

Seasonal Adjustment of Time Series: Garments Exports

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1.0 Introduction

The important role of exports in a developing country like the Philippines cannot be undermined. Aside from being the country's major foreign exchange earner, exports contribute significantly to addressing the problems of unemployment and lack of appropriate technology. As such, export development has been identified as a primary tool to propel the country's economic growth and development.

For these goals to be achieved, careful formulation of relevant export strategies is necessary. It is therefore important to monitor and maintain data on exports which would serve as a basis for such policy formulation. In addition, policy makers must be able to analyze such data and read trends without being hampered by masking effects of seasonal movements. Seasonal adjustment of the original series is then necessary to isolate such seasonal fluctuations and come up with a series which is reflective of actual trends.

Export shipments essentially include all goods leaving the country which are properly cleared through the Bureau of Customs (BOC). Data on export shipments are compiled by the National Statistics Office (NSO) from export declarations filed by exporters with the BOC which are then matched with outward shipping manifests. The FOB value, volume and country of destination for each commodity shipment are encoded and aggregated monthly and annually by the NSO and reproduced into several production print-outs.

From the above basic data, the Department of Economic Statistics (DES) of the Bangko Sentral ng Pilipinas (BSP) compiles export statistics presented into summarized table formats, among which is the breakdown by major commodity groups. Using this format, exports are classified into (1) coconut products; (2) sugar and sugar products; (3) fruits and vegetables; (4) other agro-based products; (5) forest products; (6) mineral products; (7) manufactures; (8) special transactions; and (9) reexports. Exports of manufactures are classified into sub-groups, the biggest of which are electronics and garments.

This exercise attempts to generate a seasonally adjusted series on garments exports which is the only sub-group of manufactures that exhibited seasonality.

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Garments exports are composed of regular garments exports made of local materials and those manufactured from materials imported on consignment basis.

2.0 Seasonal Adjustment Using X11-ARIMA

Each data series (covering monthly data from January 1985 to December 1992) on the shipment values of the major export commodity groups was run separately using both additive and multiplicative seasonal adjustments in order to determine which of the series reflects seasonal behavior. However, results showed that seasonality could not be identified in all the series except in that of manufactured exports (Table 1). Data on these commodity groups (except manufactures) were then aggregated into one series, unmanufactured exports. This particular series was likewise tested for seasonality using a narrower period of coverage, 1988-1992. Still no seasonality was detected in the series (Table 2). Considering that all the other series do not exhibit seasonal fluctuations, efforts were then concentrated on generating the best seasonally adjusted series for manufactures (MFTRSX).

Judging from the results of the preliminary run on MFTRSX, the original data series proved to be highly irregular. As such, data coverage had to be reduced to only five years, 1988-1992. At this point, the multiplicative method of deseasonalization was already found to be more appropriate and was thus employed in the succeeding runs. Results, however, still showed the high degree of irregularity of the data. After several attempts were made at prior adjustments to the original series in order to extract better seasonal factors, favorable results were achieved and a seasonally adjusted series for manufactures was generated (Annex 3). When the actual monthly data for 1992 became available in July 1993, another run with prior adjustments was made. The same options used in the previous run was forced in the adjusted series. However, even after several adjustments (all revised monthly data in 1992 were adjusted), results showed that irregular factors were still dominant over the seasonal factors. The values of M1 (relative contribution of the irregular over three months span) and M2 (the relative contribution of the irregular component to the stationary portion of the variance) were still more than one. At this point, parallel runs were made on the two biggest components of manufactured exports, namely electronics and garments which comprised 37 percent and 29 percent (together the two make up 66 percent of manufactures), respectively. Exports of electronics was found to be highly irregular and was rejected at the level of 1.43 with $M1 = 2.783$ and $M2 = 3.0$. On the other hand, the preliminary run on garments showed favorable results. It was accepted at 0.53 without prior adjustments and all values of M were less than one, except M6 (year on year changes in the irregular compared to the year to year changes in seasonal) which was 1.148. Results of the two runs showed that the seasonality in manufactured exports brought about by the seasonality in garments was very much affected by the irregularity in electronics whose relative contribution of irregular to the stationary was 3.0 (Annex 4).

In September 1993, data on the first six months of the year was already available and a run was made on the series on garments from January 1988 to June 1993. The model used was $(0, 1, 1) (0, 1, 1)$ with log transformation which was the same

option in the previous run. Results showed that all measures were in the acceptance region (all values of M were less than one), even better than the series of 1988 to 1992.

3.0 Analysis of Seasonally Adjusted Series Until Second Quarter of 1993

The seasonally adjusted series on garments exports showed that it grew from only \$1.3 million in 1988 to \$2.1 million in 1992 posting an average annual growth of 13.2 percent. This increasing trend is reflective of the changing structure of the country's exports, more particularly the shift from more volatile agricultural and unprocessed products to exports of highly value-added and high market potentials.

Analysis of the monthly data on garments exports reveals that higher export values are usually recorded during the second semester of the year. Shipments of garments are generally at peak levels during the fourth quarter when additional and last minute orders for the Christmas season are delivered. Moreover, exporters are usually accelerating their shipment activities during this time in order to meet year-end deadlines for their backlog orders and delayed shipments. The low export values in the first quarter may be traced to the slowdown in demand in importing countries. January figures are usually the lowest since exporters have already shipped most of their products in December.

Following this seasonal pattern, monthly inspection of garments exports in 1992 showed a low value in January and a high value in November. Shipment of garments in January were valued at \$156 million, 6.8 percent higher than its year-ago value but 7.1 percent lower than the level in December 1991. December exports at \$174 million was actually the lowest in the second semester of 1992, although 3.6 percent higher than its year-ago level. This may be traced to the poor performance of exports as a result of the then worsening power situation.

Moderate rates of growth and even declines in the value of garments exports were observed during the first semester of 1993. Production activities of most export-oriented industries were adversely affected by the continued deterioration in power supply.

On a quarter on quarter changes, garments exports in the second quarter of 1993 increased by 5.1 percent from its first quarter level, lower than the 7.5 percent rise from the year-ago level. Exports of garments to the US, the Philippines' biggest market, reached \$337 million, an 11.7 percent growth over the same period last year. This pushed the country's exports to quota markets which accounted for over 80 percent of total earnings, to \$430 million compared to \$397 million a year ago.

Annex 1 Deseasonalization of Time Series: Merchandise Exports, 1985-1992
By Major Commodity Groups (Preliminary Runs)

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
COCO	Exports of Coconut Products	Monthly 1985-1992	ADDITIVE	Rejected at 1.55	DO NOT Deseasonalize the series: Identifiable seasonality not present, no moving seasonality
			W/ TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M7= 1.345	
			MAVS 3x5	M8= 1.333	
			MAVTC 13-term	M9= 1.154	
				M10=1.610	
			MULTIPLICATIVE	Rejected at 1.66	
			W/ TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
All models failed	M5= 1.007				
MAVS 3x5	M7= 1.590				
MAVTC 13-term	M8= 1.490				
	M9= 1.360				
	M10=1.869				
AGROBX	Exports of Agro-Based Products	Monthly 1985-1992	ADDITIVE	Rejected at 1.42	DO NOT Deseasonalize the series: Identifiable seasonality probably not present, no moving seasonality
			W/ TDR	Check M1= 3.000	
			No Easter	M2= 2.619	
			Model 022 011	M7= 1.079	
			MAVS 3x5	M8= 1.380	
			MAVTC 13-term	M9= 1.141	
				M10=1.611	
				M11=1.496	
			MULTIPLICATIVE	Rejected at 1.53	
			W/ TDR	Check M1= 3.000	
No Easter	M2= 2.673				
Model 022 011 LOG	M5= 1.007				
MAVS 3x5	M7= 1.217				
MAVTC 13-term	M8= 1.582				
	M9= 1.382				
SUGARX	Exports of Sugar and Products	Monthly 1985-1992	ADDITIVE	Rejected at 2.01	DO NOT Deseasonalize the series: Identifiable seasonality probably not present, no moving seasonality
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M3= 2.262	
			MAVS 3x5	M5= 3.000	
			MAVTC 23-term	M7= 1.228	
				M8= 1.578	
				M9= 1.462	
				M10=2.176	
			MULTIPLICATIVE	Rejected at 2.01	
No TDR	Check M1= 3.000				
No Easter	M2= 3.000				
All models failed	M3= 2.262				
MAVS 3x5	M5= 3.000				
MAVTC 13-term	M7= 1.228				
	M8= 1.578				
	M9= 1.462				
	M10=2.176				

Annex 1 Deseasonalization of Time Series: Merchandise Exports, 1985-1992
By Major Commodity Groups (Preliminary Runs)

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
PETROX	Exports of Petroleum Products	Monthly 1985-1992	ADDITIVE	Rejected at 2.01	DO NOT DESEASONALIZE THE SERIES: Identifiable seasonality not present, no moving seasonality
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M5= 3.000	
			MAVS 3x5	M7= 2.318	
			MAVTC 23-term	M8= 1.439	
				M9= 1.188	
				M10=1.794	
			MULTIPLICATIVE	Rejected at 2.17	
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M5= 3.000	
			MAVS 3x5	M7= 2.292	
			MAVTC 13-term	M8= 1.769	
	M9= 1.409				
	M10=2.113				
MINERX	Exports of Mineral Products	Monthly 1985-1992	ADDITIVE	Rejected at 2.01	DO NOT DESEASONALIZE THE SERIES: Identifiable seasonality not present, no moving seasonality
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M5= 3.000	
			MAVS 3x9	M7= 2.318	
			MAVTC 23-term	M8= 1.439	
				M9= 1.188	
				M10=1.794	
			MULTIPLICATIVE	Rejected at 2.04	
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M5= 3.000	
			MAVS 3x5	M7= 1.882	
			MAVTC 23-term	M8= 1.864	
	M9= 1.433				
	M10=2.245				
	M11=2.098				
FORESX	Exports of Forest Products	Monthly 1985-1992	ADDITIVE	Rejected at 2.01	DO NOT DESEASONALIZE THE SERIES: Identifiable seasonality not present, no moving seasonality
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M3= 2.242	
			MAVS 3x9	M5= 3.000	
			MAVTC 23-term	M6= 1.220	
				M7= 2.192	
			MULTIPLICATIVE	Rejected at 2.10	
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M3= 2.801	
			MAVS 3x9	M5= 3.000	
			MAVTC 23-term	M6= 1.637	
				M7= 2.825	
	M8= 1.185				
	M9= 1.119				

Annex 1 **Deseasonalization of Time Series: Merchandise Exports, 1985-1992**
By Major Commodity Groups (Preliminary Runs)

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
PRVEGX	Exports of Fruits and Vegetables	Monthly 1985-1992	ADDITIVE	Rejected at 1.55	DO NOT DESEASONALIZE THE SERIES: Identifiable seasonality not present;no moving seasonality
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M7= 1.345	
			MAVS 3x5	M8= 1.333	
			MAVTC 13-term	M9= 1.154	
				M10=1.610	
			MULTIPLICATIVE	Rejected at 1.68	
			No TDR	Check M1= 3.000	
			No Easter	M2= 3.000	
			All models failed	M5= 1.007	
			MAVS 3x5	M7= 1.590	
			MAVTC 13-term	M8= 1.490	
				M9= 1.360	
	M10=1.869				
MFTBSX	Exports of Manufactures	Monthly 1985-1992	ADDITIVE	Rejected at 1.66	CUT SERIES TO 1988-1992 Data series very irregular
			W/ TDR	Check M1= 2.298	
			No Easter	M2= 2.298	
			Model 011 011	M8= 1.015	
			MAVS 3x5	M10=1.243	
			MAVTC 13-term	M11=1.221	
			MULTIPLICATIVE	Accepted at 0.80	
			W/ TDR	Check M1= 2.356	
			No Easter	M2= 1.469	
			Model 011 011 LOG		
			MAVS 3x5		
			MAVTC 13-term		
TOTX	TOTAL EXPORTS	Monthly 1985-1992	ADDITIVE	Rejected at 1.39	CUT SERIES TO 1988-1992 Data series very irregular
			W/ TDR	Check M1=2.935	
			No Easter	M2=2.232	
			Model 011 011		
			MAVS 3x5		
			MAVTC 13-term		
			MULTIPLICATIVE	Rejected at 1.55	
			W/ TDR	Check M1=2.995	
			No Easter	M2=2.215	
			Model 011 011 LOG		
			MAVS 3x5		
			MAVTC 13-term		

Annex 2 Desseasonalization of Time Series: Merchandise Exports
Manufactures and Other Exports, 1988-1992

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
OTHERX	Other Exports /Non- Manufactured Exports OTHERX-TOTX-MFTBSX	Monthly 1988-1992	ADDITIVE	Rejected at 0.212	DO NOT DESEASONALIZE THE SERIES: Identifiable seasonality not present;no moving seasonality
			No TDR	Check H1= 3.000	
			No Easter	H2= 3.000	
			Model 210 011	H3= 2.365	
			MAVS 3x5	H5= 3.000	
			MAVTC 23-term	H7= 1.392	
			MULTIPLICATIVE	Rejected at 2.14	
			No TDR	Check H1= 3.000	
			No Easter	H2= 3.000	
			Model 210 011 LOG	H3= 2.447	
MAVS 3x5	H5= 3.000				
MAVTC 23-term	H7= 1.442				
MFTBSX	Exports of Manufactures	Monthly 1988-1992	ADDITIVE	Accepted at 0.98	USE MULTIPLICATIVE: Fs in Mult.=14.576 Fs in Add. =14.340
			W/ TDR	Check H1= 2.121	
			No Easter	H2= 1.899	
			Model 011 011		
			MAVS 3x5		
			MAVTC 13-term		
			MULTIPLICATIVE	Accepted at 0.98	
			W/ TDR	Check H1= 2.106	
			No Easter	H2= 1.790	
			Model 011 011 LOG		
MAVS 3x5					
MAVTC 13-term					
TOTX	Total Exports	Monthly 1988-1992	ADDITIVE	Rejected at 1.36	
			W/ TDR	Check H1=2.996	
			No Easter	H2=2.174	
			Model 011 011		
			MAVS 3x5		
			MAVTC 13-term		
			MULTIPLICATIVE	Rejected at 1.48	
			W/ TDR	Check H1=3.000	
			No Easter	H2=2.671	
			Model 011 011 LOG	H3=1.397	
MAVS 3x5					
MAVTC 13-term					

Annex 3 Deseasonalization of Time Series: Exports of Manufactures

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
MFTRX	Exports of Manufactures (Preliminary Run)	Monthly 1985-1992	ADDITIVE W/ TDR No Easter Model 011 011 MAVS 3x5 MAVTC 13-term	Rejected at 1.66 Check M1= 2.298 M2= 2.298 M8= 1.015 M10=1.243 M11=1.221	CUT SERIES TO 1988-1992 Data series very irregular
			MULTIPLICATIVE W/ TDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.80 Check M1= 2.356 M2= 1.469	
MFTRX	Exports of Manufactures (Preliminary Run, Reduced Data Series)	Monthly 1988-1992	ADDITIVE W/ TDR No Easter Model 011 011 MAVS 3x5 MAVTC 13-term	Accepted at 0.98 Check M1= 2.121 M2= 1.899	
			MULTIPLICATIVE W/ TDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.96 Check M1= 2.106 M2= 1.790	USE MULTIPLICATIVE: Fs in Mult. =14.576 Fs in Add. =14.340
MFTRX	Exports of Manufactures (Run with Options Selected)	Monthly 1988-1992	MULTIPLICATIVE W/ TDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.95 Check M1= 2.096 M2= 1.720	TRY TEMPORARY ADJUSTMENT OF THE ORIGINAL SERIES: Data series still very irregular, affects seasonal adjustment.
MFTRX	Exports of Manufactures (With Prior Adjustments) Data Points Adjusted: Feb91, Feb92, Mar92, Apr92	Monthly 1988-1992	MULTIPLICATIVE W/ TDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.77 Check M1= 1.737 M2= 1.380	ADJUST SERIES FURTHER: Irregulars still affecting seasonal adjustment.
MFTRX	Exports of Manufactures (With Prior Adjustments) Data Points Adjusted: Feb89, Mar89, May91, Feb92, Mar92, Apr92, May92, Jun92, Jul92, Aug92, Sep92, Oct92, Nov92	Monthly 1988-1992	MULTIPLICATIVE W/ TDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.43	

Annex 4 Deseasonalization of Time Series: Exports of Manufactures
Electronics and Garments

SERIES	DESCRIPTION	PERIOD COVERED	OPTIONS	SUMMARY MEASURES	REMARKS
MFTRGX	Exports of Manufactures Using Actual Figures for 1992 (W/ Prior Adjust.)	Monthly 1988-1992	MULTIPLICATIVE W/ YDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.74 Check M1- 1.622 M2- 1.339	SERIES ADJUSTED: Irregulars still affecting seasonal adjustment.
	Data Points Adjusted: Jan92, Feb92, Mar92, Apr92, May92, Jun92, Jul92, Aug92, Sep92, Oct92, Nov92, Dec92				
ELECTX	Exports of Electronics (Preliminary Run)	Monthly 1988-1992	MULTIPLICATIVE W/ YDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Rejected at 1.43 Check M1- 2.783 M2- 3.000	Irregulars affecting seasonal adjustment.
GARMTX	Exports of Garments (Preliminary Run)	Monthly 1988-1992	MULTIPLICATIVE W/ YDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.53 Check M6- 1.148	The amount of year to year change in the irregular as compared to the amount of year to year change in the seasonal is not accepted.
GARMTX	Exports of Garments	Monthly 1988-1993 (Jan-June)	MULTIPLICATIVE W/ YDR No Easter Model 011 011 LOG MAVS 3x5 MAVTC 13-term	Accepted at 0.47	All measures are in the acceptance region.

Annex 5 Philippine Exports of Garments (Million US Dollars)
January 1988 - June 1992

Period	Original Values	Seasonally Adjusted	Trend-Cycle	Seasonal Factors	Irregular Series	
1988	Jan	101	108	104	91.03	103.8
	Feb	99	103	104	92.64	99.5
	Mar	91	102	103	92.66	98.8
	Apr	81	102	104	78.83	98.3
	May	100	103	104	98.73	98.3
	Jun	113	109	106	105.70	103.0
	Jul	122	108	107	109.92	100.5
	Aug	116	108	109	108.98	98.5
	Sep	108	110	111	102.43	99.0
	Oct	109	112	113	92.00	99.1
	Nov	110	120	113	93.68	106.2
	Dec	167	124	113	135.46	109.9
1989	Jan	97	106	113	90.66	93.7
	Feb	100	108	114	93.02	95.2
	Mar	101	113	116	92.68	98.2
	Apr	114	137	119	76.94	115.4
	May	120	126	123	96.64	102.1
	Jun	128	127	128	105.63	98.5
	Jul	155	132	134	110.23	98.7
	Aug	148	141	139	108.92	101.4
	Sep	149	144	144	102.27	100.3
	Oct	137	148	148	92.07	100.0
	Nov	140	152	151	93.50	101.1
	Dec	186	134	152	135.26	87.7
1990	Jan	136	153	153	90.09	99.9
	Feb	141	152	153	93.46	99.7
	Mar	143	156	152	92.62	102.6
	Apr	122	149	151	79.53	98.7
	May	137	147	150	96.75	98.5
	Jun	158	149	148	105.35	100.2
	Jul	163	146	147	110.61	99.3
	Aug	156	149	146	108.96	102.2
	Sep	157	146	145	102.04	100.9
	Oct	131	144	144	92.12	100.0
	Nov	123	138	144	93.20	95.7
	Dec	209	146	146	134.95	100.2
1991	Jan	126	146	148	89.53	98.7
	Feb	144	155	152	93.88	101.9
	Mar	148	155	155	92.71	100.3
	Apr	124	157	156	80.21	100.5
	May	148	160	156	96.62	102.4
	Jun	169	152	154	105.30	98.6
	Jul	169	154	153	111.03	100.6
	Aug	159	147	153	109.10	98.4
	Sep	163	155	153	101.69	101.3
	Oct	139	157	156	92.13	100.7
	Nov	145	155	159	92.95	97.0
	Dec	227	168	163	134.97	102.6
1992	Jan	133	156	166	89.05	93.5
	Feb	173	173	169	94.17	102.6
	Mar	174	186	171	92.61	109.3
	Apr	135	169	173	81.08	98.1
	May	168	170	175	96.81	97.0
	Jun	186	179	177	105.17	101.1
	Jul	195	182	180	111.35	101.4
	Aug	214	185	181	108.68	102.0
	Sep	177	179	182	101.41	98.1
	Oct	166	182	181	92.09	100.4
	Nov	194	203	179	92.83	112.9
	Dec	224	174	178	134.30	97.5
1993	Jan	166	182	177	88.82	102.4
	Feb	163	174	178	94.36	98.0
	Mar	159	174	179	92.58	97.0
	Apr	147	188	181	81.55	103.9
	May	190	185	183	96.68	100.9
	Jun	190	184	185	105.38	99.4

Annex 6 Philippine Exports of Garments (FOB Value in Million US Dollars)
January 1988 - June 1992

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
ORIGINAL SERIES:													
1988	101	99	91	81	100	113	122	116	108	109	110	167	1317
1989	97	100	101	114	120	128	155	148	149	137	140	186	1575
1990	136	141	143	122	137	158	163	156	157	131	123	209	1776
1991	126	144	148	124	148	169	169	159	163	139	145	227	1861
1992	133	173	174	135	168	186	195	214	177	166	194	224	2139
1993	166	163	159	147	190	190							1015
AVERAGE	127	137	136	121	144	157	161	159	151	136	142	203	

TABLE TOTAL: 9684

MEAN: 147

STD. DEVIATION: 33

SEASONALLY ADJUSTED SERIES:

1988	108	103	102	102	103	109	108	108	110	112	120	124	1309
1989	106	108	113	137	126	127	132	141	144	148	152	134	1568
1990	153	152	156	149	147	149	146	149	146	144	138	146	1775
1991	146	155	155	157	160	152	154	147	155	157	155	168	1861
1992	156	173	186	169	170	179	182	185	179	182	203	174	2138
1993	182	174	174	188	185	184							1087
AVERAGE	142	144	148	150	149	150	144	146	147	149	154	149	

TABLE TOTAL: 9736

MEAN: 148

STD. DEVIATION: 26

Annex 7 Philippine Exports of Garments (Month-to-Month Percent Changes)
January 1988 - June 1992

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	AVE
ORIGINAL SERIES:													
1988		-2.0	-8.1	-11.0	23.5	13.0	8.0	-4.9	-6.9	0.9	0.9	51.8	5.9
1989	-41.9	3.1	1.0	12.9	5.3	6.7	21.1	-4.5	0.7	-8.1	2.2	32.9	2.6
1990	-26.9	3.7	1.4	-14.7	12.3	15.3	3.2	-4.3	0.6	-16.6	-6.1	69.9	3.2
1991	-39.7	14.3	2.8	-16.2	19.4	14.2	0.0	-5.9	2.5	-14.7	4.3	56.6	3.1
1992	-41.4	30.1	0.6	-22.4	24.4	10.7	4.8	9.7	-17.3	-6.2	16.9	15.5	2.1
1993	-25.9	-1.8	-2.5	-7.5	29.3	0.0							
AVGE	-35.2	7.9	-0.8	-9.8	19.0	10.0	7.4	-2.0	-4.1	-8.9	3.6	45.3	

Mean: 2.9

Standard Deviation: 20.0

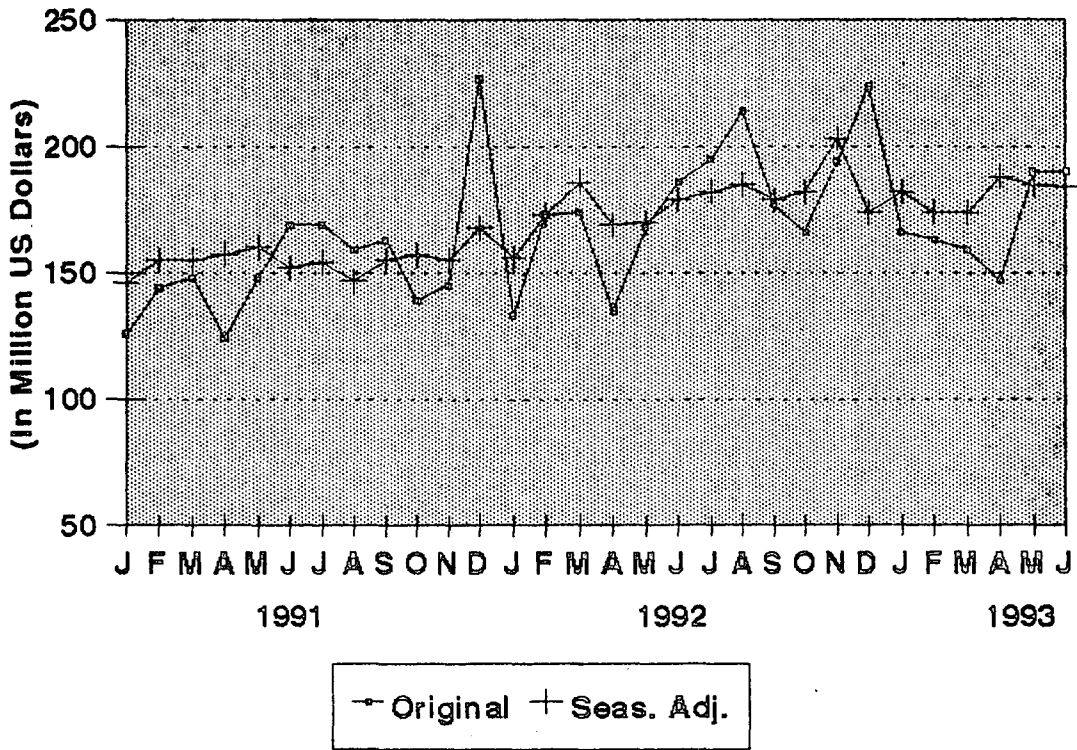
SEASONALLY ADJUSTED SERIES:

1988		-4.6	-1.0	0.0	1.0	5.8	-0.9	0.0	1.9	1.8	7.1	3.3	1.3
1989	-14.5	1.9	4.6	21.2	-8.0	0.8	3.9	6.8	2.1	2.8	2.7	-11.8	1.0
1990	14.2	-0.7	2.6	-4.5	-1.3	1.4	-2.0	2.1	-2.0	-1.4	-4.2	5.8	0.8
1991	0.0	6.2	0.0	1.3	1.9	-5.0	1.3	-4.5	5.4	1.3	-1.3	8.4	1.2
1992	-7.1	10.9	7.5	-9.1	0.6	5.3	1.7	1.6	-3.2	1.7	11.5	-14.3	0.6
1993	4.6	-4.4	0.0	8.0	-1.6	-0.5							
AVGE	-0.6	1.5	2.3	2.8	-1.2	1.3	0.8	1.2	0.8	1.2	3.2	-1.7	

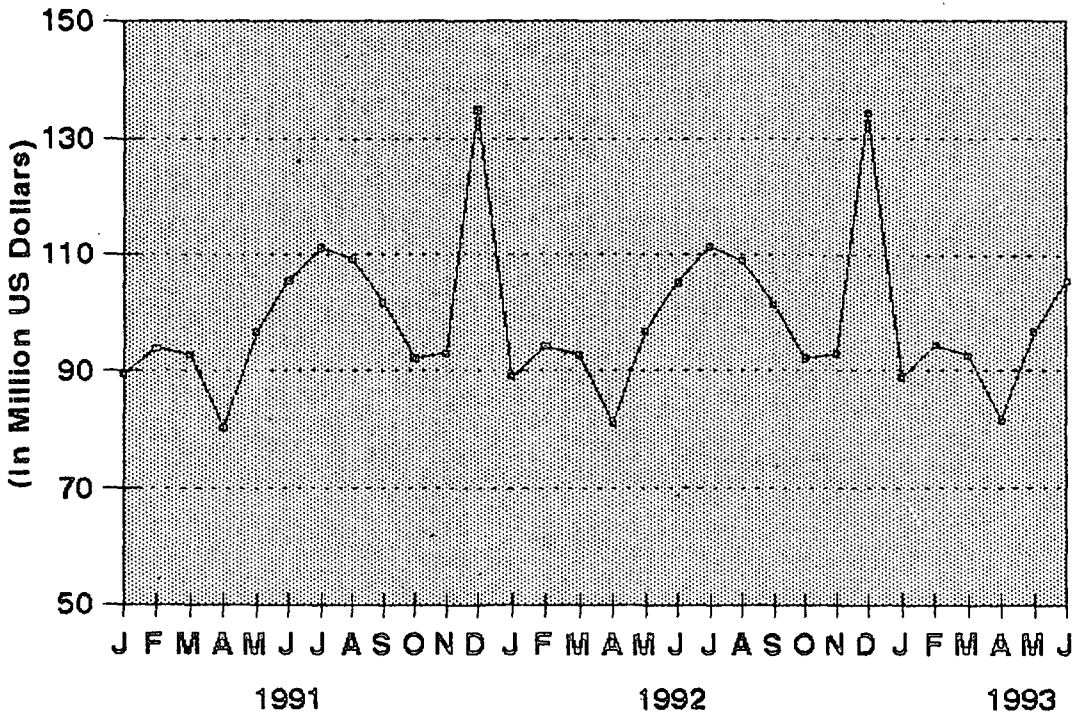
Mean: 1.0

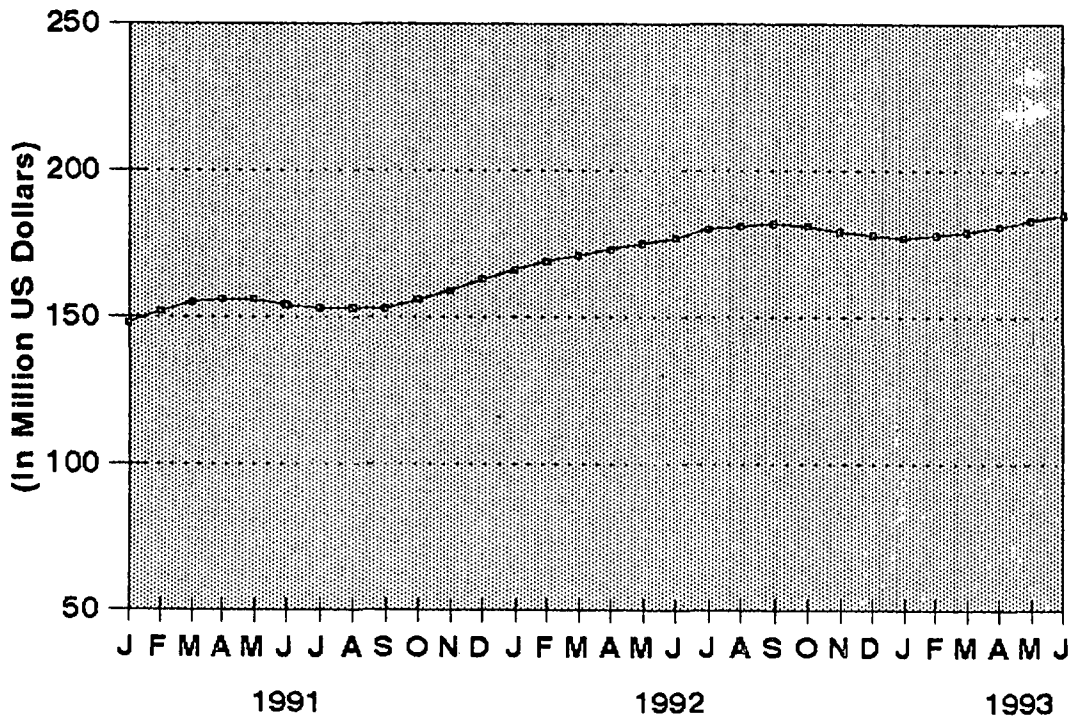
Standard Deviation: 6.0

Annex 8 Exports of Garments, 1991-1993
Original vs. Seasonally Adjusted

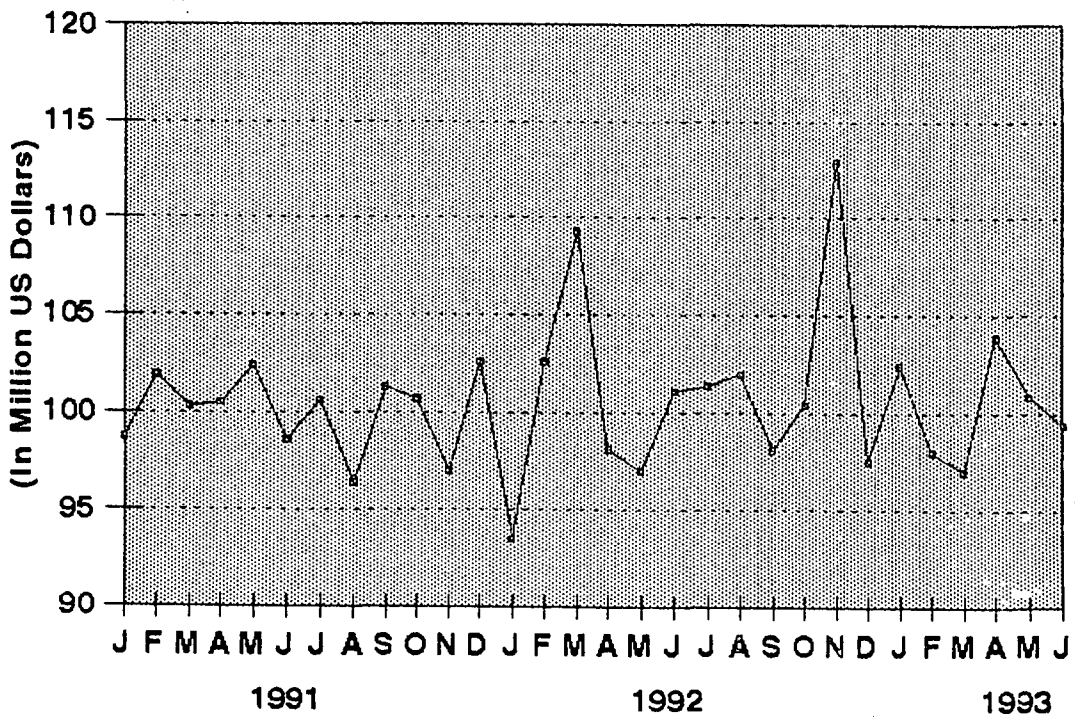


Annex 9 Exports of Garments, 1991-1993
Seasonal Factors





Annex 11 Exports of Garments, 1991-1993
Irregular Series



Annex 12 Exports of Garments, 1991-1993
Irregular Series

