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Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

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Rosario G. Manasan

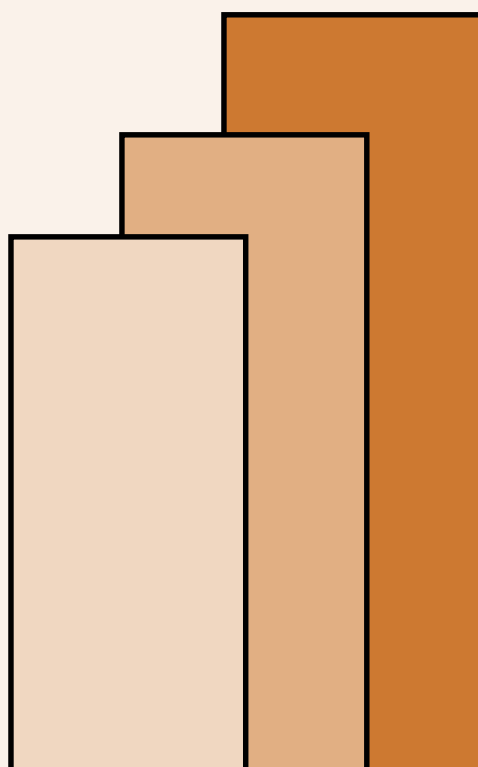
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ESTIMATING INDUSTRY BENCHMARKS FOR THE VALUE ADDED TAX

Rosario G. Manasan

July 2002

Abstract

Various indicators (e.g., VAT-to-GNP ratio, VAT evasion rate) suggest that problems in VAT administration have not only persisted during the 1990s but also appear to have worsened. This study makes use of the 1994 Input Output Table to estimate industry benchmarks for the ratio of VAT-able inputs to total output as well as the effective VAT rate. In so doing, it also attempts to decompose the sources of the leakage in VAT collections in 1999-2001.

While in the aggregate the VAT-able purchases of the firms under the Large Taxpayer Unit of the BIR are less than their total output in the current year, it appears that many of these firms do claim excessive input VAT credits. The ratio of the value of total purchases to total sales is higher the corresponding I-O based benchmark in some 68% of large VAT-payers. In this regard, the use of industry benchmarking to automatically trigger audit would help reduce the leakage in VAT collection. To start with, audit should focus on industries/sectors whose ratio of VAT-able purchases to taxable sales exhibit the greatest variance relative the I-O benchmark.

But what is more worrisome is the lack of correspondence between the total negative VAT due in the previous year and the excess input tax carried over from the previous year in 1999-2001. This development suggests the absence of a good monitoring system for the excess input tax carried over from one period to the next and is clearly indicative of lapses in VAT administration.

Finally, it should be stressed that, to be credible, industry benchmarking requires that each grouping represent a fairly homogeneous set of firms/ taxpayers in terms of key characteristics. Since VAT liability is largely dependent on the input-output structure of firms. In this regard, the 38 major sectors currently being used by the BIR in classifying firms appears to be inadequate. Prospectively, BIR should move towards a finer level of classification approaching at the minimum the I-O level of disaggregation.

Keywords: benchmarks, value added tax

1. INTRODUCTION

1.1. Background

The value added tax (VAT) was first adopted in the Philippines in 1988, replacing 12 different kinds of indirect taxes. The indirect taxes it replaced include annual fixed taxes, sales tax on manufacturers/producers, turnover tax on subsequent sellers, advance sales tax / compensating tax on importation of goods, millers' tax, percentage tax on contractors, lessors of property, lessors/distributors of cinematographic films, excise tax on certain articles.

The VAT was initially applicable to *domestic sales* and *importation* of goods. Exceptions to this coverage were agricultural, forest and marine products in their original form, certain inputs to agriculture (like fertilizers, seeds, seedlings, animal feeds), petroleum products, printing publication or sale of books, newspaper, magazine, review or bulletin which appears at regular intervals for subscription or sale, and sales of small firms.

In 1996, the VAT's coverage was expanded to include most types of services like those provided by proprietors and operators of hotels, motels, pension houses, resorts; proprietors and operators of restaurants and other eating places, including caterers; and operators of taxicabs, utility cars for rent or hire driven by lessees, tourist buses, and other common carriers by land, air and sea relative to their transport of goods or cargo. It also included dealers in securities; lending investors; non-life insurance companies; franchise grantees of telephone, telegraph, radio and TV broadcasting and other franchise grantees; and warehouses. In addition, the 1996 Expanded VAT law extended the coverage of the VAT to the sale/lease of real properties primarily held for sale/lease; intangibles (e.g., patents, copyrights, trademarks, tradenames, other property rights), importation of meat, pesticide, raw cane sugar, specialty animal feed, and importation of books, magazines, periodicals and newspapers.

Exempted from this expanded coverage are educational services, medical, dental, hospital and veterinary services, common carriers for transport of passengers, sale / barter /exchange of shares of stocks listed in the stock exchange, and crop insurance, life insurance and foreign insurance agents. Also exempted are overseas dispatch, messages or communication originating from the Philippines, grantees of radio and television broadcasting franchises with annual gross receipts not exceeding P10 million, grantees of electric, gas or water utility franchises, and sale of low cost housing and lease of residential units subject to Rent Control Law.

The VAT applied in the Philippines is a consumption type VAT, i.e., in determining their tax liability, firms are allowed to deduct all business purchases, including purchases of capital goods, from their sales. By not placing an additional burden on purchases of capital equipment, the VAT does not unduly cause firms to delay modernization and the upgrading of plant and equipment; nor does it discriminate against capital-intensive methods of production. At the same time, it minimizes tax cascading from the turnover tax and is thus neutral with respect to production and distribution methods.

As in most countries that have adopted the VAT, the Philippine VAT is levied on the basis of the destination principle, i.e., goods and services are taxed on the basis of where they are consumed, rather than where they are produced. As such, imports and domestically-produced goods are treated symmetrically and, thus, compete on an equal footing with each other.

The VAT rate is 10% of the gross selling price in the case of sale of taxable goods, or of gross receipts in case of taxable services.¹ Exports are zero rated, which means that exports are allowed to receive credit for the VAT paid on their inputs, even as they pay zero output VAT. Thus, in principle, the VAT helps ensure that exports compete on an even playing field with their counterparts in the international market.

Under the VAT system, tax liability is computed using the tax credit or “invoice” method. Firms are entitled to subtract, from the VAT on their sales or output, the VAT on all their purchases, including that of capital goods from the VAT on sales or output. However, credits are allowed only if they were supported by invoices from their suppliers. The VAT is, thus, said to have a self-policing feature as each firm is required to supply evidence regarding taxes that should have been paid by all its suppliers. However, the advantage gained from this feature can be realized only to the extent that the tax administration bureaucracy is equipped with the computerized system to cross match invoices.

In general, the Philippine VAT is a more revenue-productive tax than the taxes it replaced. This is indicated by the higher tax effort (i.e., ratio of tax revenues to GNP) for VAT/licenses in 1988-2000 (2.3%) than tax effort for sales tax/licenses in 1975-1987 (1.5%).² The domestic VAT-to-GNP ratio rose consistently from 1.6% in 1988 to 2.7% in 1997.³ Following the Asian financial crisis, the VAT effort ratio for domestic sales has faltered to 2.4% in 1998/1999 and 2.2% in 2000 (*Figure 1*).

However, problems in the administration of the VAT persist. There is a big gap between the VAT effort in 1988-2000 (2.3%) and the statutory rate (10%). Moreover, the efficiency ratio (i.e., the ratio of the VAT effort to the statutory VAT rate in the Philippines) is lower than those of Singapore, South Korea and Thailand (*Table 1*). Tax evasion remains prevalent, with the VAT evasion rate ranging from 51%-63% in 1992-2000. This appears to have worsened in 2000 (*Table 2*).

¹ In the case of taxable imports, the tax base is dutiable value plus customs duties and excise tax, if any.

² These ratios refer to VAT on domestic sales only.

³ Compare these figures to the ratio of sales tax /licenses revenue to GNP of 1.8% in 1987.

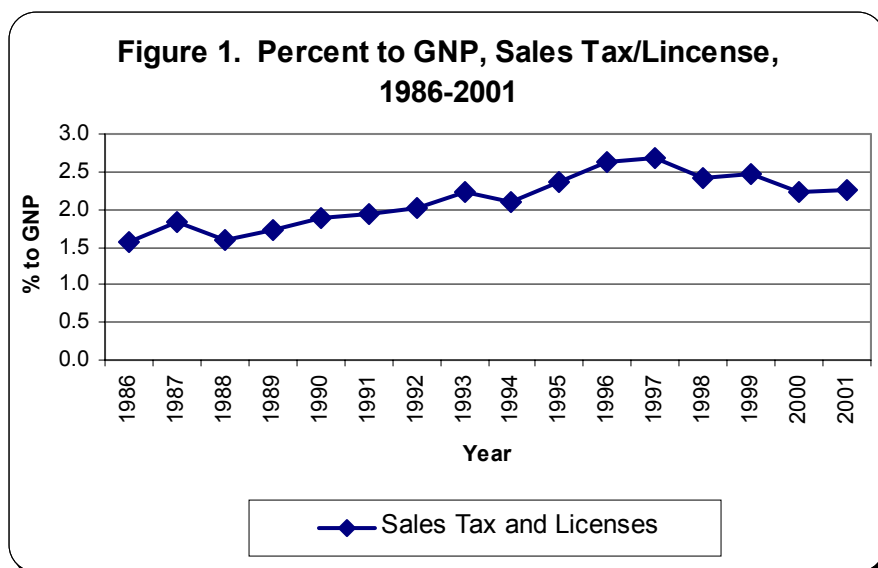


Table 1
Statutory VAT Rates, Sales Tax/VAT Effort and Efficiency Ratio
in Selected Asian Countries, 1991-1998

	Statutory VAT Rates	VAT Effort			Efficiency Ratio		
		1991	1994	1998	1991	1994	1998
Indonesia	10	3.92	4.80	2.96	0.39	0.48	0.30
Malaysia	0	2.13	2.17	2.08 ^{a/}			
Philippines	10	2.85	3.33	3.78	0.29	0.33	0.38
Singapore	3		1.49	1.56 ^{a/}		0.50	0.52
Thailand	7	4.05	3.15	4.28	0.58	0.45	0.61
South Korea	10	3.83	4.04	4.30 ^{a/}	0.38	0.40	0.43

Source of Basic Data: Author's estimates using revenue data (VAT includes VAT on domestic sales and VAT on imports) from the Government Finance Statistics and GDP data from the International Finance Statistics. Statutory Rates are from Yoingco 1996.

a/ : uses 1997 data

The Inter-agency Task Force – VAT Sub-group created by the Commissioner of the Bureau of Internal Revenue in the early part of 2001 noted the following problems in the administration of the VAT: excessive claims of current year input VAT credit and carry-over of excess input VAT, claims of presumptive VAT by firms not entitled to do so under the law, lack of industry standards against which to validate claims of input VAT, and the inadequate VAT form. Moreover, scrutiny of micro-level data from tax returns shows many firms registering negative effective VAT rate.

Table 2
Level of Tax Evasion from VAT, 1985-1996

Year	Actual Revenues	Potential Revenues	Evaded Revenues	Collection Rate	Evasion Rate
1992	18112.85	49108.43	30995.58	36.88	63.12
1993	22750.93	51320.51	28569.58	44.33	55.67
1994	25457.84	54227.75	28769.91	46.95	53.05
1995	29574.48	64257.82	34683.34	46.02	53.98
1996	40926.59	100720.20	59793.61	40.63	59.37
1997	47273.10	103842.00	56568.90	45.52	54.48
1998	47538.83	98679.39	51140.56	48.18	51.82
1999	55150.19	113530.60	58380.41	48.58	51.42
2000	55269.20	125079.10	69809.90	44.19	55.81

Source: Author's Estimate; ratio of marginal firms from NIA estimate of unorganized sector (new)

1.2. Objective and Methodology

Given this perspective, the purpose of this study is to develop industry benchmarks for (1) the ratio of VAT-able purchases to VAT-able sales, and (2) the effective VAT rate (i.e., ratio of VAT liability to the value of output) for various industry groupings. Such benchmarks are envisioned to form part of the toolkit in the selection of VAT returns for audit. They are also useful in providing a diagnosis of the sources of the leakages in the VAT system.

To be credible, industry benchmarking requires that each grouping represent a fairly homogeneous set of firms/ taxpayers in terms of key characteristics. Since VAT liability is largely dependent on the input-output structure of firms, this study makes use of the effective VAT rate for each industry group that is derived from the 230 x 230 transactions table of the 1994 Input-Output (IO) Tables as industry benchmarks. Implicitly, this approach assumes that the cost structure of the various industries has remained invariant over time.

In addition, this study compares the estimates of the effective VAT rate thus derived from the input-output table with data from 1999-2001 VAT returns of VAT-able firms in the Large Taxpayer Unit of the BIR. It should be noted that, at present, the Bureau of Internal Revenue (BIR) classifies firms according to 38 major sectors only, corresponding largely with 17 major divisions of the Philippine Industrial Classification (PSIC) but with some finer disaggregation of the manufacturing sector. Thus, it was necessary for the present study to reclassify the firms under in the Large Taxpayer Unit in accordance the PSIC so as to make the industrial groupings in the two data sets consistent and comparable.

Prospectively, the BIR should move towards the use of the PSIC in categorizing firms. The 38 sectors it is currently be using simply would not yield the level of homogeneity that is essential for industry benchmarking.

2. INDUSTRY BENCHMARKS FROM THE 1994 INPUT-OUTPUT TABLE

Conceptually, the amount of VAT due is equal to the output VAT less input VAT so that the VAT base is akin to gross value added (GVA) in the VAT-liable sector. In practice, however, some sectors are VAT-exempt. Thus, firms are not allowed to get credit for the taxes on purchased inputs from VAT-exempt sectors because no VAT is paid on the same to begin with. In effect, the tax liability of the VAT-liable firm is equal to 10% of its GVA *plus* the value of its VAT-exempt inputs.

It is important for this nuance to be taken into account in the computation of the effective VAT rate from the input-output table. The list of VAT-exempt sectors in the 230 x 230 Input-Output Table for the EVAT law is given in *Appendix Table 1*. On the other hand, the ratio of the value of VAT-able purchases to the value of output as well as the effective tax rate (or the ratio of VAT liability to the value of output) in the various VAT-able sectors in the 230 x 230 Input-Output Table are given in *Table 3*. *Table 3* shows that the ratio of VAT-able purchases to the value of output ranges from a low of 13.4% for motion picture distribution and projection to a high of 83.0% for manufacture of motor vehicles. In turn, the effective VAT rate varies from a low of 1.7% for the latter to a high of 8.7% for the former. On the average, the effective VAT rate based on the I-O Table is 6.2%.

3. VALIDATION WITH VAT DATA FROM LARGE TAXPAYER UNIT

Closer scrutiny of the data from VAT returns of firms included in the Large Taxpayer Unit of the BIR for the years 1999-2001 and a comparison of the key ratios derived from there with the corresponding ratios based on the I-O Table reveal the sources of the leakage in VAT collection. First, while VAT-able purchases of these large firms are less than their total output in the current year in the aggregate, there is some evidence that firms do claim excessive input VAT credits. On the average, the ratio of the value of total purchases to total sales of these firms was 52% in 1999, 48% in 2000 and 47% in 2001 (*Table 4*).⁴ However, the ratio of the value of total purchases to total sales for these large VAT payers do exceed the I-O based benchmark in 66%-68% of cases (*Table 5*). In particular, the ratio of VAT-able purchases to total output of the large firms in the following I-O sectors are more than twice as high as the corresponding I-O benchmark: canning and preserving of fruits, fish canning, sugar milling and refining, miscellaneous food manufacturing, cigarette manufacturing, manufacture of basic industrial chemicals, cement manufacturing, wholesale and retail trade, telephone, postal, and messengerial and other communication services (*Table 6*).

⁴ Summary statistics for the 38 major industrial sectors and for the 229 I-O sectors are shown in *Appendix Table 2* and *Appendix Table 3*, respectively.

**Table 3. Ratio of VAT-able Input to Total Output and Effective VAT Rate: Industry
Benchmark based on 1994, I-O Table 230 X 230**

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
028	Gold and silver mining	0.331	6.689
029	Copper mining	0.317	6.828
030	Nickel mining	0.364	6.360
031	Chromite mining	0.283	7.170
032	Other metal mining	0.243	7.572
033	Coal mining	0.376	6.239
034	Crude petroleum and natural gas	0.280	7.196
035	Stone quarrying, clay and sandpits	0.285	7.147
037	Other non-metallic mining and quarrying	0.232	7.675
039	Meat & meat products processing	0.172	8.275
040	Milk processing	0.729	2.712
041	Butter and cheese manufacturing	0.684	3.162
042	Ice cream, sherberts & other flavored ices	0.526	4.742
043	Other dairy products	0.500	5.005
044	Canning & preserving of fruits and vegetables	0.100	8.996
045	Fish canning	0.165	8.354
047	Prod'n of crude coconut oil, copra cake and meal	0.140	8.600
048	Other crude vegetable oil exc coconut oil, fish and other marine oils and fats	0.168	8.320
049	Manufacture of refined coconut and vegetable oil	0.411	5.890
051	Flour, cassava & other grains milling	0.171	8.293
052	Mfr of bakery prods exc noodles	0.512	4.877
053	Noodles mfg	0.386	6.140
054	Sugar milling and refining	0.134	8.656
055	Mfr of cocoa, chocolate and sugar confectionery	0.599	4.007
056	Mfr of desiccated coconut	0.124	8.763
057	Mfr of ice exc dry ice	0.093	9.071
058	Coffee roasting and processing	0.213	7.874
060	Mfr of starch & starch prods	0.140	8.595
061	Mfr of flavoring extracts, mayonnaise and food coloring products	0.418	5.821
062	Miscellaneous food products	0.296	7.039
063	Alcoholic liquors and wine	0.482	5.180
064	Malt and malt liquors	0.302	6.978
065	Softdrinks & carbonated water	0.477	5.234
066	Cigarette mfg	0.493	5.070
067	Cigar, chewing & smoking tobacco	0.395	6.054

Table 3 (con't.)

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
068	Tobacco leaf flue-curing and redrying	0.063	9.373
069	Textile, spinning, weaving, texturizing and finishing	0.606	3.945
070	Fabric knitting mills	0.615	3.849
071	Hosiery, underwear & outerwear knitting	0.615	3.851
072	Mfr of made-up textile goods exc. wearing apparel	0.651	3.492
073	Mfr of carpets and rugs	0.635	3.653
074	Cordage, rope, twine and net mfg	0.213	7.870
075	Mfr of articles made of native materials	0.352	6.480
076	Mfr of artificial leather and impregnated & coated fabrics	0.589	4.110
077	Mfr of fiber batting, padding, upholstery fillings incl. coir, linoleum and other hard surfaced floor coverings	0.379	6.209
078	Custom tailoring & dressmaking shops	0.388	6.124
079	Mfr of ready-made clothing	0.644	3.559
080	Embroidery establishments	0.506	4.935
081	Mfr of other wearing apparel exc footwear	0.470	5.296
082	Tanneries and leather finishing	0.576	4.245
083	Mfr of prods of leather and leather substitutes, exc footwear and wearing apparel	0.617	3.830
084	Mfr of leather footwear & footwear parts	0.536	4.635
085	Sawmills and planing mills	0.167	8.326
086	Mfr of veneer and plywood	0.201	7.987
087	Mfr of hardboard and particle board	0.496	5.042
088	Wood drying and preserving plants	0.532	4.683
089	Millwork plants	0.527	4.731
090	Mfr of wooden and cane containers and small cane wares	0.445	5.549
091	Mfr of wood carvings	0.481	5.186
092	Mfr of misc wood, cork & cane prods.	0.342	6.584
093	Mfr and repair of wooden furniture incl upholstery	0.475	5.252
094	Mfr and repair of rattan furniture incl upholstery	0.316	6.840
095	Mfr and repair of other furnitures and fixtures, n.e.c.	0.605	3.951
096	Pulp, paper and paperboard	0.526	4.736
097	Paper and paperboard containers	0.671	3.289
098	Mfr of articles of paper and paperboard	0.656	3.440

Table 3 (con't.)

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
101	Commercial & job printing & other allied industries	0.663	3.372
102	Mfr of basic ind'l chemicals	0.432	5.676
105	Mfr of pesticides, insecticides, etc	0.674	3.258
104	Mfr of synthetic resins , plastic materials & other man-made fibers exc glass	0.513	4.869
105	Mfr of pesticides, insecticides, etc	0.674	3.258
107	Mfr of drugs and medicines	0.551	4.494
108	Mfr of soap and detergents	0.396	6.042
109	Mfr of perfumes, cosmetics & other toilet preparations	0.538	4.625
110	Mfr of misc chemical products	0.515	4.850
113	Rubber tire & tube mfg	0.420	5.803
114	Mfr of rubber footwear	0.521	4.789
115	Mfr of other rubber products, n.e.c	0.459	5.410
116	Mfr of plastic furniture, plastic footwear & other fabricated plastic products	0.601	3.990
117	Manufacture of pottery, china & earthenware	0.352	6.485
118	Mfr of flat glass	0.354	6.460
119	Mfr of glass container	0.488	5.118
120	Mfr of other glass and glass products	0.557	4.428
121	Cement mfr	0.328	6.720
122	Mfr of structural clay products	0.372	6.284
123	Mfr of structural concrete prods	0.657	3.428
124	Mfr of other non-metallic mineral prods, n.e.c.	0.395	6.050
125	Blast furnace and steel making furnace, steel works and rolling mills	0.682	3.181
126	Iron and steel foundries	0.621	3.787
127	Non-ferrous smelting & refining plants, rolling, drawing and extrusion mills	0.702	2.983
128	Non-ferrous foundries	0.580	4.200
129	Cutlery, handtools, general hardware	0.480	5.203
130	Structural metal prods	0.642	3.580
131	Mfr of metal containers	0.674	3.258
132	Metal stamping, coating, engraving mills	0.662	3.382
133	Mfr of wire nails	0.740	2.602
134	Mfr of other fabricated wire & cable prods exc insulated wire & cable	0.689	3.105

Table 3 (con't.)

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
135	Mfr of non-electric lighting and heating fixtures	0.615	3.854
136	Mfr of fabricated metal prods exc machinery & equipment	0.471	5.286
137	Mfr of agricultural machinery and equipment	0.580	4.198
138	Mfr of metal and wood-working machinery	0.516	4.837
139	Mfr of engines nd turbines exc. for transport eq. & special ind. mach'y and equipment	0.517	4.833
140	Mfr, assembly & repair of office, computing and acctg machines	0.692	3.085
141	Mfr of pumps, compressors, blowers and airconditioners	0.511	4.895
142	Machine shops & mfr of non-electrical mach'y and eq. n.e.c.	0.503	4.972
143	Mfr of electrical ind'l mach'y and apparatus	0.590	4.104
144	Mfr of radio and TV receiving sets, sound recording & reproducing eq. incl records and tapes	0.716	2.841
145	Mfr of communication and detection equipment	0.743	2.569
146	Mfr of parts and supplies for radio, TV & communication (semi-conductors)	0.726	2.738
147	Mfr of appliances and housewares	0.628	3.724
148	Mfr of primary cells and batteries and electric accumulators	0.611	3.887
149	Insulated wires and cables	0.755	2.454
150	Mfr of current-carrying wiring devices, conduits & fittings	0.630	3.696
151	Mfr of electrical lamps, fluorescent tubes and other electrical apparatus & supplies, n.e.c.	0.600	3.998
152	Shipyards and boatyards	0.555	4.449
153	Mfr and assembly of motor vehicles	0.830	1.704
154	Rebuilding & major alteration of motor vehicles	0.663	3.371
155	Mfr of motor vehicles parts and accessories	0.723	2.765

Table 3 (con't.)

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
156	Mfr, assembly of motorcycles & bicycles	0.725	2.753
157	Mfr, assembly, rebuilding & major alteration of railroad equipment, aircraft, and animal and hand-drawn vehicle	0.563	4.371
158	Mfr of professional, scientific measuring a & controlling eq	0.577	4.225
159	Mfr of photographic and optical instruments	0.612	3.879
160	Mfr of watches and clocks	0.327	6.727
161	Mfr & repair of furniture & fixtures, made primarily of metal	0.615	3.851
162	Mfr of jewelry & related articles	0.475	5.253
163	Mfr of musical instruments	0.434	5.659
164	Mfr of sporting and athletic goods	0.595	4.053
165	Mfr of surgical,dental,medical and orthopedic supplies	0.389	6.107
166	Mfr of ophthalmic goods	0.610	3.903
167	Mfr of toys and dolls exc. rubber and plastic toys	0.446	5.542
168	Mfr of stationers', artists' and office supplies	0.608	3.924
169	Miscellaneous mfg	0.418	5.816
170	Construction	0.430	5.695
174	Wholesale & retail trade	0.205	7.954
180	Road freight transport & supporting services to land transport	0.293	7.070
181	Ocean passenger and freight transport	0.205	7.950
182	Interisland shipping including inland water	0.236	7.639
183	Stevedoring & other supporting services to water transport	0.238	7.622
184	Air transport	0.485	5.147
185	Tour and travel agencies	0.259	7.411
186	Customs brokers and other services allied to transport	0.279	7.208
187	Storage & warehousing	0.213	7.874
188	Telephone	0.185	8.145
189	Telegraph service	0.405	5.950
190	Postal,Messengerial and other comm services, n.e.c.	0.240	7.603
191	Banking	0.209	7.915
192	Investment, financing & other non-banking services exc. pawnshops	0.246	7.535
193	Pawnshops	0.210	7.903
195	Non-life and other insurance activities	0.155	8.450

Table 3 (con't.)

Commodity Code	SECTORS	Vatable Input/ Total Output	Effective VAT Rate (in percent)
196	Real estate development	0.193	8.069
197	Letting, operating real estate, residential or non-residential, other real estate activities	0.267	7.334
199	Legal services	0.170	8.300
200	Bookkeeping, acctg., and auditing services	0.194	8.058
201	Engineering, architectural & technical services	0.208	7.921
202	Advertising services	0.180	8.197
203	Machinery and equipment renting and leasing	0.184	8.164
204	Employment/recruitment agencies	0.245	7.552
205	Business mgt & consultancy and market research services	0.152	8.481
206	Detective & protective services	0.221	7.791
207	Other business services, n.e.c.	0.187	8.126
208	Sanitary and similar services	0.306	6.940
212	Other social and related community services	0.235	7.648
214	Motion picture distribution and projection	0.131	8.690
216	Theatrical production and entertainment	0.282	7.179
217	Other recreational and cultural services	0.254	7.456
218	Repair shops for motor vehicles	0.351	6.486
219	Other repair shops, n.e.c.	0.294	7.061
220	Laundry, dry cleaning and dyeing plants	0.321	6.790
221	Barber and beauty shops	0.240	7.602
222	Photographic studios including commercial photography and related services	0.364	6.361
223	Other personal services, n.e.c.	0.253	7.474
224	Restaurants, cafes & other eating and drinking places	0.285	7.147
225	Hotels and motels	0.335	6.652
226	Other lodging places	0.160	8.400
Average for all VAT-able sectors		0.383	

Table 4. Selected Indicators from VAT Returns of Large Taxpayers, All Sectors, 1999-2001

All Sectors	1999	2000	2001
(in percent)			
Zero Rated Sales/Total Sales	26.82	26.17	26.54
Exempt Sales/Total Sales	2.96	4.59	3.72
Output Tax/Total Sales	8.57	7.33	7.53
Total Purchases/Total Sales	52.01	47.56	46.93
Presumptive Input Tax/Total Available Input Tax(w/ carry over)	2.76	0.05	2.17
Domestic Input Tax/Total Available Input Tax(w/ carry over)	70.75	63.73	52.94
Imported Input Tax/Total Available Input Tax(w/ carry over)	20.49	21.54	22.49
Domestic Purchases/Total Purchases	79.31	73.71	69.42
Importation of Goods/Total Purchases	20.69	26.29	30.58
Total Available Input Tax/Output Tax(w/ carry over)	82.40	94.32	101.04
Vat Due/Taxable Sales (based on AIT, w/ carry over)	2.15	0.60	-0.11
Vat Due/Taxable Sales (based on AIT, w/o carry over)	2.75	2.07	2.33
Vat Due/Taxable Sales(w carry over)**	2.84	0.60	0.20
Vat Due/Taxable Sales(w/o carry over)**	3.44	2.07	2.64
Output Tax/Taxable Sales	12.20	10.60	10.79
(in million pesos) ^{ai}			
Total Negative VAT Due**(with carry over)	(3,828.02)	(13,148.61)	(12,858.16)
Total Positive VAT Due**(with carry over)	15,070.65	17,438.11	13,951.27
VAT Due**	11,242.63	4,289.50	1,093.11
Total Excess Input Tax Carried Over from previous period	2,387.56	10,440.48	13,397.47

^{ai} entries in the four rows at the bottom of the table are not directly comparable because some firms have missing data for some quarters of 1999.

Note:

*Vat Due = Output Tax - AIT(Available Input Tax)

**Vat Due = Output Tax - Net Creditable Tax(w/ adjustment for refund, actual)

Net Creditable Tax – AIT-Vat Refund-Excess Tax carried

**Table 5. Comparison of the Ratio of VAT-able Purchases to
Total Sales of Large VAT Payers (R) with I-O Benchmark (B),
(% of total number of large VAT payers)**

	1999	2000	2001
R < B	32.66	33.75	32.30
B < R < 1.25 B	12.50	11.00	11.80
1.25 B < R < 1.50 B	12.90	10.00	11.52
1.50 B < R < 1.75 B	6.05	7.25	7.02
1.75 B < R < 2.00 B	3.63	7.50	5.62
R > 2 B	32.26	30.50	31.74

However, it should be emphasized that it is not possible to distinguish purchases of capital equipment and plants from purchases of intermediate inputs, using the VAT return. Because of this, data from the VAT returns would tend to show a higher ratio of VAT-able purchases to total output compared to what might be expected from the I-O table. Thus, if the I-O cost structure is used to establish industry benchmarks, the first order of business would be to check whether firms which exhibit a higher ratio of VAT-able purchases to total output did, in fact, make investments in physical capital during the period under consideration.

The second source of leakage identified from the analysis done in the study is that some 30-35 large firms generated excess input VAT credits in the current year (i.e., input VAT credit for purchases in the current year is in excess of taxable sales) in 1999-2001. Specifically, the VAT-able purchases of 12.7% of the firms under study in 1999, 7.5% in 2000, and 8.4% in 2001 were larger than their taxable sales. The excess input tax credit generated in the current year from this source amounted to P1.8 billion (4.5% of the output VAT) in 1999, P3.7 billion (5.2% of the output VAT) in 2000 and P4.6 billion (8.4% of the output VAT) in 2001. In 2001, these firms may be found in the following I-O sectors: sugar milling and refining, cigarette manufacturing, manufacture and repair of wooden furniture, manufacture of articles of paper and paperboard, manufacture of structural concrete products, manufacture of communication and detection equipment, telephone, telegraph, and investment, financing and other non-banking institutions.

Moreover, it appears that many of the firms whose total VAT-able purchases were in excess of their total output in 1999-2001 are quite persistent in exhibiting this characteristic. Thus, 23 out of 373 firms (or 6%) of the large firms for which there is data for at least 2 years were generating excess input tax credits in 2 or more years out of 2-3 years. While it is possible that firms which are expanding (i.e., investing in new plant and capital equipment) will have VAT-able purchases that are in larger than their total output in the capital year, not many firms would be in such an expansionary mode over several years. Thus, such an occurrence should trigger an audit.

The third source of leakage is the excess input tax carried over (ITCO) from one period to the next. The ratio of available input tax to output tax was 0.8240 in 1999, 0.9432 in 2000 and 1.0104 in 2001 and is significantly higher than the ratio of VAT-able purchases to total output (*Table 4*).⁵ This result is primarily due to the large excess ITCO in each of these years. Note that the presumptive input tax accounted for less than 3% of the available input VAT in 1999-2001 while the share of the excess ITCO to the available input VAT was 6% in 1999, 15% in 2000 and 23% in 2001.

Consequently, the average effective VAT rate paid by large firms is extremely low: 2.8% in 1999, 0.6% in 2000 and 0.2% in 2001 (*Table 4*) compared to a 6.2% effective VAT rate in the aggregate based on the I-O table. However, this dismal performance is masked by the carry-over of negative VAT due from the current year to the succeeding year.

⁵ The available input tax is equal to the sum of VAT-able purchases, the presumptive tax and excess input tax carried from the previous taxable period.

Table 6. Ratio of VAT-able Purchases to Total Output: Comparison of Data from Large Taxpayers Unit and I-O Table

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
		(1)			(2)	(3)		
	AVERAGE							
026	Aquaculture and other fishery activities	1.46	0.04	0.34	0.06	25.13	0.68	5.84
034	Crude petroleum and natural gas	0.00	0.00	0.00	0.28	0.00	0.00	0.00
039	Meat and meat products processing	0.36	0.47	0.51	0.17	2.07	2.71	2.93
040	Milk processing	0.67	0.42	0.57	0.73	0.91	0.57	0.79
041	Butter and cheese manufacturing	0.54	0.77	0.56	0.68	0.79	1.12	0.82
044	Canning & preserving of fruits & vegetables	0.26	0.31	0.42	0.10	2.56	3.05	4.17
045	Fish canning	0.61	0.76	0.77	0.16	3.72	4.64	4.67
047	Prod'n of crude coconut oil, copra cake & meal	0.00	0.10	0.35	0.14	0.00	0.73	2.53
051	Flour, cassava & other grain milling	0.16	0.12	0.11	0.17	0.93	0.69	0.62
052	Mfr of Bakery prods except noodles	0.54	0.64	0.66	0.51	1.05	1.26	1.29
053	Noodles manufacturing	0.00	0.43	0.60	0.39	0.00	1.10	1.55
054	Sugar milling and refining	1.26	1.20	2.28	0.13	9.39	8.92	16.94
055	Mfr of cocoa, chocolate & sugar confectionary	0.41	0.54	0.66	0.60	0.69	0.89	1.10
058	Coffee roasting and processing	0.00	0.00	0.00	0.21	0.00	0.00	0.00
059	Manufacture of animal feeds	0.08	0.12	0.08	0.14	0.61	0.91	0.58
061	Mfr of flavoring extracts mayonnaise & food coloring products	0.00	0.50	0.50	0.42	0.00	1.20	1.21
062	Miscellaneous food prods	0.77	0.69	0.74	0.30	2.59	2.34	2.49
065	Softdrinks and carbonated water	0.85	0.56	0.75	0.48	1.78	1.18	1.57

Table 6 (con't.)

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
		(1)			(2)	(3)		
066	Cigarette manufacturing	0.97	0.99	1.02	0.49	1.97	2.01	2.07
068	Tobacco leaf flue-curing and redrying	0.00	0.00	0.00	0.06	0.00	0.00	0.00
070	Fabric knitting mills	0.55	0.63	0.94	0.62	0.90	1.02	1.53
072	Mfr of made-up textile goods except wearing apparel	0.90	0.85	0.83	0.65	1.38	1.31	1.28
079	Mfr of ready-made clothing	0.00	0.82	0.68	0.64	0.00	1.27	1.06
081	Mfr of other wearing apparel except footwear	0.92	0.91	0.88	0.47	1.95	1.93	1.88
093	Mfr and repair of wooden furniture incl upholstery	0.00	0.91	2.62	0.47	0.00	1.92	5.51
096	Pulp, paper and paperboard	0.64	0.57	0.74	0.53	1.22	1.08	1.41
097	Paper and paperboard containers	0.58	0.52	0.86	0.67	0.87	0.78	1.27
098	Mfr of articles of paper and paperboard	0.51	0.71	1.11	0.66	0.77	1.09	1.69
099	News papers and periodicals	0.53	0.79	0.71	0.64	0.84	1.24	1.11
100	Printing and publishing of book and pamphlets	0.83	0.80	0.48	0.55	1.50	1.46	0.88
101	Commercial & job printing & other allied industries		0.48	0.46	0.66	0.00	0.72	0.69
102	Mfr of basic ind'l chemicals	2.88	1.93	0.51	0.43	6.66	4.46	1.18
103	Mfr of fertilizer	0.00	1.26	0.50	0.61	0.00	2.08	0.82
104	Mfr of synthetic resins, plastic materials & other man-made fibers except glass	0.70	0.60	0.45	0.51	1.36	1.17	0.88
105	Mfr of pesticides, insecticides, etc.	0.73		0.75	0.67	1.09	0.00	1.11
107	Mfr of drugs and medicines	0.67	0.64	0.92	0.55	1.22	1.16	1.68
108	Mfr of soap and detergents	0.72	0.64	0.63	0.40	1.82	1.61	1.59

Table 6 (con't.)

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
		(1)			(2)	(3)		
109	Mfr perfumes, cosmetics & other toilet preparations	0.69	0.70	0.71	0.54	1.29	1.30	1.32
110	Mfr of misc chemical products	0.48	0.69	0.60	0.51	0.94	1.34	1.17
111	Petroleum refineries	0.00	0.00	0.00	0.64	0.00	0.00	0.00
113	Rubber tire & tube manufacturing	0.70	0.46	0.49	0.42	1.66	1.10	1.16
114	Mfr of rubber footwear	0.78	0.78	0.53	0.52	1.49	1.50	1.02
116	Mfr of plastic furniture, plastic footwear & other fabricated plastic products	0.71	0.88	0.81	0.60	1.18	1.46	1.35
117	Mfr of pottery, china earthenware	0.00	0.34	0.55	0.35	0.00	0.96	1.57
118	Mfr of flat glass	0.38	0.50	0.62	0.35	1.07	1.40	1.74
119	Mfr of glass container	0.33	0.39	0.37	0.49	0.68	0.79	0.76
121	Cement manufacturing	1.74	9.26	0.20	0.33	5.30	28.22	0.61
122	Mfr of structural clay products	0.71	0.69	0.68	0.37	1.91	1.85	1.84
123	Mfr of structural concrete prods	0.00	0.67	1.11	0.66	0.00	1.02	1.70
125	Blast furnace and steel making furnace, steel works and rollin mills	0.63	-0.32	0.54	0.68	0.92	-0.47	0.80
126	Iron and steel foundries	0.21	0.30	0.16	0.62	0.34	0.48	0.25
128	Non-ferrous foundries	0.00	0.00	0.00	0.58	0.00	0.00	0.00
129	Cutlery, handtools, gen. hardware	0.75	0.68	0.62	0.48	1.57	1.42	1.30
130	Structural metal prods	0.88	0.45	0.32	0.64	1.37	0.70	0.50
134	Mfr of other fabricated wire cable prods exc insulated wire cable	0.00	0.00	0.00	0.69	0.00	0.00	0.00

Table 6 (con't.)

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
			(1)		(2)		(3)	
142	Machine shops & mfr of non electrical mach'y and eq. n.e.c	0.00	0.03	0.06	0.50	0.00	0.07	0.13
143	Mfr of electrical ind'l mach'y and apparatus	0.21	0.56	0.33	0.59	0.36	0.95	0.57
144	Mfr of radio & TV receiving sets sound recording & reproducing eq incl records & tapes	0.49	0.54	0.57	0.72	0.68	0.75	0.79
145	Mfr of communication and detection equipment	0.40	0.54	1.61	0.74	0.54	0.72	2.17
146	Mfr of parts and supplies for radio TV & communication (semi- conductors)	0.12	0.16	0.45	0.73	0.17	0.22	0.62
147	Mfr of appliances and housewares	0.77	0.79	0.68	0.63	1.22	1.26	1.08
148	Mfr of primary cells and batteries and electric accumulators	0.68	0.71	0.70	0.61	1.11	1.16	1.15
149	Insulated wires and cables	0.06	0.53	0.08	0.75	0.08	0.71	0.11
151	Mfr of electrical lamps, flourescent tubes & other electrical apparatus & supplies, n.e.c.	0.39	0.40	0.53	0.60	0.65	0.67	0.89
153	Mfr and assembly of motor vehicles	0.62	0.72	0.88	0.83	0.75	0.87	1.06
155	Mfr of motor vehicles parts and accessories	0.84	0.78	0.72	0.72	1.17	1.08	0.99
156	Mfr assembly of motorcycles bicycles	0.65	0.78	0.62	0.72	0.90	1.08	0.85

Table 6 (con't.)

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
		(1)			(2)	(3)		
157	Mfr assembly, rebuilding & major alteration of railroad equipment, aircraft, and animal and hand drawn vehicle	0.08	0.12	0.13	0.56	0.14	0.21	0.23
158	Mfr of professional, scientific measuring & controlling eq	0.63	0.92	0.72	0.58	1.08	1.59	1.25
169	Misc mfg	0.96	0.54	0.40	0.42	2.30	1.29	0.96
170	Construction	0.53	0.41	0.72	0.43	1.24	0.95	1.67
171	Electricity	0.15	0.09	0.21	0.11	1.36	0.81	1.87
172	Gas	0.09	0.28	0.10	0.08	1.09	3.50	1.24
173	Water	0.00	0.00	0.00	0.14	0.00	0.00	0.00
174	Wholesale trade & retail trade	0.73	0.76	0.72	0.20	3.56	3.71	3.54
175	Railway transport services	0.00	0.00	2.25	0.27	0.00	0.00	8.43
176	Busline operators	0.00	0.00	0.00	0.35	0.00	0.00	0.00
180	Road freight transport supporting services to lan transport	2.95	0.75	0.00	0.29	10.07	2.57	0.00
181	Ocean passenger & freight transport	0.29	0.42	0.35	0.21	1.42	2.04	1.71
183	Stevedoring & other supporting services	0.00	0.00	0.00	0.24	0.00	0.00	0.00
184	Air transport	0.21	1.29	0.44	0.49	0.43	2.66	0.91
186	Customs brokers and other services allied to transport	0.38	0.25	0.45	0.28	1.37	0.91	1.62
188	Telephone	0.43	0.72	1.01	0.19	2.30	3.89	5.46
189	Telegraph service	1.05	1.77	1.47	0.40	2.59	4.36	3.63
197	Letting, operating real estate residential or non-residential, other real estate activities	0.53	0.57	0.55	0.27	2.00	2.12	2.07

Table 6 (con't.)

IO Code	IO Classification	VAT-able Purchases/Total Sales			Vatable Input/ Total Output Based on IO	(1)/(2)		
		1999	2000	2001		1999	2000	2001
		(1)			(2)		(3)	
199	Legal services	0.00	0.00	0.00	0.17	0.00	0.00	0.00
200	Bookkeeping, acctg., and auditing services	0.00	0.00	0.00	0.19	0.00	0.00	0.00
201	Engineering, architectural technical services	0.44	3.63	0.79	0.21	2.14	17.47	3.80
202	Advertising services	0.17	0.15	0.16	0.18	0.96	0.84	0.89
203	Machinery and equipment renting and leasing	0.67	0.72	0.54	0.18	3.66	3.91	2.92
204	Employment/recruitment agencies	0.01	0.36	0.22	0.24	0.04	1.49	0.91
205	Business mgt & consultancy and marketing research services	0.25	0.36	0.40	0.15	1.63	2.34	2.64
207	Other business services	0.00	0.49	0.59	0.19	0.00	2.62	3.15
209	Private education services	0.00	0.00	0.20	0.21	0.00	0.00	0.93
210	Private hospitals, sanitaria similar institutions	0.91	0.56	0.84	0.40	2.30	1.41	2.11
212	Other social and related community services	0.00	0.35	2.81	0.24	0.00	1.51	11.94
213	Motion picture production	0.15	0.16	0.20	0.35	0.42	0.47	0.58
214	Motion picture distribution and projection	1.07	0.93	0.68	0.13	8.19	7.09	5.19
215	Radio and TV programming	0.20	0.19	0.22	0.13	1.54	1.49	1.68
217	Other recreational and cultural services	0.00	0.00	0.32	0.25	0.00	0.00	1.25
222	Photographic studios including commercial photography and related services	0.88	1.00	0.83	0.36	2.42	2.74	2.28
224	Restaurants, cafes & other eating and drinking places	0.64	0.58	0.58	0.29	2.23	2.03	2.02
225	Hotels and motels	0.29	0.26	0.30	0.33	0.87	0.79	0.89
229	Public administration and defense	0.00	0.00	0.00	0.27	0.00	0.00	0.00

4. CONCLUSION

Various indicators (e.g., VAT-to-GNP ratio and VAT evasion rate) suggest that problems in VAT administration have not only persisted during the 1990s but also appear to have worsened. This study makes use of the 1994 Input–Output Table to estimate industry benchmarks for the ratio of VAT-able inputs to total output as well as the effective VAT rate. In so doing, it also attempts to decompose the sources of the leakage in VAT collections in 1999–2001.

While, on the aggregate, the VAT-able purchases of the firms under the Large Taxpayer Unit of the BIR are less than their total output in the current year, it appears that many of these firms do claim excessive input VAT credits. The ratio of the value of total purchases to total sales is higher than the corresponding I-O based benchmark in some 68% of large VAT-payers. In this regard, the use of industry benchmarking to automatically trigger audit would help reduce the leakage in VAT collection. To start with, the audit should focus on industries/sectors whose ratio of VAT-able purchases to taxable sales exhibit the greatest variance relative the I-O benchmark.

In addition, the large overhang of excess input tax credit that is carried over from one year to the next (amounting to P13 billion in 2001) suggests the need for a good monitoring system as lapses in tracking the utilization of said tax credits could be another source of leakage in the system.

Finally, it should be stressed that, to be credible, industry benchmarking requires that each grouping represent a fairly homogeneous set of firms/ taxpayers in terms of key characteristics. Since VAT liability is largely dependent on the input-output structure of firms. In this regard, the 38 major sectors currently being used by the BIR in classifying firms appears to be inadequate. Prospectively, the BIR should move towards a finer level of classification approaching at the minimum the I-O level of disaggregation.

Appendix Table 1
LIST OF I-O SECTORS CLASSIFIED TO VAT-EXEMPT AND VAT-LIABLE SECTOR

IO Code	Description	Exempt	IO Code	Description	Exempt	IO Code	Description	Exempt	IO Code	Description	Exempt
141	Mfr of pumps, compressors, blowers and airconditioners		165	Mfr of surgical,dental,medical and orthopedic supplies		189	Telegraph service		213	Motion picture production	/
142	Machine shops & mfr of non-electrical mach'y and eq. n.e.c.		166	Mfr of optalmic goods		190	Postal,Messengerial and other comm services, n.e.c.		214	Motion picture distribution and projection	
143	Mfr of electrical ind'l mach'y and apparatus		167	Mfr of toys and dolls exc. rubber and plastic toys		191	Banking institutions	/	215	Radio and TV programming	/
144	Mfr of radio and TV receiving sets, sound recording & reproducing eq., incl records and tapes		168	Mfr of stationers', artists' and office supplies		192	Investment, financing cos. & other non-banking inst'n exc. pawnshops	/ *	216	Theatrical production and entertainment	
145	Mfr of communication and detection equipment		169	Misc. mfg		193	Pawnshops		217	Other recreational and cultural services	
146	Mfr of parts and supplies for radio, TV & communication (semi-conductors)		170	Construction		194	Life insurance	/	218	Repair shops for motor vehicles	
147	Mfr of appliances and housewares		171	Electricity	/ *	195	Non-life and other insurance activities		219	Other repair shops, n.e.c.	
148	Mfr of primary cells and batteries and electric accumulators		172	Gas	/ *	196	Real estate development	/ *	220	Laundry, dry cleaning and dyeing plants	
149	Insulated wires and cables		173	Water	/ *	197	Letting, operating real estate, residential or non-residential,other real estate activities	/ *	221	Barber and beauty shops	
150	Mfr of current-carrying wiring devices, conduits & fittings		174	Wholesale trade & retail trade		198	Ownership of dwellings	/	222	Photographic studios including commercial photography and related services	
151	Mfr of electrical lamps, fluorescent tubes and other electrical apparatus & supplies, n.e.c.		175	Railway transport services	/	199	Legal services		223	Other personal services, n.e.c.	
152	Shipyards and boatyards		176	Busline operators	/	200	Bookkeeping, acctg., and auditing services		224	Restaurants, cafes & other eating and drinking places	
153	Mfr and assembly of motor vehicles		177	Public utility cars and taxicab operation	/	201	Engineering,architectural & technical services		225	Hotels and motels	
154	Rebuilding & major alteration of motor vehicles		178	Jeepney and autocalesa operation, tricycle and other road transport eq.	/	202	Advertising services		226	Other lodging places	
155	Mfr of motor vehicles parts and accessories		179	Operation of tourist bus and cars and rent-a-car services	/	203	Machinery and equipment renting and leasing		227	Public education services	/
156	Mfr. assembly of motorcycles & bicycles		180	Road freight transport & supporting services to land transport		204	Employment/recruitment agencies		228	Public health services	/
157	Mfr, assembly, rebuilding & major alteration of railroad equipment, aircraft, and animal and hand-drawn vehicle		181	Ocean passenger and freight transport	/ *	205	Business mgt & consultancy and market research services		229	Public administration and defense	/
158	Mfr of professional, scientific measuring a & controlling eq		182	Interisland shipping including inland water	/ *	206	Detective & protective services		230	Unclassified	/
159	Mfr of photographic and optical instruments		183	Stevedoring & other supporting services to water transport		207	Other business services				
160	Mfr of watches and clocks		184	Air transport	/ *	208	Sanitary and similar services				
161	Mfr & repair of furniture & fixtures, made primarily of metal		185	Tour and travel agencies		209	Private education services	/			
162	Mfr of jewelry & related articles		186	Customs brokers and other services allied to transport		210	Private hospitals, sanitaria & similar institutions	/			
163	Mfr of musical instruments		187	Storage & warehousing		211	Private medical,dental,veterinary & other health clinics and laboratories	/			
164	Mfr of sporting and athletic goods		188	Telephone	/ *	212	Other social and related community services				

* IO 171, 172, 173 - grantees of electricity, gas or water utility franchise are exempt
IO 181, 182, 184 -- passenger is exempt
IO 188 - International calls are exempt
IO 191, 192 - coverage under VAT deferred
IO 196,197 -- Low cost is exempt