54	6.83	13.36	1.39	0.19	1.57	5.08	20.02
7	6.44	6.65	13.09	1.35	0.18	1.53	4.95	19.57
8	6.47	6.62	13.08	1.40	0.17	1.57	4.95	19.60
9	6.32	6.42	12.74	1.36	0.15	1.51	4.82	19.07
10	6.29	6.19	12.48	1.52	0.13	1.65	4.63	18.76
Overall	6.53	6.78	13.30	1.37	0.19	1.56	5.09	19.95

5.3 Distribution of Incidence of Each Tax Component by Commodity Groups

This section explains the distribution of incidence of each component of indirect taxes by commodity groups across deciles of household expenditures.

Distribution of incidence of GST-Local and GST-Imports are presented in Tables 5 and 6 respectively. Basic food items indicate highly regressive pattern of incidence across all deciles with highest magnitude among all commodity groups for both GST-Local and GST-Imports.⁴ For example, 10 percent poorest households pay 1.6 percent of their expenditures as GST-Local when buying basic food items compared to 0.6 percent paid by 10 percent richest household. Similarly, 10 percent poorest households pay 2.7 percent of their expenditures as GST-Imports when buying basic food items compared to one percent paid by 10 percent richest household.

Other groups that show regressive pattern in case of GST-Local across all deciles include transport services and tobacco & products (Table 5). Some groups though depict regressive pattern but exhibit proportional pattern in bottom deciles. These include personal items, household items, and pharmaceuticals. GST-Local on transport services shows proportionality associated with regressivity in the tail deciles.

Commodity groups showing progressive incidence of GST-Local include transport fuel and durable goods. The highest progressivity emerges in transport fuel where the poorest 10 percent households pay 0.3 percent of their expenditures in GST-Local while the richest 10 percent pay one percent. Other groups such as utilities, non-basic food items and books & stationary though indicate an overall progressive pattern but accompanied with proportional pattern in some deciles. For instance, incidence on utilities is progressive in the bottom two deciles then proportional till the sixth decile and then progressive. Communication services is proportional across all deciles.

⁴ Items such as wheat flour, rice, pulses, vegetables, spices, fresh dairy, ghee, sugar, tea are considered as basic food items in this research. The remaining food items are included in non-basic foodgroup.

Table 5: Distribution of Incidence (%) – GST-Local – Pakistan 2018-19

Commodity Groups	Deciles of household expenditures									
	1	2	3	4	5	6	7	8	9	10
Regressive										
Basic food items	1.634	1.505	1.382	1.303	1.225	1.139	1.057	0.961	0.824	0.582
Personal items	1.360	1.333	1.334	1.304	1.281	1.271	1.223	1.218	1.183	1.087
Household items	0.753	0.692	0.671	0.631	0.616	0.611	0.593	0.584	0.543	0.565
Transport services	0.156	0.135	0.136	0.139	0.137	0.135	0.133	0.133	0.128	0.114
Pharmaceutics	0.503	0.442	0.412	0.419	0.395	0.385	0.380	0.337	0.327	0.298
Tobacco & products	0.146	0.111	0.109	0.102	0.095	0.080	0.076	0.071	0.060	0.045
Proportional										
Communication services	0.031	0.031	0.031	0.031	0.030	0.031	0.031	0.033	0.035	0.037
Progressive										
Non-basic food items	0.828	0.822	0.844	0.793	0.816	0.820	0.860	0.884	0.957	0.994
Durable goods	0.142	0.151	0.166	0.171	0.183	0.192	0.224	0.240	0.259	0.461
Utilities	0.979	1.037	1.046	1.051	1.069	1.065	1.081	1.107	1.126	1.100
Transport fuel	0.335	0.567	0.694	0.785	0.797	0.828	0.851	0.898	0.919	0.950
Books & stationary	0.035	0.059	0.073	0.079	0.092	0.097	0.101	0.105	0.113	0.110

In case of GST-Imports, commodity groups such as household items, pharmaceutics, and transport service indicate regressivity in the bottom deciles and proportionality in the upper deciles (Table 6). Incidence on tobacco & products is regressive across all deciles. Personal items portray proportional pattern for households in the lower income groups and regressive pattern for households in the upper income groups.

On the other hand, commodity groups such as other food, transport fuel, durable goods and books & stationary portray progressive pattern of incidence across all deciles. Incidence on utilities is progressive in the bottom deciles or for households belonging from lower income group, proportional for middle income group and slightly progressive for upper income group. Communication services however, depict proportional pattern across all deciles.

Table 6: Distribution of Incidence (%) – GST-Imports – Pakistan 2018-19

Commodity Groups	Deciles of household expenditures									
	1	2	3	4	5	6	7	8	9	10
Regressive										
Basic food items	2.744	2.537	2.335	2.205	2.066	1.930	1.793	1.624	1.404	0.994
Personal items	1.472	1.455	1.457	1.423	1.401	1.391	1.337	1.333	1.293	1.186
Household items	0.671	0.616	0.601	0.564	0.551	0.547	0.541	0.538	0.499	0.540
Transport service	0.136	0.118	0.119	0.121	0.120	0.118	0.117	0.116	0.113	0.100
Pharmaceutics	0.199	0.175	0.163	0.166	0.156	0.152	0.150	0.133	0.129	0.118
Tobacco & products	0.387	0.294	0.288	0.271	0.251	0.211	0.200	0.187	0.159	0.119
Proportional										
Comm. service	0.029	0.029	0.028	0.029	0.028	0.029	0.029	0.030	0.033	0.035

Progressive										
Non-basic food items	1.106	1.117	1.173	1.136	1.195	1.204	1.269	1.313	1.393	1.404
Durable goods	0.134	0.141	0.154	0.163	0.175	0.188	0.222	0.239	0.265	0.507
Utilities	0.454	0.481	0.498	0.514	0.528	0.530	0.538	0.549	0.556	0.534
Transport fuel	0.235	0.399	0.488	0.552	0.560	0.582	0.600	0.633	0.652	0.691
Books & stationary	0.064	0.108	0.135	0.146	0.168	0.177	0.186	0.194	0.208	0.202

Distribution of incidence of CD on different commodity groups is presented in Table 7. The highest rate of incidence at each decile appears for personal items followed by basic food items. However, the highest regressivity across all deciles emerges in basic food items where the poorest 10 percent household spent 1.7 percent of their expenditures in paying CD whereas richest 10 percent household spent 0.5 percent. Other groups showing regressive pattern of incidence across all deciles include personal items, household items and pharmaceuticals. Transport services and tobacco & products depict regressive pattern in tail deciles associated with proportional pattern in the middle deciles.

Table 7: Distribution of Incidence (%) – Custom duty – Pakistan 2018-19

Commodity Groups	Deciles of household expenditures									
	1	2	3	4	5	6	7	8	9	10
Regressive										
Basic food items	1.650	1.520	1.394	1.304	1.212	1.123	1.031	0.922	0.782	0.537
Personal items	1.746	1.715	1.713	1.672	1.642	1.627	1.562	1.554	1.505	1.372
Household items	0.798	0.726	0.696	0.651	0.633	0.624	0.587	0.568	0.526	0.509
Transport services	0.079	0.068	0.069	0.070	0.069	0.068	0.067	0.067	0.065	0.058
Pharmaceuticals	0.280	0.246	0.229	0.233	0.220	0.214	0.211	0.187	0.182	0.166
Tobacco & products	0.046	0.033	0.033	0.031	0.029	0.024	0.023	0.022	0.018	0.013
Mixed										
Comm. service	0.022	0.021	0.021	0.021	0.021	0.021	0.022	0.023	0.025	0.026
Utilities	0.361	0.382	0.388	0.393	0.400	0.399	0.404	0.413	0.417	0.402
Transport fuel	0.100	0.170	0.208	0.236	0.239	0.248	0.256	0.270	0.278	0.294
Books & stationary	0.048	0.080	0.100	0.108	0.125	0.132	0.138	0.144	0.154	0.150
Progressive										
Non-basic food items	0.654	0.664	0.688	0.655	0.694	0.690	0.733	0.761	0.807	0.809
Durable goods	0.139	0.144	0.159	0.166	0.176	0.183	0.218	0.235	0.250	0.491

The highest progressive pattern of incidence of CD across all deciles emerges in non-basic food items where the poorest 10 percent households allocate 0.7 percent of their expenditure on CD while the richest 10 percent allocate 0.8 percent. Durable items also indicates progressivity across all deciles whereas the remaining groups depict mixed pattern with proportionality in some deciles and slight progressivity in other deciles. These include utilities, transport fuel, and books & stationary. Communication services portray proportional pattern of incidence across all deciles.

Both FED-Local and FED-Imports are levied on specific items. On locally produced goods, FED is levied on beverages, tobacco & products, cement, natural gases, POL products and vegetable oil/ghee. Table 8 presents incidence on items where FED is levied explicitly under its respective

commodity group. Table 8 shows that incidence of FED-Local on beverages, household fixtures (cement), natural gas and transport fuel (POL) is progressive while that on ghee and tobacco & products is regressive.

The usage of goods such as cement, natural gases, and POL products as inputs translates the impact of FED on other items, hence, other commodity groups also bear some rate of incidence. One such sector is electricity, where the incidence is slightly regressive till the seventh decile and progressive in the top three deciles. Similarly, road transport is used by each sector and FED-Local on POL products transmit to the input cost and hence create tax burden on other sectors. For instance, regressive impact on basic food items. The overall progressivity of FED-Local occurs on account of its progressive incidence on beverages.

FED-Imports is levied on aerated water, cement, cigarettes & tobacco, vegetable oil, perfumery & cosmetics, POL products and motor vehicles. Table 9 displays that incidence on ghee is regressive while on vegetable oil is slightly progressive. Incidence on beverage, POL products and vehicles is zero perhaps due to very low rate of FED on these products. Category of 'other items' also indicate regressive pattern of incidence which is due to cascading effect FED-Imports on other sectors and hence on products produces by these sectors.

Table 8: Distribution of Incidence (%) – FED-Local – Pakistan 2018-19

Commodity Groups	Deciles of household expenditures									
	1	2	3	4	5	6	7	8	9	10
Basic food	0.140	0.133	0.123	0.118	0.111	0.104	0.097	0.088	0.076	0.054
<i>Ghee</i>	<i>0.029</i>	<i>0.026</i>	<i>0.023</i>	<i>0.020</i>	<i>0.018</i>	<i>0.016</i>	<i>0.014</i>	<i>0.012</i>	<i>0.009</i>	<i>0.005</i>
Personal items	0.058	0.057	0.057	0.056	0.054	0.053	0.051	0.051	0.049	0.044
Pharmaceutics	0.021	0.019	0.017	0.018	0.017	0.016	0.016	0.014	0.014	0.013
Tobacco & products	0.276	0.226	0.220	0.210	0.191	0.158	0.152	0.136	0.121	0.097
Transport services	0.039	0.033	0.034	0.034	0.034	0.033	0.033	0.033	0.031	0.028
Comm. services	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
Other food	0.380	0.402	0.424	0.412	0.411	0.430	0.441	0.446	0.489	0.533
<i>Beverages</i>	<i>0.291</i>	<i>0.315</i>	<i>0.327</i>	<i>0.319</i>	<i>0.328</i>	<i>0.334</i>	<i>0.343</i>	<i>0.343</i>	<i>0.372</i>	<i>0.388</i>
Household items	0.029	0.029	0.035	0.033	0.034	0.036	0.055	0.064	0.060	0.104
<i>Cement</i>	<i>0.013</i>	<i>0.014</i>	<i>0.021</i>	<i>0.020</i>	<i>0.022</i>	<i>0.024</i>	<i>0.044</i>	<i>0.054</i>	<i>0.050</i>	<i>0.096</i>
Durable goods	0.005	0.005	0.005	0.006	0.006	0.007	0.008	0.008	0.010	0.017
Utilities	0.168	0.179	0.196	0.214	0.223	0.228	0.232	0.235	0.236	0.218
<i>Electricity</i>	<i>0.112</i>	<i>0.116</i>	<i>0.114</i>	<i>0.112</i>	<i>0.112</i>	<i>0.111</i>	<i>0.109</i>	<i>0.113</i>	<i>0.116</i>	<i>0.121</i>
<i>Gas</i>	<i>0.048</i>	<i>0.054</i>	<i>0.074</i>	<i>0.093</i>	<i>0.102</i>	<i>0.108</i>	<i>0.111</i>	<i>0.112</i>	<i>0.108</i>	<i>0.088</i>
Transport fuel	0.115	0.195	0.239	0.270	0.274	0.285	0.296	0.312	0.323	0.356
Books & stationary	0.002	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.006

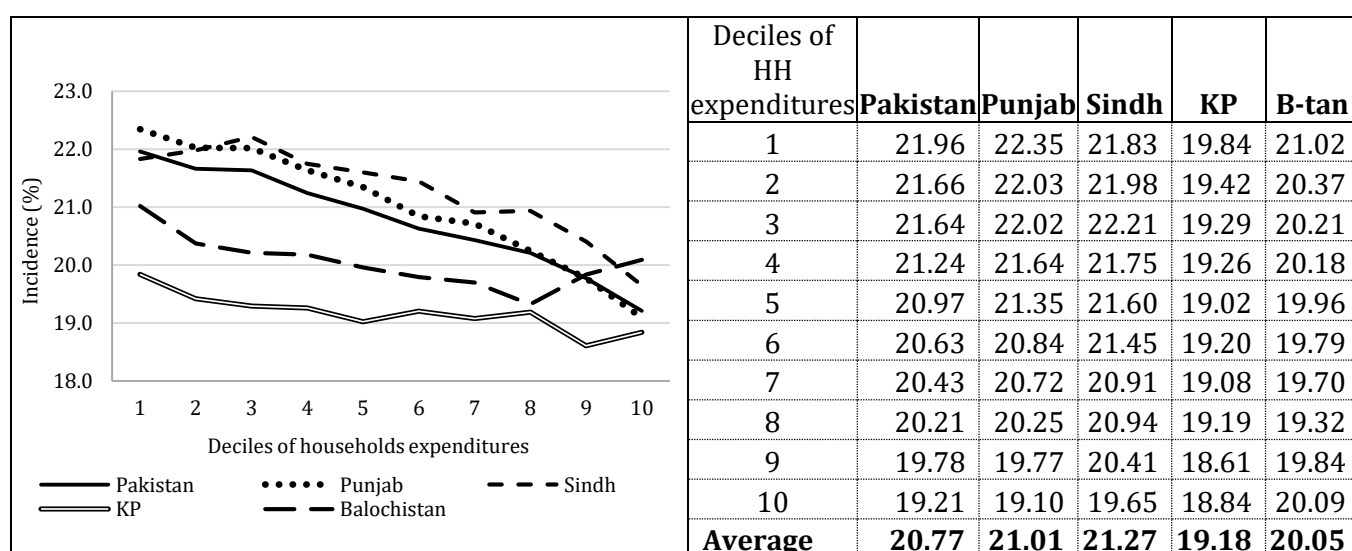
Table 9: Distribution of Incidence by HH Expenditures Decile (%) – FED-Imports

Commodity Groups	Deciles of household expenditures									
	1	2	3	4	5	6	7	8	9	10
Essential food – Ghee	0.150	0.130	0.120	0.100	0.090	0.080	0.070	0.060	0.050	0.030
Essential food - Vegetable Oil	0.020	0.020	0.030	0.030	0.030	0.030	0.040	0.040	0.040	0.030
Personal Care	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.040	0.030
Non-basic food- Beverages	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Cigarettes	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Transport Fuel	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
HH Fixtures – Cement	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010
Purchase of Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total of above items	0.210	0.190	0.190	0.170	0.160	0.150	0.150	0.140	0.130	0.100
Other items	0.060	0.060	0.050	0.040	0.040	0.040	0.040	0.050	0.040	0.030
Overall	0.270	0.250	0.240	0.210	0.200	0.190	0.190	0.190	0.170	0.130

5.4 Distribution of Incidence of All Indirect Taxes by Province

Incidence of all indirect taxes combined by province is displayed in Chart 1 that entails following observations. Incidence of all indirect taxes is regressive across all deciles in all provinces, however, the rate of incidence differ among them. The average rate of incidence is highest in Punjab in the first decile or in the lowest income group; it is highest in Balochistan in the top decile or highest income group; and it is highest in Sindh in the remaining income groups. The rate of incidence is lowest in KP across all income groups. Further, in Punjab and Sindh the rate of incidence is above average (Pakistan) while in Balochistan and KP it is below average.

Chart 1: Distribution of Incidence (%) – All Indirect Taxes – Pakistan and Provinces 2018-19



5.5 Incidence of Withholding Tax

As mentioned earlier that incidence of WHT is estimated only for the heads where data at household level are obtainable in HIES 2018-19. Table 10 shows these heads and corresponding household consumption expenditure. These heads constitute over 9 percent of WHT collection that are indirect in nature. Many of these taxes are adjustable, however, from household data it cannot be deduced as to which households get their tax payment adjusted. Therefore, it is

assumed that tax adjustment has not occurred while conducting the analysis. Table 10 also mentions the WHT rates for each head. These rates are applied to respective household expenditure to calculate the tax payments using equation (8) and incidence is computed using equation (9).

Table 10: Indirect Withholding Taxes Heads, Status, And Collection In 2018-19

Heads of Collection	Household expenditures available in HIES 2018-19	Taxation Status	Collection (Rs. million)
U/s 236 (Telephones subscribers other than Mobile Phones) @10% if bill > Rs. 1,000	Telephone, Mobile Charges (Easy load, Mobile card, etc.)	Adjustable	9,311.50
U/s 236 (Mobile Phone Subscribers - Prepaid Cards) @10% if bill > Rs. 1,000		Adjustable	7,875.60
U/s 235 (Electricity Bills) @ 7.5% on domestic users if monthly bill ≥ Rs. 25,000	Expenses on electricity	Adjustable	35,558.30
U/s 235A (Advance tax on domestic electricity consumption)		Adjustable	596.8
U/s 156 A (Petroleum Products) @ 10%	Expenses on petrol/ diesel/ Mobil oil Expenses on generator (petrol/diesel)	Final	6,948.50
U/s 234 A (On CNG Stations) @ 4%	Expenses on CNG	Minimum Tax	2,953.20
U/s 236B (Purchase of Domestic Air Ticket @ 5 %)	Expenses on travelling by air	Adjustable	687.1
Total (1)	-	-	63,931.00
Total WHT (2)	-	-	683,829.50
(1) as % of (2)	-	-	9.3%

The results of incidence of specific WHT heads are shown in Table 11. Considering all areas, incidence on telephone and mobile usage portray slightly regressive pattern associated with proportional pattern in the middle deciles. However, it is roughly proportional in rural areas and regressive in urban areas. Incidence on petroleum products and electricity is progressive across all deciles in all areas as well as in both rural and urban areas. Incidence on internet usage, air travel and CNG stations is also progressive but its extent is very minimal in all areas and in both rural and urban areas.

Table 11: Incidence of WHT (%) - Pakistan 2018-19

Deciles of HH expenditures	Telephone & mobile	Internet	Petroleum products	CNG	Electricity	Air travel
All Areas						
1	0.177	0.002	0.163	0.000	0.026	0.000
2	0.173	0.005	0.273	0.001	0.057	0.002
3	0.171	0.004	0.334	0.000	0.073	0.001
4	0.170	0.006	0.377	0.001	0.105	0.002
5	0.167	0.007	0.382	0.000	0.135	0.003
6	0.166	0.009	0.397	0.001	0.163	0.006
7	0.162	0.014	0.407	0.002	0.182	0.004
8	0.166	0.020	0.432	0.002	0.233	0.008
9	0.167	0.032	0.444	0.004	0.279	0.014
10	0.157	0.051	0.458	0.017	0.329	0.033

Rural Areas						
1	0.173	0.002	0.138	0.000	0.023	0.000
2	0.168	0.002	0.267	0.000	0.041	0.000
3	0.168	0.005	0.327	0.001	0.057	0.000
4	0.168	0.004	0.367	0.000	0.063	0.001
5	0.165	0.004	0.405	0.000	0.081	0.003
6	0.165	0.005	0.409	0.000	0.111	0.002
7	0.168	0.008	0.401	0.001	0.134	0.009
8	0.168	0.010	0.417	0.002	0.129	0.005
9	0.172	0.011	0.435	0.002	0.181	0.015
10	0.162	0.029	0.472	0.009	0.223	0.033
Urban Areas						
1	0.198	0.005	0.149	0.001	0.055	0.005
2	0.185	0.009	0.275	0.001	0.148	0.000
3	0.170	0.010	0.332	0.001	0.174	0.002
4	0.164	0.012	0.380	0.000	0.219	0.003
5	0.157	0.016	0.406	0.002	0.228	0.000
6	0.161	0.027	0.411	0.002	0.260	0.003
7	0.165	0.030	0.432	0.003	0.297	0.004
8	0.160	0.040	0.424	0.004	0.323	0.010
9	0.166	0.056	0.418	0.010	0.352	0.015
10	0.150	0.062	0.485	0.025	0.405	0.037

CONCLUSION AND RECOMMENDATIONS

This research examines the incidence of indirect taxes in Pakistan and its distribution across deciles of households' expenditures. The findings indicate that all components of indirect taxes – GST-Local, GST-Imports, CD, and FED-Imports – portray regressive patterns. However, FED-Local displays progressive pattern.

Analysis by commodity group shows highest rate of incidence as well as highest extent of regressivity for basic food items whether it is GST-Local, GST-Imports or CD. Other commodity groups that indicate regressivity include personal and household items. Commodity groups indicating progressive pattern of incidence include non-basic food items, utilities and transport fuel. The highest rate of incidence appears for non-basic food items in case of GST-Imports and CD and for utilities in case of GST-Local.

Marked regressivity of incidence on basic food items primarily occurs on account of household spending pattern on food items. The data from HIES 2018-19 reveals that 30 percent poorest households on average spend 48 percent of their total expenditures on food, whereas 30 percent of the richest households spend 37 percent.

Food inflation has often been a major public policy challenge for the governments in Pakistan and numerous measures are undertaken to control food prices with a view to provide relief for the poor. For example, major food items have been exempted from indirect taxation over a number of years. However, indirect taxes levied on inputs used to produce these items act as implicit taxes, which are transferred to the final prices of these items and cause increase in prices. On the other hand, in order to raise revenues, governments often increase taxes on necessities – having inelastic demand – such as utilities which put burden on households' budget, particularly the poor.

Regressivity affecting the poor segment needs to be addressed, albeit without causing secondary distortions. For example, exempting selected essential items as well as their inputs from taxes would not only cause revenue losses but would also benefit the items not in the consumption basket of the poor.

An alternative way to avoid secondary distortions and support low income groups are Transfer Payments, which can minimize the impact of taxes on them. Practices from other countries also demonstrate the use of transfer payments. Karageorgas (1973) points out decline in inequality after the initiation of transfer payments in Greece, with the highest benefit received by the lowest income groups. Ruggeri et al. (1994) reports progressivity of general sales tax at the lower end of the income scale due to transfer payments to these income classes in Canada. Crisan et al. (2015) highlights the progressive tax and transfer system in Canada, where the bottom two quintiles of the income distribution are net recipients of government transfers, while the middle and top two quintiles are net tax payers.

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ANNEXURE

Sectors From IOT	GST-Local (%)		GST-Imports (%)	
	Actual Rate	Effective Rate	Actual Rate	Effective Rate
Rice	0.016	3.375	0.042	4.009
Wheat	0.000	3.270	0.042	3.808
Sugar cane	0.000	2.609	0.000	3.113
Pulses	0.003	0.810	0.288	1.042
Potatoes	0.000	2.962	0.288	3.614
Vegetables & condiments	0.113	2.919	0.288	3.163
Fruits	0.025	2.395	5.196	7.809
Livestock & slaughter products	0.091	1.246	2.643	4.198
Fisheries	0.000	6.880	0.737	5.996
Coal	16.944	19.257	9.810	11.863
Crude oil & Natural gas	4.936	6.691	9.810	11.430
Vegetable oils	0.827	5.256	13.410	21.466
Milled grains	0.003	3.019	4.098	7.083
Bakery products	8.572	12.663	12.626	19.033
Sugar	8.098	10.123	12.626	14.847
Other food	17.000	19.879	14.112	17.990
Beverages	17.000	21.943	17.000	21.979
Cigarettes & Tobacco	5.325	6.739	17.000	20.003
Cotton cloth	0.055	5.160	1.640	5.668
Art silk	0.330	6.495	1.241	5.904
Made-up textile goods	0.036	3.725	4.617	7.446
Knitwear	0.551	4.916	8.864	12.832
Carpets	0.434	4.674	11.701	16.620
Garments	3.827	7.966	8.864	13.513
Other textile products	11.932	16.907	3.918	7.920
Leather & leather products	2.048	5.471	5.616	9.947
Footwear	6.400	9.342	9.802	13.470
Paper & printing	4.458	10.531	14.826	22.478
Pharmaceuticals	7.078	14.964	0.216	6.697
Chemical consumer products	17.000	25.384	14.121	22.010
Refined petroleum	17.000	23.519	9.810	16.958
Rubber & plastic products	4.578	13.209	14.835	21.829
Bricks	0.033	5.901	15.422	19.605
Cement	8.728	15.421	15.422	21.085
Metal products	16.994	23.151	11.554	18.710
Non-electrical machinery	5.887	14.937	9.854	20.456
Electrical equipment	13.120	22.596	9.854	19.110
Transport equipment	9.714	23.671	13.502	29.554
Handicrafts	0.328	3.986	0.450	5.976
Sports goods	0.544	6.361	16.845	22.485
Jewelry & precious metals	0.177	5.509	8.425	13.976
Other manufacturing products	16.967	22.725	14.715	21.665
Electricity, water works & supply	11.796	19.320	0.000	7.390
Gas supply	5.644	9.826	0.000	6.014
Transport railway	0.000	13.007	0.000	14.159
Transport road	0.000	4.748	0.000	4.093

Communication	0.206	1.595	0.000	1.479
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Table A2: Nominal and Estimated Effective Tax Rates of Custom Duty 2018-19

Sectors from IOT	Nominal Rate (%)	Effective Rate (%)	Sectors from IOT	Nominal Rate (%)	Effective Rate (%)
Rice	0.000	2.346	Other textile products	12.795	15.989
Wheat	0.128	2.332	Leather & leather products	17.014	19.327
Sugar cane	0.000	1.804	Footwear	23.812	27.252
Pulses	0.029	0.459	Wood, products & furniture	2.214	5.824
Potatoes	0.003	2.117	Paper & printing	10.735	15.742
Vegetables & condiments	0.139	1.978	Pharmaceuticals	4.938	8.497
Fruits	2.345	3.880	Chemical consumer products	23.248	28.159
Livestock & slaughtering products	0.215	1.309	Refined petroleum	3.646	6.697
Fisheries	1.038	4.253	Rubber & plastic products	8.873	13.236
Coal	3.646	4.689	Bricks	0.019	1.739
Crude oil & natural gas	3.646	4.588	Cement	0.044	2.876
Vegetable oils	11.359	17.119	Metal products	10.672	14.279
Milled grains	2.106	3.891	Non-electrical machinery	6.901	13.824
Bakery products	0.074	3.999	Electrical equipment	6.901	12.678
Sugar	0.288	1.647	Transport equipment	21.183	38.644
Other food	14.318	16.368	Handicrafts	0.082	4.162
Beverages	1.503	4.337	Sports goods	21.207	26.478
Cigarettes & tobacco	0.030	1.529	Jewelry, precious metals	4.359	7.822
Cotton cloth	2.824	6.293	Other manufacturing prods	26.847	29.897
Art silk	0.180	3.283	Electricity, water works & supply	0.000	6.259
Made-up textile goods	2.574	5.509	Gas supply	0.000	2.777
Knitwear	0.292	4.041	Railway	0.000	6.953
Carpets	0.985	4.611	Road	0.000	2.337
Garments	6.005	10.486	Communication	0.000	1.103

Table A3: Actual and Estimated Effective Tax Rates of Excise Duty (GST) 2018-19

Sectors From IOT	Excise Duty Local (%)		Excise Duty Imports (%)	
	Actual Rates	Effective Rates	Actual Rates	Effective Rate
Rice	0.000	0.435	0.000	0.0139
Wheat	0.000	0.428	0.000	0.0150
Sugar cane	0.000	0.355	0.000	0.0132
Pulses	0.000	0.150	0.000	0.0031
Potatoes	0.000	0.361	0.000	0.0117
Vegetables & condiments	0.000	0.391	0.000	0.0121
Fruits	0.000	0.357	0.000	0.0116
Livestock & slaughter products	0.000	0.159	0.000	0.0901
Fisheries	0.000	1.341	0.000	0.0215
Coal	0.000	0.532	0.000	0.0045
Crude oil & Natural gas	9.807	10.135	0.000	0.0055
Vegetable oils	0.092	0.561	2.457	3.0978

Milled grains	0.000	0.480	0.000	0.0116
Bakery products	0.000	0.403	0.000	0.1960
Sugar	0.000	0.293	0.000	0.0076
Other food	0.000	0.385	0.000	0.0416
Beverages	68.122	68.964	0.291	0.3033
Cigarettes & Tobacco	20.82	20.988	0.146	0.1492
Cotton cloth	0.000	0.508	0.000	0.0161
Art silk	0.000	0.506	0.000	0.0181
Made-up textile goods	0.000	0.320	0.000	0.0099
Knitwear	0.000	0.412	0.000	0.0123
Carpets	0.000	0.437	0.000	0.0139
Garments	0.000	0.420	0.000	0.0135
Other textile products	0.000	0.493	0.000	0.0230
Leather & leather products	0.000	0.285	0.000	0.0576
Footwear	0.000	0.264	0.000	0.0309
Wood, wood prods & furniture	0.000	0.505	0.000	0.0115
Paper & printing	0.000	0.502	0.000	0.0133
Pharmaceuticals	0.000	0.554	0.000	0.0202
Chemical consumer products	0.000	0.474	1.122	1.2562
Refined petroleum	1.380	6.989	0.003	0.0103
Rubber & plastic products	0.000	0.508	0.000	0.0225
Bricks	0.000	0.374	0.000	0.0047
Cement	23.183	24.745	0.032	0.0441
Metal products	0.000	0.466	0.000	0.0082
Non-electrical machinery	0.000	0.660	0.000	0.0132
Electrical equipment	0.000	0.475	0.000	0.0100
Transport equipment	0.000	0.515	0.420	0.6822
Handicrafts	0.000	0.356	0.000	0.0081
Sports goods	0.000	0.473	0.000	0.0131
Jewelry, precious metals	0.000	0.389	0.000	0.0194
Other manufacturing prods	0.000	0.492	0.000	0.0207
Electricity, water works & supply	0.000	2.052	0.000	0.0834
Gas supply	0.000	4.344	0.000	0.0063
Transport railway	0.000	2.463	0.000	0.0241
Transport road	0.000	1.137	0.000	0.0166
Communication	0.000	0.093	0.000	0.0066