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Farmer School of Business

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***As the Current Account Turns: Disaggregating the
Effects of Current Account Reversals in Industrial
Countries***

William Craighead
Miami University

David Hinline
Miami University

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William D. Craighead*
David R. Hineline

Farmer School of Business, Miami University
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Abstract: The dynamics of output, employment and prices during current account reversals are examined at the sectoral level for 14 industrial country reversal episodes. The negative effects of current account reversals on employment and output tend to be concentrated in investment-related sectors, while sectors related to primary commodities generally perform relatively well following reversals. Increases in relative inflation for tradable goods sectors also tend to occur following reversals.

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*Corresponding Author. Address: Department of Economics, 208 Laws Hall, Oxford
OH, 45056. Tel.: +1-513-529-2849. E-mail: craighwd@muohio.edu

Introduction

The large US current account deficit has generated renewed interest in the effects of the transitions from current account deficits to surpluses known as current account reversals. In addition to affecting economies at the aggregate level, these episodes may entail a significant reallocation of resources within economies. This was noted by *The Economist* (2006), which said: “America’s deficit is unlikely to close without its industrial structure changing substantially.” The issue was also raised in a speech by Federal Reserve Board Chairman Ben Bernanke (2007):

[T]he large US current account deficit cannot persist indefinitely because the ability of the United States to make debt service payments and the willingness of foreigners to hold US assets in their portfolios are both limited. Adjustment must eventually take place, and the process of adjustment will have both real and financial consequences. For example, in the United States, the growth of export-oriented sectors such as manufacturing has been restrained by the shifts in relative prices and foreign demand associated with the US trade deficit. Ultimately the necessary reduction in the trade and current account deficits will entail shifting resources out of sectors producing nontraded goods and services to those producing tradables. The greater the needed adjustment, the more potentially disruptive and costly these shifts may be.

However, most research on the topic has not given serious consideration to the issue of sectoral allocation of resources¹. This study fills a gap in the literature by focusing on the effects of current account reversals on output, employment and relative prices at the sectoral level. Using data on value added, employment and price deflators for 55 sectors in 14 OECD countries, the sectors which are most sensitive to current account reversals are identified. These results suggest that investment-related sectors – both capital goods and housing-related – suffer the biggest setbacks from reversals, while primary

¹ A recent exception is Dekle, Eaton and Kortum (2008) who examine a global rebalancing in a 42-country model. They find that countries with large current account deficits would experience a large shift of labor into tradable production.

commodities sectors are more likely to benefit. Overall, current account reversals are disinflationary, but tradables sectors tend to see increasing relative prices following reversals.

Literature and Background

Several recent papers have examined the behavior of aggregate economic variables during current account reversals in industrial countries². Edwards (2005) and Freund (2005) find that, for industrial countries, current account reversals tend to be followed by slowdowns in output growth. Freund (2005) also finds that decreases in the investment to GDP ratio and increases in exports contribute to the reversals. Freund and Warnock (2005) examine the effects of size and persistence of current account deficits. They find that larger deficits are associated with slower growth following the reversal, but the persistence of the deficit does not systematically affect the degree of growth slowdown. Although growth slows following a reversal on average, this is not true in all cases. Croke, et al. (2005) compare episodes with increasing and decreasing output growth and find little support for the view that current account reversals generate a “disorderly adjustment,” even in the episodes with decreasing output growth.

Closely related in spirit is Bernard and Jensen’s (2004) examination of the export boom that occurred as the US current account deficit declined in the late 1980’s. They find that export growth was widespread across manufacturing, and, using plant-level data, that increased exports by already-exporting firms accounted for a larger part of export growth than newly-exporting firms. Yi (2006) provides a good discussion of this

² Milesi-Feretti and Razin (1998) focus on low- and middle-income countries, and these countries are also included in Edwards (2005).

episode, noting that the industry composition of exports and the geographic breakdown of exports were little changed by the boom.

An important closely related issue is exchange rate movements, which often play a role in current account adjustment. Edwards (2005) and Freund (2005) both find that real exchange rate depreciations tend to occur after the peak in the current account deficit. Obstfeld and Rogoff (2005) use a calibrated model to examine the changes in relative prices – exchange rates, terms of trade, and the price of traded relative to nontraded goods – necessary to rebalance the current account under different scenarios. As they note, but do not explicitly model, movement of resources across sectors allows some adjustment to occur through changes in quantities rather than prices. This is considered empirically by Freund and Warnock (2005), who find that the mix of output and price adjustment depends on whether the deficits are driven by consumption or by investment. Consumption-driven deficits generate larger depreciations, with slower output growth before the reversal than after; investment-driven episodes see smaller depreciations and larger slowdowns from initially higher output growth rates. Croke, et al. (2005) found that larger real exchange rate depreciations were associated with reversal episodes where output growth increased.

A number studies have examined the effects of exchange rate movements at the sectoral level. Revenga (1992) and Campa and Goldberg (2001) have examined the effect of exchange rate movements on employment and wages for US manufacturing sectors. Burgess and Knetter (1998) use data from selected industries for G-7 countries to examine the response of employment to exchange rate movements. They find considerable heterogeneity across countries and sectors. Sectoral data has also been used

to examine the impact of real exchange rate movements on gross job flows by Gourinchas (1998) and Klein et al. (2003) for the US and Gourinchas (1999) for France. In the current cycle, Baily and Lawrence (2004) link weak overall US job growth and declining manufacturing over the period 2000-2003 to the strong US dollar, which coincided with a widening of the current account deficit.

Despite the fact that some research has considered sectoral effects of exchange rate movements, most of the research looking specifically at current account reversals have focused on GDP growth. It is often the case that conclusions are drawn regarding the likelihood and severity of such a reversal occurring in the US at an aggregate level. A typical result would be similar to the dashed line in figure 1, which shows output growth slowing significantly for several years after the reversal. Figure 1 also includes the median employment and price effects.

The examination of sectoral data makes an important contribution to the examination of current account dynamics because the aggregate effects obscure the impacts across the economy, as the severe effects across some industries are averaged across others that are affected less. Not only will some sectors be affected more, clearly there are sectors that play more important roles in the overall economy. Figure 2 plots the relative shares of GDP for the 55 sectors examined here, displayed from largest to smallest as of 2000, along with the relative shares in 1980. Not only is it the case that some sectors play a much larger role in the overall economy, but clearly these relative sector shares can change significantly over time as the structure of the economy evolves.

Analysis

Reversal episodes are identified using similar criteria to Freund (2005) and Freund and Warnock (2005). Four criteria are used to identify episodes that begin with the current account in deficit (criteria #1), and are followed by substantial (#2 and #3) and sustained (#4) decreases in the deficit:

1. The deficit must initially exceed 2% of GDP
2. The decline in the deficit must be > 2 percentage points
3. The deficit must have fallen by at least 1/3 three years after the reversal
4. The deficit must not go back above the peak level in the 4 years after the reversal.

The sectoral data used in this study are from the 60-Industry Database compiled by the Groningen Growth and Development Centre (GGDC). This dataset begins in 1979 and includes employment, real value added and price deflators for 56 sectors³ in 27 high-income countries. Since the analysis uses growth rates for the two years prior to the reversals, only reversals from 1982 onward are included in the sample. Table 1 lists the 14 reversal episodes examined, by country and the year in which the current account deficit peaked as a share of GDP. These are a subset of the episodes studied by Freund and Warnock (2005), with the addition of Portugal (2000).⁴

Table 2 compares the behavior of aggregate-level output, employment and price measures during the two years before and after the current account turning points. This sample confirms the finding that current account reversals are associated with growth

³ Data for sector 56, “private households with employed persons” are not available for several countries, so it is not used.

⁴ The 1985 and 1990 reversal episodes for Greece are not included because of incompleteness of the sectoral data.

slowdowns. Slowdowns occurred in 11 of the 14 episodes and the median growth rate of total value added decreased from 3.25% in the two years before to 1.11% in the two years following the peak. Figure 1 shows the growth rate of value added reaches a low point two years after the reversal and that employment, which has received less attention in the literature, exhibits a similar dynamic, beginning a decline in the reversal year and also reaching a nadir in the second year after a reversal. The median growth rate of employment is 1.81% in the two years before the reversal and -0.51% in the two years after, with employment growth slowdowns in all but two of the episodes.

The distributions of median sectoral output and employment growth rates for the six years surrounding reversals are plotted in figures 3 and 4, respectively. The distributions reveal considerable heterogeneity across sectors, but the overall decline in growth is reflected by the larger number of sectors with negative growth two years after the reversal. For both output and employment, the number of sectors with negative growth peaks in the second year after the reversal year and decreases in the third.

In this sample, reversals tend to be disinflationary, with the median inflation rate falling from 5.43% in the two years before the reversal year to 3.00% in the two years following. The solid line in figure 1 shows that the disinflation largely occurs in the year of the reversal. Compared to output and employment, the pattern for inflation is somewhat less consistent across episodes, with disinflation occurring in 9 of 14 cases. The dynamics are slightly different from those found by other studies: Croke et al. (2005) found inflation peaking in the year after a reversal before declining and Edwards (2005) found inflation rising to a peak in the year before a reversal, before declining to a low

point in the second year after⁵. The discrepancies may be attributable to differences in the samples – both of those papers include episodes from time periods before this study begins, with Croke et al. examining 23 episodes from 1980-1999 and Edwards’ sample including 34 cases for industrial countries from 1970-2001.

The effects of current account reversals on sectoral output, employment and prices are examined with regressions similar to Freund (2005) with dummy variables for the years before, during and after reversal episodes. Because inflation reflects monetary policy regimes that have evolved considerably over time, relative prices – i.e., growth in the sectoral deflator less growth in the aggregate deflator – is used to analyze sectoral inflation.

The regressions have the form:

$$\Delta y_{i,j,t} = \alpha \Delta y_{i,j,t-1} + \sum_{s=-3}^3 \beta_{R+s} d_{R+s} + \gamma_{i,j} + \mu_t + \varepsilon_{i,j,t}$$

where Δy is the percentage growth rate of dependent variable – real value added, employment and the relative deflator, respectively – indexed by sector (i) country (j) and year (t), where d denotes a dummy variables equal to one for the reversal year (R) and each of the three years before and after, γ is a country fixed effect and μ is a time dummy which captures global effects. The deflator regressions also include a sector-specific time trend.

Table 3 reports the number and sign of regression coefficients on the dummy variables (i.e., $\beta_{R-3} \dots \beta_{R+3}$) that are statistically significant at the 10% level for all three regressions. This illustrates how the aggregate effects are not distributed evenly across

⁵ Edwards examines several categories of countries and reversals; this refers to the “reversal 2 percent” for “industrial” countries, which is the most similar to the sample used in this study.

the economy or over time. A current account reversal causes output and employment to fall across numerous sectors, some of this occurring in the first year after the reversal, but most of the damage coming two years afterwards. For value added and employment, of the 55 sectors examined, only a small handful have significant coefficients in the years leading to the reversal, and more of these are positive than negative. The largest number of statistically significant effects comes in the two years after the reversal. In the year after the reversal, nine sectors have negative coefficients on value added and two years after, 16 have negative coefficients (6 are significant and negative in both). Current account reversals appear to significantly affect employment in more sectors than output; 13 have significant negative coefficients in the year after the reversal, and 29 have significant negative coefficients two years after (11 are significant in both). Thus, there are sectors that show no statistically significant decline in output that still have a statistically significant drop in employment. No sectors have statistically significant positive coefficients in the two years after the reversal for either value added or employment growth. For relative inflation, there are fewer sectors with statistically significant regression coefficients.

Table 4 reports the 15 sectors with the largest decreases in the median value added growth rates from the two years before the reversal to the two years after. The regression coefficients for the dummy variables for the five years surrounding the reversal are also reported. In most cases, the large declines in growth rates are also confirmed by statistically significant negative coefficients on the dummy variables for the reversal year or one or more of the years following it.

The biggest slowdown occurs in shipbuilding, which has a median growth rate of 6.5% in the two years before a reversal, and -7.2% in the two years after. Construction also falls sharply; from a growth rate of 4.9% before to -2.5% after. Although shipbuilding is a small sector of the economy, figure 2 shows that construction, retail trade, and legal, technical and advertising are among the eight largest sectors. Many of the other sectors which see sharp slowdowns either produce capital goods, such as aircraft, or are otherwise complementary to investment, such as mechanical engineering and renting of machinery and equipment. This is consistent with an overall slowdown in investment occurring during reversals.

The largest slowdowns in employment growth, reported in table 5, also include several investment-related sectors. All of the ten sectors in which employment declines the most have statistically significant negative regression coefficients. None of them occur in the reversal year itself, but in the years after, suggesting that employment effects tends to lag output. The relationship between the current account and housing markets found by Aizenman and Jinjark (2008) is evidenced by the fact that construction and real estate activities are among the sectors experiencing the sharpest employment growth slowdowns.

Median output, employment and relative price growth during reversal episodes are illustrated in figure 5 for four sectors experiencing large declines: construction, fabricated metal products, mechanical engineering and shipbuilding. As these four examples show, the patterns vary considerably across sectors. The construction sector matches closely the aggregate pattern with both output and employment growth declining to low points two years after the reversal and then recovering. For fabricated metals, mechanical

engineering and shipbuilding, output recovers more quickly than employment, which is consistent with the results in table 3, where there were many more sectors still suffering employment declines two and three years after the reversal compared to output contractions.

Tables 6 and 7 report results for the sectors experiencing the largest increases (or smallest decreases) in value added and employment growth rates, respectively. Given the relationship between current account reversals and overall growth, it is not surprising that only 11 of 55 sectors experience accelerations in value added growth and only 4 have increases in employment growth following a reversal. And, as noted above, there are no sectors with statistically significant positive coefficients for value added and employment in the two years after reversals. Thus, although there are only a few sectors actually benefiting from a reversal, clearly some sectors suffer much more than others. Tradable commodity producing sectors are clearly over-represented on the lists of sectors that either benefit or suffer relatively less from current account reversals, suggesting that increased exports of primary commodities are one common aspect of reducing a current account deficit. Figure 6 illustrates the dynamics of output and employment for four sectors that appear to do relatively well during reversals: basic metals, fishing, mineral oil refining, coke and nuclear fuel and pulp, paper and paper products.

Tables 8 and 9 report the sectors experiencing the largest increases and decreases in relative inflation. Nearly all the sectors with large relative price increases are tradable goods. Relative prices increase for some material input sectors, like basic metals and pulp, paper and paper products that also see accelerations in value added growth. For these sectors, current account reversals have output and price effects analogous to a

positive demand shock. Some of the tradable capital goods sectors which see large output declines also have increases in relative prices. Among these sectors, where reversals act like negative supply shocks, are aircraft, shipbuilding and mechanical engineering. The sectors with relative price declines tend to be nontradable goods sectors. This includes some nontradable investment-related sectors, such as construction and renting of machinery and equipment for which a reversal acts as a negative demand shock. The relative price declines of forestry and fishing are harder to account for.

Conclusion

In general, this paper finds evidence of declining output after a current account reversal, as in Edwards (2005) and Freund (2005), as well as even more striking declines in employment. Thus the concern regarding structural adjustment that has been expressed by some economists is well-justified. However, the impacts across sectors are very uneven, both in respect to the sizes of adjustment as well as the time to adjust. While several investment-related sectors, such as construction, mechanical engineering and shipbuilding suffer significant contractions, other sectors such as tradeable commodities either benefit or suffer much less.

Much of the previous literature on current account reversals draws inferences regarding the costs to the United States if its historically high current account deficits are suddenly reversed. For example, Obstfeld and Rogoff (2005) have suggested that elimination of the imbalance would entail a 33% real decline of the US Dollar. Our results suggest that the impact of adjustment will be much more severe in some sectors of

the economy than in others. Clearly any policies devised to soften such an impact need to account for the unevenness of the effects such a reversal will entail.

Data

Aggregate Current account and GDP (Table 1): International Financial Statistics (IFS), from International Monetary Fund.

Value added, employment and price deflators: Groningen Growth and Development Centre, 60-Industry Database (<http://www.ggdc.net>), series VA-K (value added volume indices), Emp (persons engaged) VA-def (value added deflator growth rates); for shares (Fig. 2), series VA (value added).

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Table 1. Current Account Reversal Episodes

	CA as % of GDP (year relative to reversal)				
	-1	-2	0	+1	+2
France (1982)	-0.61	-0.80	-2.11	-0.93	-0.17
Denmark (1986)	-2.99	-4.54	-5.20	-2.80	-1.18
Norway (1986)	4.76	4.77	-5.99	-4.51	-3.95
United States (1987)	-2.97	-3.32	-3.42	-2.39	-1.83
Australia (1989)	-3.56	-4.14	-5.69	-5.00	-3.38
United Kingdom (1989)	-1.84	-4.24	-5.12	-3.92	-1.84
Spain (1991)	-2.71	-3.46	-3.53	-3.52	-1.14
Finland (1991)	-4.99	-5.04	-5.46	-4.66	-1.30
Italy (1992)	-1.45	-2.05	-2.31	0.76	1.25
Sweden (1992)	-2.62	-1.82	-3.33	-2.08	0.34
Canada (1993)	-3.79	-3.71	-3.93	-2.34	-0.74
South Korea (1996)	-0.95	-1.68	-4.16	-1.62	11.69
Austria (1999)	-2.50	-2.46	-3.12	-2.51	-1.88
Portugal (2000)	-7.08	-8.45	-10.29	-9.89	-8.05

Table 2. Aggregate Indicators Before and After Reversals

	Value Added			Employment			Deflator		
	2 years before	2 years after	Change	2 years before	2 years after	Change	2 years before	2 years after	Change
France (1982)	2.37	2.10	-0.27	0.19	-0.02	-0.21	12.52	8.91	-3.61
Denmark (1986)	3.97	0.36	-3.61	1.89	-0.15	-2.04	4.86	4.49	-0.37
Norway (1986)	5.41	1.78	-3.63	1.72	0.79	-0.93	4.80	5.85	1.05
United States (1987)	2.35	4.50	2.15	1.98	2.54	0.56	4.05	2.75	-1.30
Australia (1989)	5.90	-0.36	-6.26	3.16	-0.88	-4.04	6.88	2.25	-4.63
United Kingdom (1989)	4.97	-0.07	-5.04	2.59	-0.87	-3.46	3.90	6.05	2.15
Spain (1991)	4.10	-0.57	-4.67	3.64	-2.14	-5.78	7.11	5.86	-1.25
Finland (1991)	2.63	-1.50	-4.13	0.23	-6.73	-6.96	6.54	1.09	-5.45
Italy (1992)	1.58	0.95	-0.63	1.72	-2.00	-3.72	7.20	3.00	-4.20
Sweden (1992)	0.61	1.42	0.81	-0.29	-3.13	-2.84	6.20	2.35	-3.85
Canada (1993)	-0.27	3.21	3.48	-1.25	1.73	2.98	1.65	2.26	0.61
South Korea (1996)	9.33	0.47	-8.86	2.80	-2.03	-4.83	6.00	3.00	-3.00
Austria (1999)	2.94	2.47	-0.47	1.08	0.81	-0.27	-0.33	1.70	2.03
Portugal (2000)	3.56	1.27	-2.29	2.25	1.06	-1.19	3.25	3.90	0.65
Median	3.25	1.11	-2.14	1.81	-0.51	-2.32	5.43	3.00	-2.43

Table 3. Number of Sectors with Coefficients Statistically Significant at 10% level

Year Relative to Reversal		-3	-2	-1	0	+1	+2	+3
Value Added	Negative	0	1	2	4	9	16	3
	Positive	2	4	3	1	0	0	2
Employment	Negative	5	2	0	0	13	29	10
	Positive	0	4	3	1	0	0	0
Relative Prices	Negative	2	2	2	0	3	2	4
	Positive	2	1	5	5	5	8	6

Table 4. Largest Decreases in Value Added Growth Rate

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Building and repairing of ships and boats	6.53	-7.24	-13.77	21.39***	-5.04	4.51	-7.79	-0.27
2	Construction	4.89	-2.50	-7.39	1.56	-0.20	0.26	-4.04**	-5.46***
3	Aircraft and spacecraft	10.28	3.53	-6.75	3.64	-0.38	-7.75	-6.22	-1.41
4	Printing & publishing	4.08	-2.35	-6.43	3.88*	2.06	-0.81	-4.53**	-7.43***
5	Mechanical engineering	4.40	-1.60	-6.00	-0.10	3.36	-1.11	-3.00	-5.21**
6	Scientific instruments	8.02	2.13	-5.89	-1.17	4.58	-9.14**	-0.86	-4.95
7	Other instruments	10.06	4.52	-5.54	2.12	2.57	-5.07	3.83	-8.05
8	Legal, technical and advertising	6.32	1.60	-4.72	2.24	0.71	-3.63**	-3.16*	-2.92
9	Other electrical machinery and apparatus nec	5.55	0.85	-4.70	-2.27	3.21	-2.73	0.86	-9.50**
10	Fabricated metal products	4.60	-0.02	-4.62	-0.19	-1.02	-2.66	-3.31	-3.93*
11	Supporting and auxiliary transport activities; activities of travel agencies	5.29	0.69	-4.60	4.34*	-0.56	0.06	-5.76**	-3.88
12	Motor vehicles	-0.15	-4.70	-4.55	-3.87	-4.22	-5.51	-6.87	-10.52**
13	Non-metallic mineral products	1.88	-2.57	-4.45	-1.20	-1.29	-1.88	-5.55***	-6.26***
14	Retail trade, except of motor vehicles and motorcycles; repair of personal and household goods	4.14	-0.05	-4.19	0.44	0.79	-2.80**	-4.46***	-5.57***
15	Renting of machinery and equipment	5.29	1.14	-4.15	-1.42	-3.98	-2.05	-2.40	-6.10

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5. Largest Decreases in Employment Growth Rate

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Leather and footwear	-3.76	-11.89	-8.13	-4.70*	-1.05	-2.24	-4.80*	-11.04***
2	Construction	4.03	-3.59	-7.62	0.65	1.23	0.24	-4.57***	-7.47***
3	Motor vehicles	1.37	-5.39	-6.76	-1.14	-1.00	0.70	-2.96	-8.20***
4	Mechanical engineering	1.20	-5.14	-6.34	-1.42	0.75	-0.48	-4.04***	-4.36***
5	Real estate activities	5.69	-0.65	-6.34	1.89	1.01	-2.54	-3.19	-5.13**
6	Renting of machinery and equipment	6.32	1.16	-5.16	-4.09	0.86	3.74	-4.61	-8.32*
7	Insulated wire	-0.12	-5.12	-5.00	-0.91	0.29	-5.68	-4.24	-7.86**
8	Fabricated metal products	1.46	-3.44	-4.90	0.77	-0.84	-1.22	-2.49*	-4.22***
9	Legal, technical and advertising	6.45	2.04	-4.41	-1.61	0.20	-0.98	-4.35**	-4.02*
10	Wood & products of wood and cork	-0.27	-4.06	-3.79	-0.53	0.44	0.24	-5.53***	-4.55***
11	Clothing	-2.46	-6.15	-3.69	-1.14	-1.74	-0.23	-7.89***	-1.53
12	Aircraft and spacecraft	3.57	0.17	-3.40	-7.17	-3.04	-1.90	-0.90	-10.57
13	Building and repairing of ships and boats	-0.05	-3.38	-3.33	7.27*	2.38	-1.85	-0.96	-4.06
14	Other business activities, nec	6.38	3.06	-3.32	0.09	-1.35	2.19	-3.02	-0.02
15	Furniture, miscellaneous manufacturing; recycling	0.78	-2.34	-3.12	0.04	0.36	-0.91	-2.90**	-4.17***

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 6. Largest Accelerations/Smallest Decreases in Value Added Growth Rate

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Electronic valves and tubes	19.06	22.71	3.65	-10.28	19.51	14.37	6.72	-5.60
2	Fishing	-0.77	2.05	2.82	-5.02	-5.97*	-4.82	2.04	2.53
3	Forestry	-0.11	2.27	2.38	-6.45*	2.56	5.35	-0.14	-5.81
4	Computer and related activities	6.67	9.00	2.33	1.35	6.81*	-0.99	2.31	-3.44
5	Mineral oil refining, coke & nuclear fuel	-0.73	1.39	2.12	-10.57	-5.50	22.47**	11.67	-17.09
6	Basic metals	2.40	3.94	1.54	0.77	-0.78	2.13	0.32	0.95
7	Telecommunication equipment	7.09	7.77	0.68	9.15	5.32	-7.06	11.13	-1.56
8	Pulp, paper & paper products	1.68	2.35	0.67	-2.30	-3.02	3.13	-0.84	0.07
9	Textiles	-1.97	-1.62	0.35	-0.23	-3.16*	-2.36	-1.09	-1.25
10	Activities auxiliary to financial intermediation	2.43	2.73	0.30	2.95	-12.20	0.43	-3.37	-1.64
11	Real estate activities	2.02	2.12	0.10	-0.04	-1.12	-0.34	0.79	0.04
12	Rubber & plastics	4.78	4.71	-0.07	0.87	3.71*	-1.67	-2.13	-2.93
13	Insurance and pension funding, except compulsory social security	1.97	1.82	-0.15	54.37***	10.62	0.82	-1.13	-0.16
14	Health and social work	2.45	2.04	-0.41	0.00	0.09	-0.84	-1.03	-1.82**
15	Wood & products of wood and cork	1.15	0.66	-0.49	1.36	1.02	-2.54	-2.39	-4.09

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 7. Largest Accelerations/Smallest Decreases in Employment Growth Rate

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Electronic valves and tubes	-0.85	0.25	1.10	-3.68	5.15	2.03	-0.55	-3.26
2	Mineral oil refining, coke & nuclear fuel	-2.52	-1.60	0.92	-1.55	-3.18	3.54	3.79	2.45
3	Agriculture	-2.80	-2.16	0.64	-1.36	0.32	-0.11	-0.71	-0.53
4	Inland transport	-0.20	0.32	0.52	-1.40	-0.07	0.19	-0.63	-2.30*
5	Public administration and defence; compulsory social security	0.49	0.43	-0.06	0.74	-0.93	-0.51	-0.25	-0.27
6	Education	2.01	1.87	-0.14	0.07	0.17	-0.08	-0.44	-0.33
7	Forestry	-1.36	-1.50	-0.14	-1.23	1.83	-0.41	1.63	0.43
8	Other instruments	-0.95	-1.09	-0.14	1.22	0.01	1.57	-3.29	-6.22
9	Communications	0.63	0.16	-0.47	1.04	0.88	-0.42	1.30	-2.56**
10	Electricity, gas and water supply	-0.45	-0.98	-0.53	0.03	-0.78	0.80	-0.54	-2.76**
11	Supporting and auxiliary transport activities; activities of travel agencies	1.24	0.66	-0.58	0.52	-0.19	0.76	-0.99	-0.49
12	Printing & publishing	0.29	-0.63	-0.92	-0.61	-0.84	-1.71	-1.34	-4.39***
13	Food, drink & tobacco	0.28	-0.66	-0.94	0.02	0.50	-0.42	-1.29*	-2.01***
14	Mining and quarrying	-3.00	-3.96	-0.96	-0.35	-2.19	1.53	2.31	-2.32
15	Health and social work	3.23	2.25	-0.98	0.54	0.28	-0.63	-0.64	0.33

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 8. Largest Increases in Relative Inflation

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Insurance and pension funding, except compulsory social security	-0.01	5.63	5.64	-7.67*	6.80	-0.62	2.97	8.50*
2	Chemicals	-3.16	1.44	4.60	0.60	-1.31	-0.99	1.85	2.76
3	Basic metals	-1.60	2.51	4.11	3.67	-1.90	-0.12	4.58**	5.420**
4	Aircraft and spacecraft	-2.72	0.39	3.11	-2.83	-2.53	2.67	0.06	2.59
5	Mining and quarrying	-4.50	-1.50	3.00	-1.69	-5.18	-3.90	-0.68	-1.57
6	Building and repairing of ships and boats	-2.72	0.00	2.72	-3.17	-1.99	2.61	1.12	3.62
7	Pulp, paper & paper products	-1.00	1.49	2.49	0.49	-2.13	1.05	4.75**	6.57***
8	Railroad equipment and transport equipment nec	-2.40	-0.19	2.21	-2.14	-4.51**	1.97	0.21	2.30
9	Rubber & plastics	-2.50	-0.35	2.15	0.17	-2.37	1.84	0.76	1.55
10	Mechanical engineering	-2.35	-0.41	1.94	-0.80	0.01	-0.52	-0.55	2.00
11	Leather and footwear	-1.53	0.37	1.90	-2.10	-1.97	1.01	0.38	1.61
12	Electricity, gas and water supply	-1.63	0.25	1.88	-2.46	0.16	-0.12	1.65	1.36
13	Other instruments	-2.70	-0.85	1.85	0.02	-2.18	1.69	-1.43	3.99**
14	Wholesale trade and commission trade, except of motor vehicles and motorcycles	-1.12	0.66	1.78	-0.72	-0.46	2.97***	2.04*	2.39**
15	Air transport	-2.17	-0.45	1.72	-1.67	-1.79	5.03**	-0.73	-0.03

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 9. Largest Decreases in Relative Inflation

	Sector	Median Growth Rates			Regression Coefficients (Year Relative to Reversal)				
		2 yrs before	2 years after	change	-2	-1	0	+1	+2
1	Fishing	1.75	-4.27	-6.02	4.85	6.12*	4.78	-2.07	-7.43**
2	Forestry	-0.31	-2.78	-2.47	3.11	1.00	0.08	-2.47	3.26
3	Construction	1.25	-0.77	-2.02	-0.46	0.03	0.62	-2.24**	-2.68**
4	Office machinery	-32.53	-34.43	-1.90	0.04	0.06	0.20**	0.11	0.14
5	Wood & products of wood and cork	0.85	-0.90	-1.75	0.14	1.26	1.66	-0.43	0.58
6	Water transport	-0.03	-1.73	-1.70	2.10	2.94	1.42	-2.58	2.96
7	Activities auxiliary to financial intermediation	1.15	-0.48	-1.63	1.94	-1.28	-3.53	0.91	-1.51
8	Computer and related activities	1.75	0.27	-1.48	0.21	1.84	1.17	-0.77	-0.94
9	Legal, technical and advertising	1.92	0.82	-1.10	0.71	1.95**	1.17	-1.41*	-0.85
10	Textiles	0.34	-0.57	-0.91	0.02	-0.87	1.12	0.49	3.02**
11	Education	2.55	1.71	-0.84	0.97	-0.53	1.05	-0.53	-0.37
12	Other business activities, nec	1.92	1.12	-0.80	0.64	1.85**	0.90	-1.03	-1.11
13	Other community, social and personal services	1.81	1.05	-0.76	-0.17	-0.04	0.96	0.09	-0.05
14	Renting of machinery and equipment	1.75	1.12	-0.63	1.04	3.22***	1.09	0.03	0.26
15	Financial intermediation, except insurance and pension funding	0.07	-0.55	-0.62	1.03	-1.00	0.70	0.99	-3.59

* significant at 10%; ** significant at 5%; *** significant at 1%

Fig. 1 Median Growth Rate of Aggregate Indicators

Fig. 2 Sectoral Shares of GDP 1980 and 2000

Fig 3. Distribution of Median Sectoral Output Growth Rates

Fig. 4. Distribution of Median Sectoral Employment Growth Rates

Fig. 5

Fig. 6