

Statistics Canada  
Prices Division  
Goods and Construction Prices Section

# **The Machinery and Equipment Price Index 1997=100**

## **Concepts and Methods**

## **Preface**

This paper, *The Machinery and Equipment Price Index 1997=100: Concepts and methods*, is published on the occasion of the first releases to the public of the rebased MEPI to a 1997 time and weight base.

The paper contains an outline and description of the series produced, their methodology and data sources. It is intended for a varied audience, ranging from users interested in general information to individuals seeking more technical or theoretical details.

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## Table of Contents

	Page
Introduction	1
Major Characteristics of the MEPI	1
Classification of the Index	1
Aggregation of the Index	2
Computation of the Index	2
Derivation of the Weighting Diagram	3
Price Sources	4
The Industrial Product Price Index	4
Quality Change	5
Missing Monthly Prices	6
United States Bureau Of Labor Statistics Producer Price Index	6
Uses of the MEPI	6
Comparison to the 1986=100 MEPI	7
Effect of Shifting Weights	7
Effect of Classification Change	8
Introduction Of Computer Software Products Development into MEPI	8
Notes to Users	9
Revision Policy	9
Dissemination	9
Appendix 1 Table 1 MEPI Industry Weights	10
Appendix 11 Table 2 MEPI Commodity Weights	13

Appendix 111	Charts 1 and 2, Comparison Of 1986=100, 1997=100 MEPI	14
Appendix 1V	Chart 3 Comparison Of 1986=100, 1997=100 MEPI	15
Appendix V	Charts 4 and 5, Weights 1986=100, 1997=100 MEPI	16

# **MACHINERY AND EQUIPMENT PRICE INDEX 1997=100**

## **INTRODUCTION**

The Machinery and Equipment Price Index (MEPI) measures price change for annual gross additions to capital for machinery and equipment by industry of purchase. Price indexes are calculated for industries, major groups of industries, commodities, and an aggregate total. These base year 1997=100, quarterly and annual average indexes are available from 1997. They contain a revised basket and updated weights. This series replaces the 1986=100 MEPI that was available for the period 1971 to 2005 on CANSIM matrixes 327-0013, 327-0014 and 327-0016.

## **Major Characteristics of the MEPI**

The MEPI provides quarterly estimates of price changes for machinery and equipment purchases relative to annual gross additions to capital by Canadian industry of purchase. As an economic indicator, the MEPI provides information on the changing costs of capital investment by Canadian purchasers. This information is organized from both the industry and commodity perspectives. In addition, the MEPI tracks these price movements on a domestic and imported basis. The MEPI is used by the Canadian System of National Accounts (SNA) to calculate constant price estimates of final demand purchases of capitalized machinery and equipment, through the deflation process.

## **Classification of the Index**

The industry designations used for the MEPI are those established by the Input-Output (I-O) Table for Final Demand expenditures by Machinery and Equipment (M&E) categories<sup>1</sup>. The I-O Table is part of the integrated SNA statistical framework. These provide 51 industries based on the 1997 North American Industry Classification System (NAICS). The classification and publication of indexes is at the I-O W-level (lowest detail). One of the I-O industries (Used cars, equipment and scrap), is excluded as the MEPI specifically measures price change for new equipment. (see Appendix Table 1).

The commodity classification consists of 106 I-O W- level commodities, for which an M&E value was tabulated in 1997. Indexes are published for 36 commodities. Some commodities are designated as “Secure” on CANSIM, meaning there is not enough pricing coverage to meet the requirements of the *Statistics Act* (see Appendix Table 2 for a listing of major commodities). A complete listing of all commodities is contained in CANSIM Table 327-0041.

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<sup>1</sup> See The input-output structure of the Canadian economy, Canada Catalogue 15-201XIE Tab 8

## Aggregation of the Index

For each of the 51 industries and 106 commodities, separate domestic, imported and total indexes are calculated. Appendix Table 1 outlines the 1997 percentage distribution of machinery and equipment by purchasing industry, and by domestic and imported shares. This data constitutes the base period weights used for the industry index compilation.

Appendix Table 2 presents details of the 1997 weighting pattern by I-O W-level commodity, by domestic and imported share, for the most important commodities.

There are separate paths through the hierarchical index structure and the total index whether calculated from a commodity component, or from an industry component, will be identical.

## Computation of the Index

The reference year for both the time and weight base for the MEPI is 1997. Because of this coincidence of time and weight base, the 1997 based MEPI may be described as a Laspeyres price index. A general Laspeyres index formula has been used where:

$$P_{t/97}^{(agg)} = \sum_i \frac{W_{97}^i}{\sum_i W_{97}^i} \cdot P_{t/97}^i$$

$P_{t/97}^{(agg)}$  is the movement of the composite of weights and prices between the base period, 1997, and the subsequent time period, time t.

$W_{97}^i$  is the expenditure value of the element i in 1997

$P_{t/97}^i$  is the price change for element i from 1997 to time t;

$\sum_i$  indicates summation over all elements i in the defined aggregate.

An aggregate index,  $P_{t/97}^{(agg)}$  comparing prices between the given period t and those of 1997, is computed as a weighted average of the corresponding component indexes,  $P_{t/97}^i$ , where the weights of each component are proportional to their value in 1997.

This formula is used for aggregating indexes step-by-step, from the lowest level of aggregation to that of the total index. At the lowest level, price relatives for particular machinery and equipment items, derived from the observed prices, are used to calculate component indexes  $P_{t/97}^i$ , which are aggregated to derive specified commodity indexes. These, in turn, serve as component indexes ( $P_{t/97}^i$ ) at the next step of the aggregation structure, and so on up to the total MEPI.

The calculations are performed on a monthly basis since most of the basic source data is available monthly. However, for publication purposes, quarterly price indexes are derived as simple averages of the monthly indexes. This is done because price movement for capital goods is often less evident in shorter time intervals than it is for commodities used for current consumption.

### **Derivation of the Weighting Diagram**

The weights used in the MEPI represent shares of capital investment by industry for year 1997, valued at 1997 purchaser prices. The weights were derived from the Final Demand matrix of the Input-Output Table, (Input-Output Structure of the Canadian Economy in Current Prices, survey number 1401).<sup>2</sup> The original source of the data is the survey Capital and Repair Expenditures, Actual, Preliminary Actual and Intentions (survey number 2803), Investment and Capital Stock Division.

In this annual survey the machinery and equipment expenditures are defined to include gross additions to capital of new goods with a productive life of one year or more. Respondents are asked to report as capital expenditures all purchases charged to fixed asset accounts. The expenditures cover the cost of new machinery and equipment that is, all capitalized costs associated with the procurement of the items, whether installed by the owner, or by manufacturers or contractors (including architectural, legal and engineering fees). Adjustments are made to take account of capital items which have been charged to operating expenses; deduction for scrap or trade-in of old assets are excluded. Expenditures on ordinary repair and maintenance are excluded unless the repair costs are large enough to materially lengthen the expected serviceable life of the assets, increase its capacity, or otherwise raise its productivity. Any grants or subsidies are included in the gross expenditures.

The I-O Supply identity  $Supply = Output - Exports + (Imports - ReExports)$  was used to establish Domestic and Import values by commodity. The identity may be restated as:

$$\begin{aligned} \text{Domestic Share} &= \text{Output} - \text{Exports} \\ \text{Import Share} &= \text{Imports} - \text{ReExports} \end{aligned}$$

These share proportions were used to split commodity expenditures over all M&E industries. This assumes that the Domestic/Import expenditure share by commodity is identical over all industries. It is necessary to make this assumption, as the I-O data does not allow for the calculation of shares by specific industry.

A more detailed weighting pattern below the commodity level, whether for domestic or imported commodities, was difficult to estimate because of a lack of expenditure data. At the sub-commodity level equal weights were assigned, except for the commodity Software products development, where existing data was available.

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<sup>2</sup> Input-output structure of the Canadian economy 1997-98, Statistics Canada catalogue 15-201XIE

## **Price Sources**

Ideally, the MEPI should measure the change over time in prices paid by purchasers for machinery and equipment bought under comparable conditions of sale (inclusive of installation costs). Due to resource limitations, a comprehensive purchaser price survey is not currently available to obtain most price data. In its place, existing sources of producer price data and indexes are used as an approximation. The vector of I-O machinery and equipment expenditures at producer prices is equal to the vector of purchaser prices minus the trade, transport and tax margins. Conceptually the MEPI should monitor prices at the purchaser price level; in reality most prices are measured at the producer level, with adjustments made for the tax margin.

Domestic and imported price indexes are adjusted for changes in the federal sales tax (GST) rate. Adjustments are made using the effective tax rate as calculated from the latest I-O Final Demand Table. The effective tax rate is defined as total GST paid on all commodities divided by the sum of the M&E expenditures by purchasing industry. A necessary assumption is that the same effective tax rate applies to all commodities purchased by an industry. Since most Goods producing industries recover their GST on purchased inputs, their effective tax rate approaches zero per cent. However, some Service industries are tax exempt for a portion of their input purchases, these industries have an effective rate somewhere between zero and the legislated GST rate. The import price indexes are also adjusted for changes in the Canadian dollar exchange rate; the exchange rate applied is the Bank of Canada noon rate, monthly average.

The two major sources of producer price data incorporated into the MEPI are the prices collected for the Industrial Product Price Index (IPPI) Prices Division and the price indexes published by the United States Bureau of Labor Statistics (BLS) in the Producer Price Index. In addition, the Computer Peripherals Price Indexes ( CPPI) and the Commercial Software Price Index (CSPI), which are produced in Prices Division outside the IPPI program are utilized in the MEPI. Both these series are actually purchaser price indexes which meet the conceptual requirements mentioned above. On the import side, Bank Of Japan Export Price Indexes are used in certain commodities to augment the BLS price sources. The IPPI provides detailed information on manufacturers' selling prices of specified domestic machinery and equipment. The US BLS Producer Price Indexes are used for most imported machinery and equipment (imports of United States machinery represented about 76% of total machinery imports to Canada in 1997). Currently there are some 1000 domestic prices from the IPPI and 150 imported price indexes from the BLS used in the MEPI.

### **The Industrial Product Price Index**

The IPPI measures price changes for major commodities sold by manufacturers in Canada. The prices collected are for goods sold free on board (f.o.b.) the factory gate. As a result, the prices covered by the IPPI refer not to what a purchaser pays but to what the producer receives. They exclude all indirect taxes such as sales taxes, transportation service performed by a common carrier and any distribution services performed by the retail or wholesale trade industries.



The sample universe of the IPPI consists of those manufacturing establishments residing and producing in Canada, as identified through the Annual Survey of Manufactures (ASM). The industries and commodities in the IPPI are classified according to the 1997 NAICS system. The IPPI is designed to measure "pure" price change between two periods of time (i.e. to measure price change excluding any difference which results from changes in quality of observed commodities). Therefore, prices paid for identical products sold on the same terms are necessary for comparison between periods.

For the IPPI, collections are made monthly (on the 15th or nearest earlier date in the reference month) of domestic manufacturers' prices at the first stage of selling after production. Reported prices are net of trade discounts for quantity or other special discounts, rebates or allowances. Prices for promotional deals or sales are allowed to influence the prices reported, but not normally the prices from close-out sales. Initial price quotations are not subsequently adjusted for contract payments made under an escalation agreement for long-term shipments.

### **Quality Change**

Though the same product model specification is priced over time, eventually models are discontinued or replaced with new specifications. The adjustment for quality change is an attempt to estimate the ratio of the value of economic activity embodied in the old and new specification. This may be done directly or indirectly.

The indirect approach may be used when both specified products have been on the market simultaneously, the required estimate may be taken as the ratio of the prices. This method is valid when sales conditions are identical for both products ( i.e. neither product is discounted to influence sales).

The direct method is necessary when products change their specification without notice. In these situations it is not possible to observe prices for an overlap period. The manufacturer is asked directly for an estimate of the costs of producing the new product and how they compare to the costs of producing the old. This ratio of costs is divided into the ratio of prices reported. If the ratio of prices is higher than the ratio of costs, the adjusted series will show a price increase at the time of substitution. However, if the ratio of prices is lower, the series will show a price decrease.

Quality change in the CPPI is estimated by a set of hedonic equations which attempt to explain the changes in a variable for a computer by relating them to changes in the characteristics of the computer.

In the CSPI overlapping matched price samples implicitly measure quality adjustment.

### **Missing Monthly Prices**

Missing or late price information in a given month is not considered to cause significant distortion to the MEPI calculation. The MEPI has a revision period of four previous quarters, which gives an opportunity to incorporate late responses, or prices for new models, into the indexes. The nature of complex machinery and equipment purchases suggests that it is unnecessary to monitor prices on a monthly basis. The MEPI is published as a quarterly average series, which again allows time to deal with late responses. Missing price quotations are normally dealt with by one of three options. The price from the previous period may be carried forward. The price for the missing quotation may be imputed to the price movement of a similar product. The respondent may be contacted to supply a quotation or provide some background on the absent data.

### **United States Bureau Of Labor Statistics Producer Price Index**

The BLS Producer Price Index employs similar concepts as those outlined for the Canadian IPPI. Both price series aim to provide measures of "pure" price change; both employ the specification pricing approach to collect manufacturers' selling prices; both utilize prices net of quantity and trade discounts and exclusive of any indirect taxes; both can be said to employ in certain cases, an input cost approach to the evaluation of quality change.

As with the price data for domestic machinery and equipment, the BLS employs the model specification pricing technique, whereby all of the conditions of sale must be identified and held constant through time. Individual items included in the price indexes will be changed if a model disappears, or if there is gradual replacement by a new specification. Three procedures for handling these problems are employed: (i) a periodic review of selection of products to be priced and a corresponding re-assignment of the weights of each; (ii) a periodic updating of the sample of detailed products and companies; and (iii) replacement of out-of-date models with new specifications using the input cost approach to value the quality change.

### **Uses of the MEPI**

Within Statistics Canada the most important use of the MEPI is in the deflation of the appropriate components of gross fixed capital formation in the SNA. The basic structure of the index in terms of commodities, industries, and weighting pattern has been designed with this task in mind. Since 2001, SNA has measured expenditure based GDP components using chained Fisher volume indexes. In the Income and Expenditure Accounts and the I-O Final Demand matrix, the M&E current dollar expenditures are deflated with MEPI commodity price indexes. These calculations form part of the Laspeyres component of the Fisher volume indexes<sup>3</sup>.

The MEPI will also be used to inflate capital expenditures in financial and project planning and monitoring, and in the price escalation of contracts between users and suppliers of machinery and equipment. Most of these uses are directed to specific instances of capital expenditures, unlike Statistics Canada uses which are directed toward estimates at higher levels of aggregation.

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<sup>3</sup> See Chain Fisher Volume Index methodology Statistics Canada Catalogue 13-604-MIE no 42.

In making such applications, the user should ensure that the published index is appropriate for the intended use. In utilizing any of the price indexes attempts should be made to match as closely as possible the price index and the value series. Generally a lower level of index aggregation and analysis is preferable for these situations. This approach may permit the user to introduce specific weights appropriate to the application. For example, all the MEPI weights are fixed at their 1997 levels. Over time these proportions may become outdated. Substitution of more current weights with the price indexes allows analysis more appropriate to current economic conditions.

As outlined in the section on Prices above, the prices used in the index calculations omit installation charges, freight rates, insurance, legal, and other fees. The omission of these fees causes difficulties when a specific user requires accurate restatement of costs, as in an escalation contract. Capital goods by their nature tend to be unique to the individual purchaser. This should be considered in any intended use of the indexes in formal contracts.

### **Comparison to the 1986=100 MEPI**

There are no conceptual differences between the 1997=100 MEPI and its 1986 based predecessor. The major differences between the two series arise from an updated weighting pattern and a change to the industry classification system. Appendix Charts 1 to 3 compare the movement in the two indexes over the 1997 to 2005 period.

### **Effect of Shifting Weights**

The weights of the 1986 based MEPI include quantities for the years 1979-83 valued at 1986 prices. In effect the weights for the index may be expressed as  $P_{86}Q_{79-83}$ . The 1997 based index has weights and prices for 1997. To analyze the effect of shifting quantity weights both are expressed in prices of the same year, the  $P_{86}Q_{79-83}$  weights have been adjusted for price change to 1997 using the published price indexes. Comparison of the two expenditure patterns is complicated by the classification change between the periods. The weights in the 1986 based series as identified on the charts are classified by the 1970 Standard Industrial Classification (SIC), while the 1997 weights are derived from the North American Industry Classification System (NAICS). In calculating the revised series considerable effort went into preparing a concordance of the two classification systems. This concordance while not perfect does allow an approximate comparison as presented in Appendix Chart 4. The per cent marks on the chart represent the overall weight in the index of six industry groups. This illustrates the dramatic shift in weights from primary and manufacturing industries in the 1980s to service and government industries in 1997. The importance of manufacturing in total machinery and equipment investment declined by approximately 28% while service industries increased by 120%. Similarly government industries increased by 72% while primary industries declined by 60%. This shift in the Canadian economy towards the service sector has been well documented; the shares of total GDP by manufacturing and service industries reflect the same changes.<sup>4</sup> The

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<sup>4</sup> See Service Indicators, 2<sup>nd</sup> Quarter 2003, Statistics Canada catalogue 63-016.

capital expenditure on machinery and equipment by service industries is significantly different from the purchases of manufacturers.

The importance of the import share of the total MEPI weight has increased since the original indexes were calculated. The shares of domestic and import components in the 1986 based MEPI were 48 and 52 per cent respectively (see Appendix Chart 5). In 1997 these proportions were 32 and 68 per cent; the revised MEPI is heavily weighted towards imported machinery and equipment. The price indexes used in the import component are adjusted for exchange rate changes and for changes to the effective GST rate. In periods of exchange rate fluctuation, the indexes will be influenced by shifts in the value of the US/CDN dollar. With the heavier weight to imports in the 1997 based MEPI, this influence is more pronounced.

### **Effect of Classification Change**

The NAICS classification system differs significantly from the 1970 SIC. In any concordance between the two classification systems descriptive titles may be used to match industries, but the makeup of the new industries may vary considerably. The largest differences under NAICS classification occur in the service industries. The SIC M&E industry labeled commercial services is split into eight industries in the NAICS system. While it is not possible to quantify the effect of classification change, it is worth noting that it is the service sector which experienced the most index revision, and also the sector with the most pronounced shift in weight.

### **Introduction of Computer Software Products Development into MEPI**

In 2001 Canada implemented a new treatment of software investment in its System Of National Accounts. The change followed the recommendation in *System Of National Accounts 1993*<sup>5</sup> that business and government acquisition of software be treated in national accounts as an investment as opposed to a current expenditure. The commodity Software products development is not included in the 1986 based MEPI, but in the 1997 index it has the largest commodity weight. In effect its weight increases from 0 % to 9.2% in the 1997 based series. Prices for software, as for other computer products are falling, or are rising modestly relative to other machinery and equipment over the 1997-2005 period. Introduction of capitalized software into the MEPI has the effect of dampening overall index movement; it is one reason that the revised index moves at a level below the 1986=100 series.

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<sup>5</sup> See Commission of European Communities et al., 1993, System of National Accounts.

## **Notes to Users**

### **Revision policy**

Indexes for the most recent four quarters are subject to revision.

### **Dissemination**

The MEPI indexes are published quarterly and released officially with an announcement in *The Daily* (Catalogue 11-001), which is available on Statistics Canada's Internet site [www.statcan.ca](http://www.statcan.ca). All publicly available indexes are posted on CANSIM tables 327-0041 and 327-0042 at the same time as the release in *The Daily*. Selected indexes are also published in the quarterly release *Capital Expenditure Price Statistics*, (Catalogue 62-007XIE), which is available electronically free of charge. Users may also choose, usually for a fee, to receive responses to special requests by email, phone, fax or letter. For additional information, please contact Client Services of Prices Division at 613-951-9006 or toll free at 1-866-230-2248, by fax at 613-951-1539, or by email at [prices-prix@statcan.ca](mailto:prices-prix@statcan.ca).

## Appendices

**TAB 1**

<b>Machinery and Equipment Price Index Industry Weights 1997 Prices (P<sub>97</sub>Q<sub>97</sub>)</b>	<b>I-O W- level Code</b>	<b>Total</b>	<b>Domestic</b>	<b>Imported</b>
<b>Industry</b>			<b>% Total Index</b>	
<b>Total machinery and equipment</b>		<b>100.00</b>	<b>32.03</b>	<b>67.97</b>
Crop and animal production	49	4.07	1.11	2.96
Forestry and logging	50	0.27	0.08	0.19
Fishing, hunting and trapping	51	0.08	0.04	0.04
Support activities for agriculture and forestry	52	0.10	0.06	0.04
<b>Mines, quarries and oil wells</b>		<b>4.26</b>	<b>1.15</b>	<b>3.11</b>
Oil and gas extraction	53	1.53	0.40	1.13
Metal ore mining	54	0.83	0.24	0.59
Coal, non-metallic mineral mining and quarrying	55	0.62	0.16	0.46
Support activities for mining and oil and gas extraction	56	1.28	0.35	0.93
Utilities	57	3.55	0.87	2.68
Construction	58	3.54	0.80	2.74
<b>All manufacturing</b>		<b>22.34</b>	<b>5.42</b>	<b>16.92</b>
Food and beverages		1.89	0.34	1.55
Food manufacturing	59	1.50	0.25	1.25
Beverage manufacturing	60	0.39	0.09	0.29
Tobacco manufacturing	61	0.12	0.02	0.10
Textile and textile product mills	62	0.42	0.04	0.38
Clothing manufacturing	63	0.15	0.02	0.13
Leather and allied product manufacturing	64	0.03	0.01	0.02
Wood product manufacturing	65	1.52	0.19	1.33
Paper manufacturing	66	3.09	1.03	2.06
Printing and related support activities	67	0.42	0.08	0.34
Petroleum and coal products manufacturing	68	0.38	0.08	0.30

Chemical manufacturing	69	1.62	0.61	1.01
Plastic and rubber products manufacturing	70	1.09	0.10	0.99
Non-metallic mineral product manufacturing	71	0.56	0.10	0.46
Primary metal and fabricated metal product manufacturing	72	3.46	0.84	2.62
Machinery manufacturing	73	0.90	0.22	0.68
Computer, electronic and electrical product manufacturing	74	1.19	0.25	0.94
Transportation equipment manufacturing	75	5.08	1.41	3.67
Furniture and related product manufacturing	76	0.26	0.04	0.22
Miscellaneous manufacturing	77	0.16	0.04	0.12
<b>Trade</b>		<b>8.38</b>	<b>3.87</b>	<b>4.51</b>
Wholesale trade	78	4.32	1.92	2.40
Retail trade	79	4.06	1.94	2.11
Transportation (excluding pipeline transportation)	80	7.66	2.44	5.22
Pipeline transportation	81	1.18	0.41	0.77
Warehousing and storage	82	0.26	0.12	0.14
<b>Finance, insurance and real estate</b>		<b>19.90</b>	<b>6.31</b>	<b>13.59</b>
Finance and insurance	84	14.29	4.94	9.36
Real estate and rental and leasing services	85	5.61	1.38	4.23
Private education services	89	0.12	0.02	0.10
<b>Education services (excluding private), health care and social assistance</b>		<b>2.09</b>	<b>0.76</b>	<b>1.33</b>
Universities	96	0.70	0.28	0.43
Health care (excluding hospitals) and social assistance	90	0.35	0.16	0.19
Hospitals	97	1.04	0.32	0.72
<b>Other services (excluding public administration)</b>		<b>16.39</b>	<b>6.16</b>	<b>10.23</b>
Information and cultural industries	83	8.04	3.19	4.85
Professional, scientific and technical services	86	3.42	1.17	2.25
Management of companies and enterprises	87	0.34	0.19	0.15
Administrative and support and waste management	88	1.24	0.41	0.83
Public education services	95	0.71	0.25	0.46
Arts, entertainment and recreation	91	0.51	0.23	0.28
Accommodation and food services	92	0.62	0.24	0.38
Other services	93	1.51	0.47	1.03
<b>Public administration</b>		<b>5.81</b>	<b>2.41</b>	<b>3.40</b>

Federal government public administration	98	3.07	1.18	1.89
Provincial and territorial public administration	99	1.32	0.72	0.60
Local, municipal and regional public administration	100	1.42	0.51	0.91

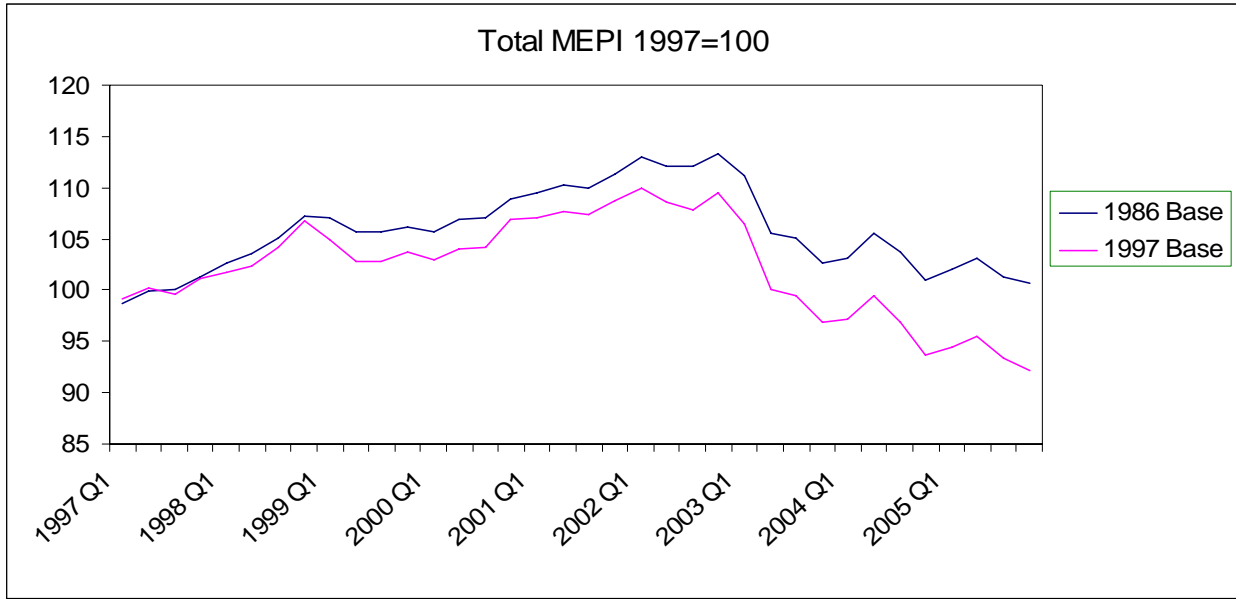


TAB 2

**Machinery and Equipment Price Index**  
**Weights For Major Commodities**  
**1997 Prices (P<sub>97</sub>Q<sub>97</sub>)**

Status	Input-Output W-Level Commodity	Total	Dom % Total Index	Imp
Public	2050 Office furniture	1.92	1.32	0.60
Public	2069 Commercial and institutional furniture	2.58	2.08	0.51
Public	2730 Metal tanks	0.24	0.22	0.02
Public	2962 Tool accessories	0.87	0.36	0.51
Public	31493 Crawler tractors	0.42	0.03	0.39
Public	3150 Other agricultural machinery	2.36	0.68	1.68
Public	3162 Mechanical power transmission equipment	0.25	0.01	0.24
Public	3170 Pumps, compressors, fans and blowers	1.78	0.59	1.19
Public	3180 Conveyors, elevators and hoisting machinery	1.13	0.58	0.55
Public	3190 Industrial trucks and material handling equipment	0.81	0.34	0.47
Public	3200 Fans and air circulation units, not industrial	0.25	0.02	0.23
Public	3211 Packaging and bottling machinery	0.41	0.13	0.28
Secure	3212 Air purification equipment	1.13	0.11	1.02
Public	3213 Other general purpose machinery	0.85	0.02	0.84
Public	3220 Industrial furnaces, kilns and ovens	0.25	0.07	0.18
Public	32311 Construction machinery	2.32	0.08	2.24
Public	32312 Mining and oil and gas field machinery	1.72	0.59	1.13
Secure	3232 Logging and pulp and paper industry machinery	1.62	0.63	0.99
Public	3233 Metal working machinery	2.07	0.43	1.64
Public	3234 Other industry specific machinery	7.63	0.41	7.22
Public	3235 Service industry machinery	1.31	0.74	0.57
Public	3262 Air conditioning and refrigeration equipment, commercial and transport	0.68	0.11	0.57
Public	3291 Computers and peripherals equipment such as terminals, printers and storage devices	8.71	0.09	8.62
Secure	3300 Aircraft	3.46	0.87	2.59
Public	33401 Automobiles, excluding passenger vans	6.61	0.88	5.74
Public	33402 Passenger vans	4.86	1.08	3.78
Public	3350 Trucks, road tractors and chassis	5.56	0.98	4.58
Public	3360 Buses and chassis	0.58	0.10	0.48
Public	3392 Commercial trailers and semi-trailers	2.29	1.34	0.95
Secure	3580 Telephone and related equipment, including fax machines	5.21	2.52	2.69
Public	3599 Broadcasting and radio communications equipment	1.99	0.02	1.97
Public	3650 Welding machinery and equipment	0.62	0.22	0.40
Public	3661 Power generation and marine propellers, non-electric	1.29	0.16	1.13
Public	3689 Industrial electric equipment, including safety	0.46	0.06	0.40
Public	4989 Laboratory and scientific instruments and flight simulators	1.47	0.16	1.30
Public	4999 Measuring and controlling instruments	0.71	0.06	0.65
Public	5751 Software products development	9.20	9.19	0.00

**Chart 1**



**Chart 2**

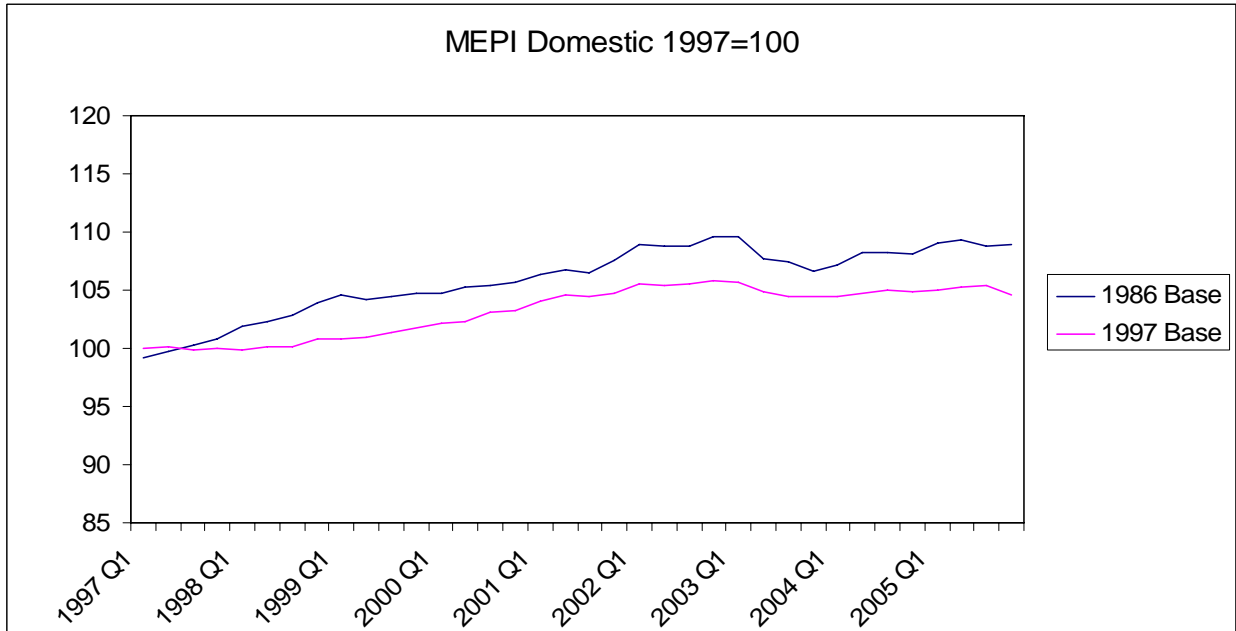


Chart 3

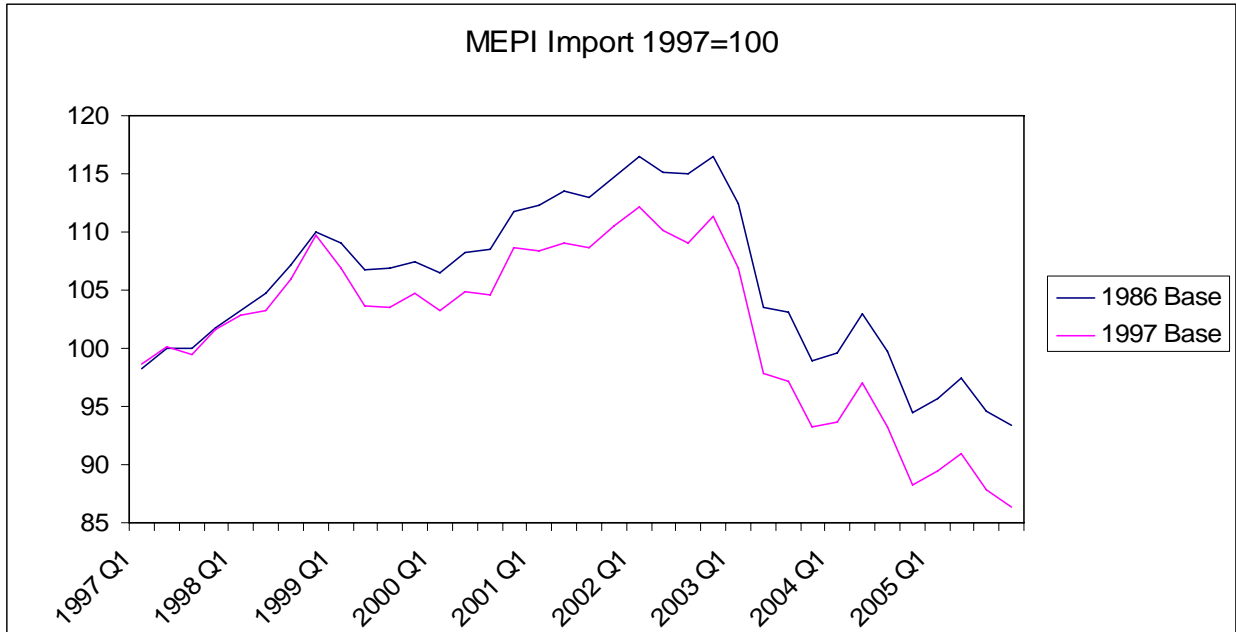


Chart 4

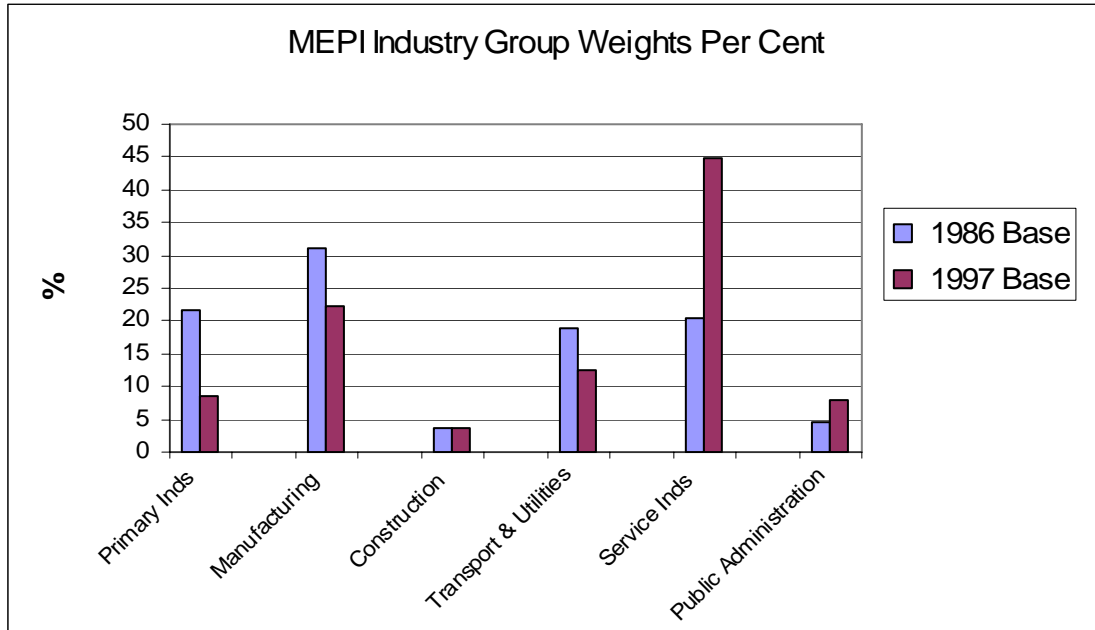


Chart 5

