The industrial impact of monetary policy

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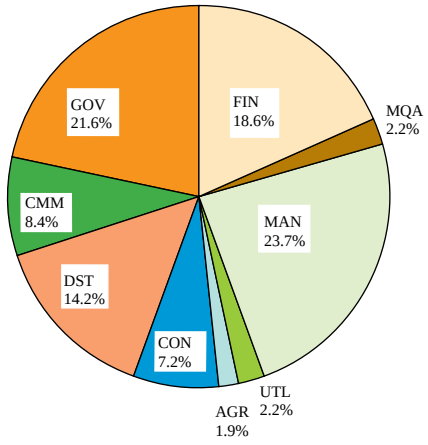
This article investigates the disaggregated effects of monetary policy on the output of 24 sectors of the UK economy. The purpose of the analysis is to identify the speed and magnitude of firms' reactions in these sectors to an unexpected monetary tightening; and to examine whether these responses provide any evidence on the transmission mechanism of monetary policy. The results indicate that the sensitivity of output to changes in monetary conditions differs markedly across industries.

The monetary authorities need to understand how the effects of a change in official interest rates are passed through the economy. Which sectors respond first to a policy change and are these effects more pronounced in some sectors than in others? A comparison of the impact of monetary policy across different sectors may therefore provide valuable information for the monetary authorities on how monetary policy shocks are propagated through the economy. This article analyses the response of output in 24 sectors of the economy to a monetary tightening.

Sectoral basis of the analysis

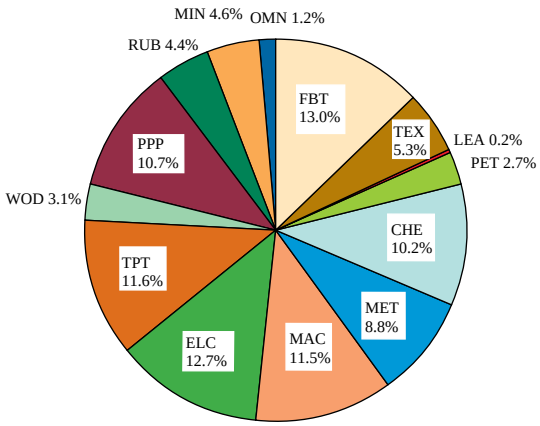
The industry breakdown used in this article is summarised in the Annex. At the broadest level, the output measure of the economy, GDP (O), can be sub-divided into four parts, namely the production industries, agriculture, construction and services. Within these four sectors, services can be split into three further components: distribution, transport and communications and 'other services'.(1) Other services contribute over 40% of GDP (see Chart 1); and the service sector as a whole over 60%. The available data do not permit any further disaggregation of services for the analysis we wish to undertake.(2) The production industries can also be broken into three large sub-groups: mining and quarrying, the utilities and manufacturing. Manufacturing can be further disaggregated into what is known as the 'sub-section' level in the Standard Industrial Classification (1992), enabling us to sub-divide manufacturing into 14 component industries. The share in manufacturing output of each of these industries is shown in Chart 2.

Chart 1
Contributions to GDP in 1990(a)



(a) The industry definitions are clarified in terms of the Standard Industrial Classification (1992) in the Annex.

Chart 2
Contributions to manufacturing in 1990



In addition to these basic industry output data, we also use concentration ratio and average firm output data as proxies for the size of manufacturing firms to help us to analyse the possible role of credit market imperfections in the transmission mechanism of monetary policy.(3) As Chart 3 indicates, there is substantial variation in manufacturing concentration ratios.(4) In vehicle manufacture, for example, the five largest firms produce around three quarters of the

(1) The latter aggregates financial and business services (FIN) with public sector activities (GOV).
(2) Some greater disaggregation of services output is available in the national accounts, but not on a quarterly basis.
(3) We also examined measures of the availability of industries' internal funds but were unable to find a statistically robust proxy, and so do not report the results here. This proxy is discussed more fully in a forthcoming *Bank of England Working Paper*.
(4) The data are sourced from the Annual Census of Production (various issues) and hence more timely data than 1991 are not currently available. Because collection of these statistics is time intensive we have compiled them for 1975, 1980, 1985, 1990 and 1991. These indicate that the data do not reveal any clear trends over time and so in subsequent analysis we refer to their mean values.

Chart 3
Manufacturing industry concentration ratios

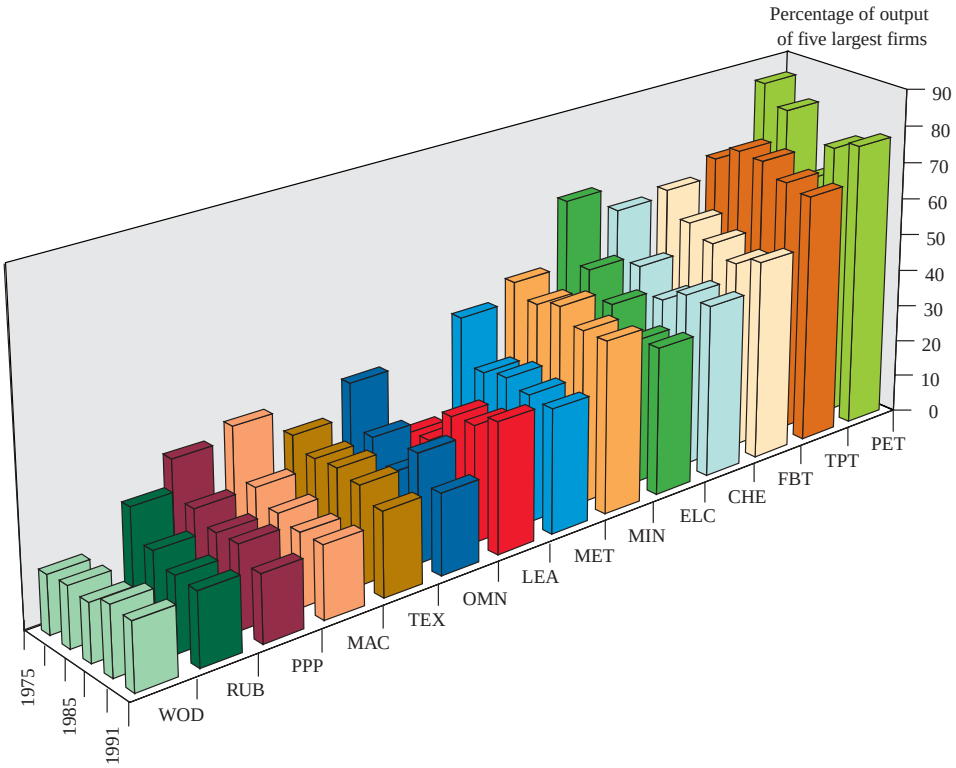
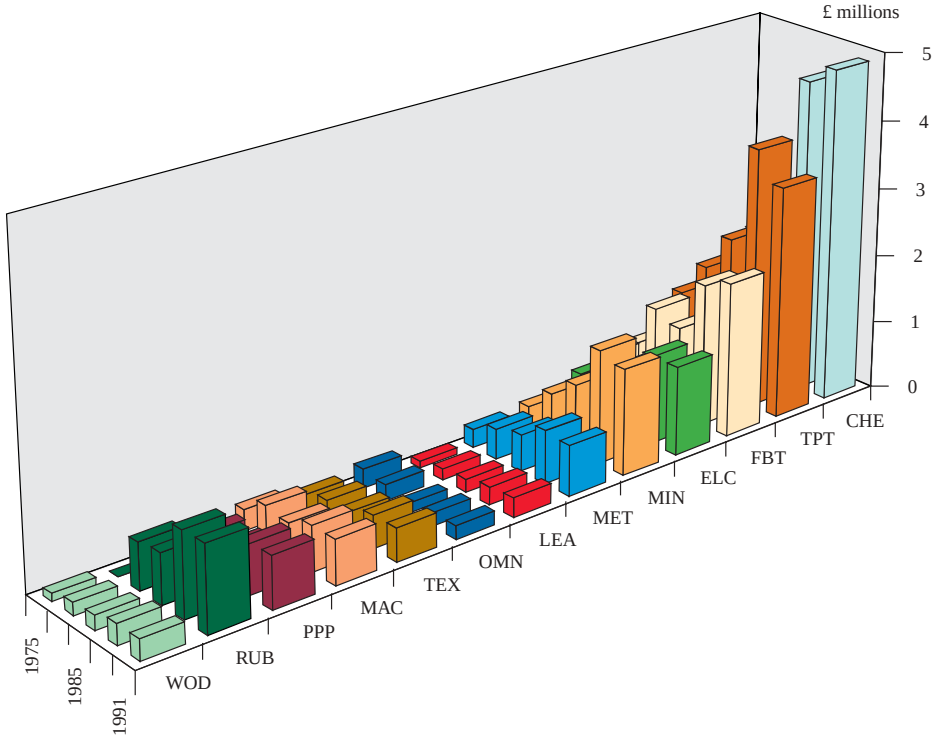


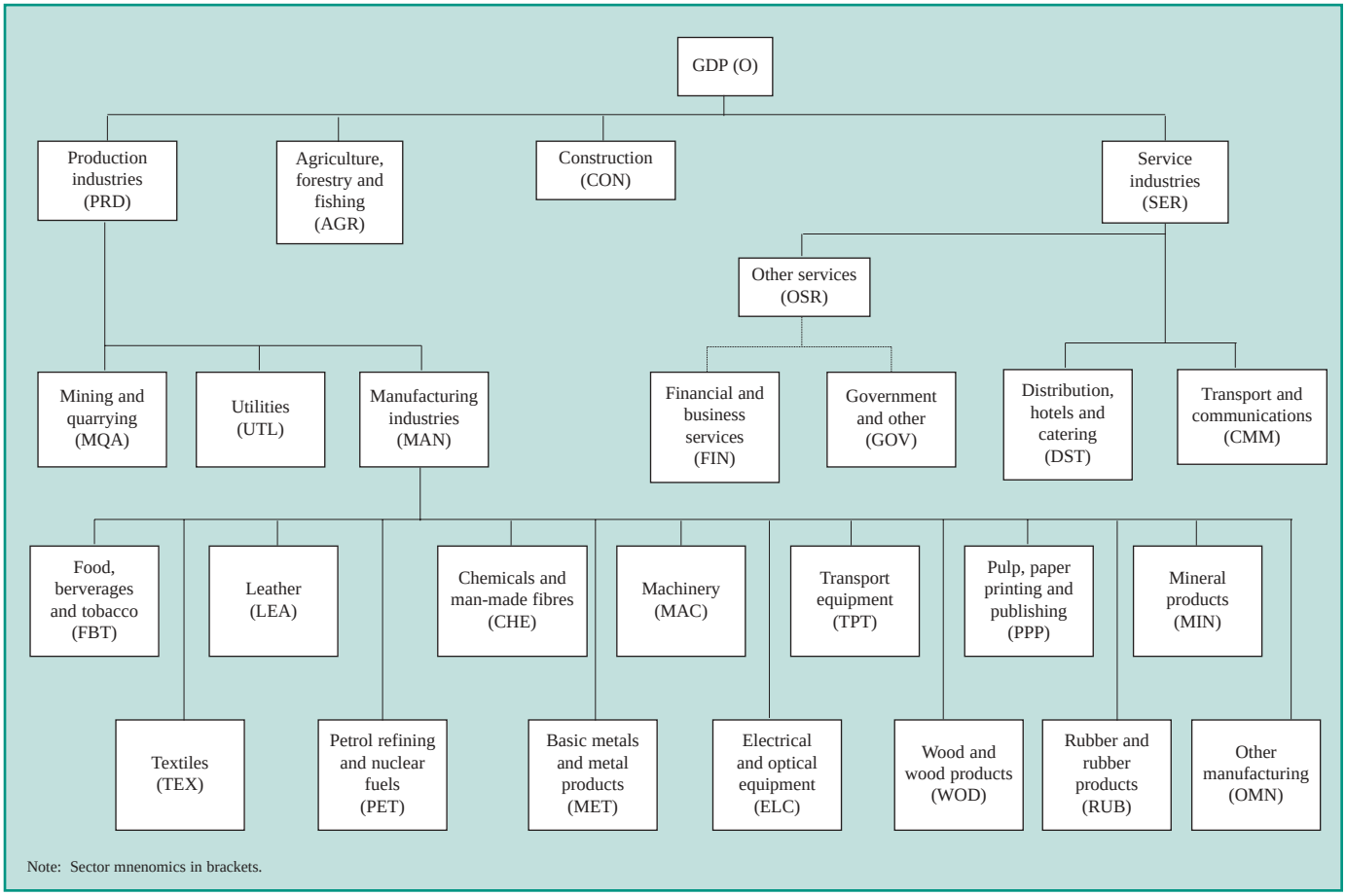
Chart 4
Average output per firm in manufacturing industry(a)



(a) Chart excludes PET where the average firm's output is ten times greater than the average for manufacturing industry as a whole.

industry's net output. This figure falls to under 20% in a number of industries, including the wood, rubber and paper manufacturing industries. There is similar, but rather more marked, variation in the average output per firm across manufacturing industries (see Chart 4). Excluding petrol refining—which is heavily influenced by multinational firms—output of the average firm was largest in chemicals (at £4.9 million in 1991), some 25 times greater than in the average firm in 'other manufacturing'. The output of the average firm in manufacturing as a whole (again, excluding

Table A
A sectoral breakdown of GDP



Note: Sector mnenomics in brackets.

petrol refining) was £1.4 million in 1991. Ideally, we would have liked to carry out this firm 'characteristics' analysis for all 24 of the sectors for which we have output data. But sufficiently detailed figures are available only for the manufacturing sector of the economy (see Table A).

The effects of monetary policy on industry output

This section gives an overview of our results on the responsiveness of industry output to an unexpected monetary tightening. Our focus is principally on the size and timing of the impact of a monetary shock on industry output. These are key characteristics of the transmission mechanism and may provide the authorities with valuable information when monitoring the effects of monetary policy. The *size* of response in each industry indicates how the impact of policy changes is distributed across the economy; while the *timing* of these responses suggests how long the 'real' effects of monetary policy may persist. We try to explain the responses that we observe in terms of the business cycle. In addition, the interplay of these business-cycle factors with the firm-size characteristics of individual industries may provide some evidence on the relative importance of the different channels of the transmission mechanism of monetary policy.

The problem of identifying the effects of a monetary tightening on output has usually been approached in a Vector Autoregression (VAR) framework.(1) Because the relationships which are defined in these are highly simplified, VAR techniques do not differentiate accurately between theoretical explanations of observed behaviour. But they are an efficient means of drawing out 'stylised facts' regarding the monetary transmission process. The technique involves estimating a set of four equations, for monetary policy (measured by official interest rates), aggregate real GDP, the aggregate GDP deflator and industry output. We use quarterly data from 1970 to 1994. The VAR allows us to extract the responses in output to an unanticipated increase, or 'shock', in official interest rates. As in similar studies, real GDP and the GDP deflator are included in the VAR to control for the indirect effects of policy changes on industry output. These arise through the effect of monetary shocks on the wider economy.(2)

(i) Size and timing of responses in the major sectors

Our key results are summarised in Table B, which shows the maximum reduction in output in each sector and how many quarters after the shock this occurs. We interpret this as a measure of the short-run real effects of monetary policy. The results show the response of industry output to an

(1) As in, for example, Christiano, Eichenbaum and Evans (1994).
(2) We discuss the estimation procedure in more detail in a forthcoming *Bank of England Working Paper*. It has become a standard approach to identifying the impact of monetary policy shocks. See, for example, Bernanke and Blinder (1992), Christiano, Eichenbaum and Evans (1994), Bernanke and Gertler (1995) and Dale and Haldane (1995). Some criticisms of this type of approach can be found in Rudebusch (1996).

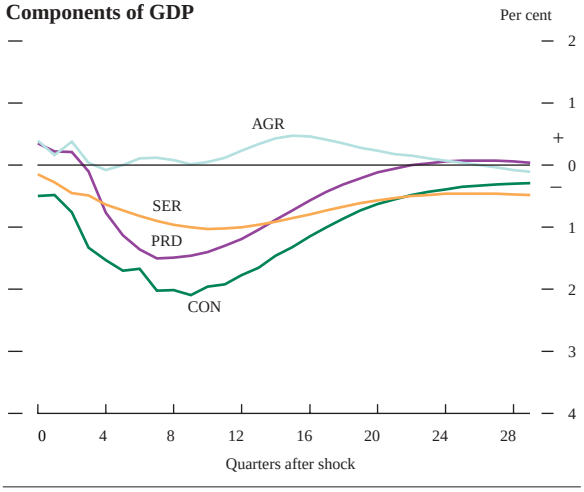
Table B
Size and timing of sector output responses

Industry	Maximum output reduction		Industry	Maximum output reduction	
	Per cent	Quarter		Per cent	Quarter
Memo:			Manufacturing industries:		
GDP (O)	-1.3	14	RUB	-3.6	10
			OMN	-3.2	9
			ELC	-3.0	11
Main components of GDP:			PPP	-2.5	11
CON	-2.1	10	LEA	-2.4	5
PRD	-1.5	8	WOD	-2.3	7
SER	-1.0	11	PET	-2.2	8
AGR	-0.1	30	MIN	-2.1	9
			CHE	-1.9	11
Other sectors:			MET	-1.9	7
DST	-2.1	11	TPT	-1.7	11
CMM	-2.0	11	TEX	-1.3	5
MQA	-2.0	6	MAC	-1.1	11
MAN	-1.9	9	FBT	-0.4	13
UTL	-0.9	6			
OSR	-0.6	13			

increase in official interest rates of 1.1 percentage points (equivalent to a one standard error shock to the interest rate). The analysis yields plausible results in that output is depressed in the first four to eight quarters after the shock. As a benchmark, the maximum decline in whole economy GDP is 1.3%, reached around three years after the (upward) shock to interest rates.

In the largest sectors of the economy—the components of GDP and of total services—the maximum decline in output generally occurs eight to twelve quarters after the shock. Most of this decline has been reversed after 30 quarters (see Chart 5, which shows the timing of the response in output to the monetary tightening), so in the long run the effects of policy can be described as 'neutral' with respect to the level of output.

Chart 5 (a)
Output responses of the major industrial groups



The largest absolute responses are in the construction and distribution sectors. For example, the results suggest that the decline in construction output will reach a maximum of 2.1% in the tenth quarter after the shock. This relatively large response is not unexpected, given the close links between the housing market and construction.

Among the other main sectors, the production sector shows a 1.5% reduction in output after a monetary tightening.

Chart 5 (b)
Output responses of the major industrial groups

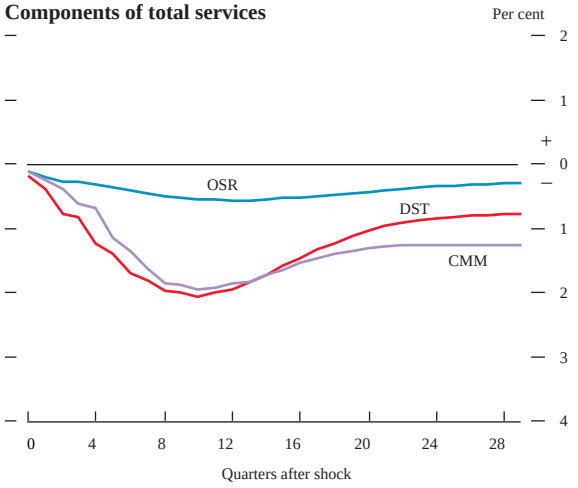
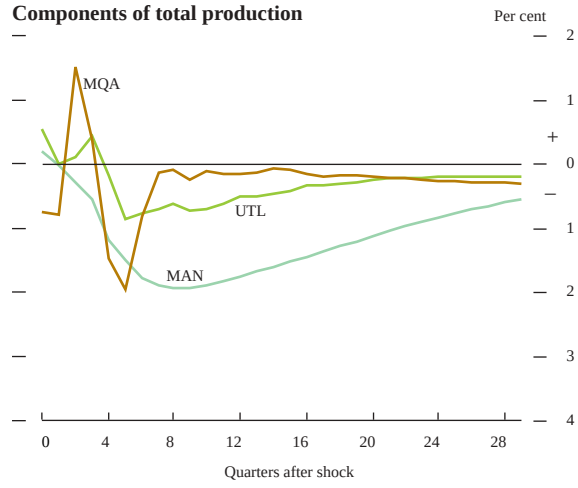


Chart 5 (c)
Output responses of the major industrial groups



Within the production industries, output falls sharply in manufacturing in response to the monetary shock, reaching a maximum contraction of -1.9% after nine quarters; after 30 quarters it is steadily approaching zero. The utilities, but more especially mining and quarrying, show erratic output responses. These are difficult to interpret, but they may be linked to the predominance of public sector industries in these sectors over much of our sample period. In addition, the mining and quarrying data contain severe distortions owing to industrial disputes. Within services, the smallest reaction to the shock is in other services. This may reflect the inclusion in other services of public sector activities, whose output may in part move countercyclically. Overall, the responses of these broad sectors are consistent with the cyclical variations normally associated with them.

The smallest output contraction is in agriculture. This sector shows little reaction to the monetary policy shock for ten quarters and moreover this is largely positive. UK agricultural output is primarily of staple products whose production would not be expected to respond procyclically.

(ii) Size and timing of the responses within manufacturing

We turn next to the output responses of the 14 industry groups within manufacturing. Rather than simply listing the results for all 14 of these industries, we group the results thematically into:

- industries which are closely linked to housing and construction;
- industries which are closely linked to changes in consumer expenditure; and
- industries which are principally selling on to other industries.

This taxonomy helps to clarify, in broad terms, the likely business-cycle properties of the industries, even though not all the industries fit exclusively into just one of these categories.

House purchase is highly interest rate sensitive and so housing starts might be expected to react rapidly to a tightening in monetary policy. This in turn is likely to result in a rapid downturn in the output of industries supplying construction, for example in the manufacture of basic building materials like glass, tiles, concrete and bricks (MIN) and in wood products (WOD). The results suggest that both of these industries have a maximum output response slightly above the average response of -1.9% for the manufacturing industries as a whole. In the case of wood products this is achieved quite rapidly, after only seven quarters—the second fastest response in manufacturing.

We also examine here the size of the output responses after one and two years. These are summarised in Table C. The responses one year after the shock show the greatest range in changes in industry output. Five industries contract by more than 1%. One of these is the construction sector and three of the remaining four sectors—wood, rubber and non-metallic mineral products—supply materials to construction firms.

Six industries are linked reasonably closely to consumer expenditure: food, drink and tobacco, textiles and leather goods, paper products, vehicle manufacture and other manufactured goods. But the reaction of personal consumption to monetary shocks may be quite diverse. Spending on durable items is likely to change sharply and with little delay—see for example the reaction of vehicle manufacture (TPT) in Chart 6 (a). Textiles and leather goods, as producers of clothing, footwear and household furnishings, both show their maximum response after only five quarters, the fastest responses across our whole data set. However, the absolute size of the maximum responses are quite different, with that in textiles surprisingly small at only 1.3%, compared with 2.4% in leather—which is perhaps more in line with our prior expectations [see Chart 6 (b)]. Non-durables could be much less affected since these purchases are more likely to be made out of current income than from borrowed funds. This is consistent with the subdued reaction of output in food, drink and tobacco (FBT) in Chart 6 (a).

Table C
Which sectors react quickest to a monetary shock?

	After 1 year:		After 2 years:	
Rank	Industry	Output reduction per cent	Industry	Output reduction per cent
1	RUB	-2.1	RUB	-3.4
2	LEA	-1.9	OMN	-3.1
3	WOD	-1.6	ELC	-2.6
4	CON	-1.3	PET	-2.2
5	MIN	-1.1	WOD	-2.2
6	OMN	-1.0	PPP	-2.1
7	DST	-0.8	CON	-2.0
8	ELC	-0.7	MIN	-2.0
9	MET	-0.7	MAN	-1.9
10	CMM	-0.6	LEA	-1.8
11	TEX	-0.6	MET	-1.9
12	MAN	-0.5	DST	-1.8
13	SER	0.5	CHE	-1.8
14	PPP	-0.4	CMM	-1.6
15	CHE	-0.3	PRD	-1.5
16	OSR	-0.2	TPT	-1.5
17	PET	-0.3	TEX	-1.2
18	FBT	-0.2	SER	-0.9
19	PRD	-0.1	MAC	-0.9
20	AGR	—	UTL	-0.7
21	MAC	0.2	OSR	-0.5
22	MQA	0.4	FBT	-0.4
23	UTL	0.4	MQA	-0.1
24	TPT	0.5	AGR	0.1

Chart 6 (a)
Selected output responses in manufacturing

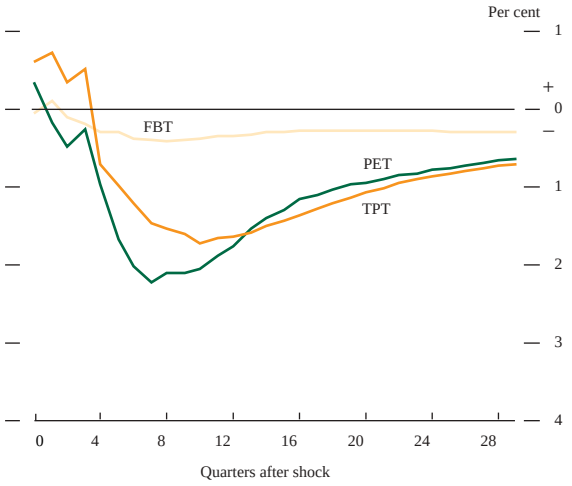
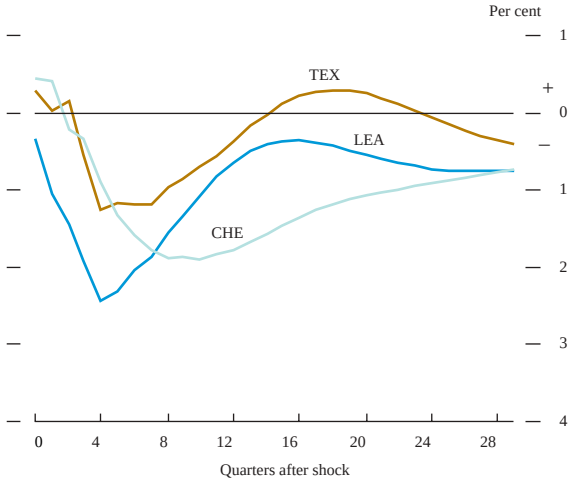


Chart 6 (b)
Selected output responses in manufacturing



A further six of the industries may be linked more closely to industrial demand than to personal consumption; these are chemicals, electrical equipment, machine tools, iron and steel, refining and rubber products. The demand for intermediate goods will include purchases of materials and of capital goods. Although the empirical evidence is mixed, we would generally expect investment expenditure to be interest rate sensitive, such that purchases of capital goods are likely to fall in a downturn. However, the effects of this on industry output may be delayed by the long lead times in commitments to buy new capital goods. Thus, while investment *intentions* may change rapidly in response to tighter monetary policy this may not show up in lower output for several quarters. So the reaction of these industries may be delayed. There is some evidence for this in our results, which show that four of the six industries (chemicals, electrical equipment, machine tools and rubber products) do not attain their maximum impulse response for ten or eleven quarters; the average time lag in attaining the maximum response across all 14 manufacturing industries is 8.5 quarters.

Among those industries closely linked to industrial demand, and indeed across manufacturing as a whole, the largest contraction in output, at -3.6%, is in rubber products. This is a very diverse industry, largely dependent upon industrial demand from construction, motor vehicle manufacture and services like haulage. The size of the response is consistent with the industry's links with construction and motor vehicle manufacture, both of which might be expected to show a marked response to changes in monetary policy. The timing of the maximum response in rubber products is also slower than average, which may be the result of a more gradual slowdown in purchases from service-related industries.

Overall, the results indicate that the impact of monetary policy is concentrated in some industries which, except in the case of rubber products, may also react first—thereby providing the authorities with early information on the impact of policy changes.

Firm characteristics and the effects of monetary policy

Our results have shown that, at least in the short run, monetary policy can have varying effects on the output of different sectors in the economy. There remains considerable uncertainty in the wider literature as to precisely *how* these effects are obtained. A recent symposium in the *Journal of Economic Perspectives* (Fall, 1995) examines the many possible routes through which a monetary shock may be propagated. Gaps in some of the more conventional explanations have led a number of economists to explore whether asymmetric information between borrowers and lenders, and 'frictions' in credit markets, might help to explain the differing potency of monetary policy across sectors.

These frictions are based around the difficulties involved in extracting full information on the creditworthiness of certain types of borrower. Insofar as banks are experts in credit risk appraisal, borrowers whose risk is harder to measure—notably small firms and personal borrowers—may become almost exclusively reliant on banks as a source of external finance. As Gertler (1988) notes 'financial constraints are likely to have more impact on the real decisions of individual borrowers and small firms than large firms'. It has been pointed out, however, that these credit market frictions are not a distinct, free-standing alternative to traditional views of the monetary transmission mechanism. Rather, they are best interpreted as a set of factors that may amplify and propagate conventional interest rate effects.(1)

Larger firms are likely to be less dependent on bank credit because they will have access to external funds generated in the capital markets. This is because more information is available on large firms and this can often be pooled relatively cheaply—for example by ratings agencies—which allows dispersed investors in financial markets to assess their credit risk. With a greater range of external funds at their disposal, larger firms may be better able to 'smooth' their spending and output decisions.

Some evidence for the existence of credit market imperfections has been found in Dale and Haldane (1995). Using a VAR methodology similar to our own, they compare the response of the personal and corporate sectors to a monetary tightening. They find that, in the short run, companies raise their borrowing and reduce their deposits; the personal sector, by contrast, increases its deposits while its bank borrowing declines. The difference between personal and corporate sector responses—in particular the *decline* in personal sector borrowing—is attributable to the more acute credit market frictions faced by household borrowers. Similar results were found by Gertler and Gilchrist (1994) in a comparison of small and large manufacturing firms in the United States. Their results suggested that, after a monetary tightening, small manufacturing firms bore a disproportionate share of the downturn in aggregate output.

Disaggregated data on small and large manufacturing firms are not available in the United Kingdom. So we cannot test directly for the effects of credit market frictions in the manner of Gertler and Gilchrist. But data on the concentration, net output and number of firms in manufacturing can be used to give an approximate guide to the size of firms in particular industries. This allows us to examine indirectly the effects of credit market frictions insofar as these data reveal that particular industries are made up of small or large firms.

In Table D we compare the maximum responses in industry output with proxies of firm size, namely the concentration ratio and average firm size in each industry within manufacturing.(2) The concentration ratio indicates the

(1) See Bernanke and Gertler (1995).
(2) The data on the concentration ratio and average output in Table D are averages over 1975 to 1991.

Table D
Manufacturing industries: output responses and firm characteristics

Industry	Maximum output reduction, per cent	Concentration ratio, per cent of output, 5 largest firms	Average output, £ millions	Ranking of : Maximum output reduction	Concentration ratio	Average output
RUB	-3.6	22.8	1.0	14	13	7
OMN	-3.2	27.3	0.2	13	9	13
ELC	-3.0	49.1	1.0	12	5	6
PPP	-2.5	23.7	0.5	11	12	10
LEA	-2.4	27.4	0.2	10	8	14
WOD	-2.3	16.5	0.2	9	14	12
PET	-2.2	76.0	15.9	8	1	1
MIN	-2.1	48.2	1.0	7	6	5
MET	-1.9	36.6	0.6	6	7	8
CHE	-1.9	49.3	3.1	5	4	2
TPT	-1.7	69.8	2.5	4	2	3
TEX	-1.3	26.3	0.4	3	10	11
MAC	-1.1	24.1	0.5	2	11	9
FBT	-0.4	55.7	1.5	1	3	4
Average	**-2.2**	**39.5**	**2.1** 1.0 (excl PET)	..	..	..
Spearman rank correlation coefficient, probability value:					0.91	0.89

.. not available.

proportion of net output accounted for by the five largest firms in each industry and gives a measure of how *skewed* that industry is towards large firms. We use this information in conjunction with the data on average firm size, which measures the average value added or net output of firms within each industry. These two industry characteristics appear to show some link with the effects of monetary policy shocks. For example, industries like other manufacturing and rubber products—with below average concentration and low average firm output—generally show a larger maximum response to the shock. Of course, there are exceptions to these linkages. Firms producing office machinery and electrical parts, for example, can be characterised as 'reasonably large', yet this industry shows the third strongest output reaction, while 'small' firms, such as those producing machine tools, show the second smallest response.

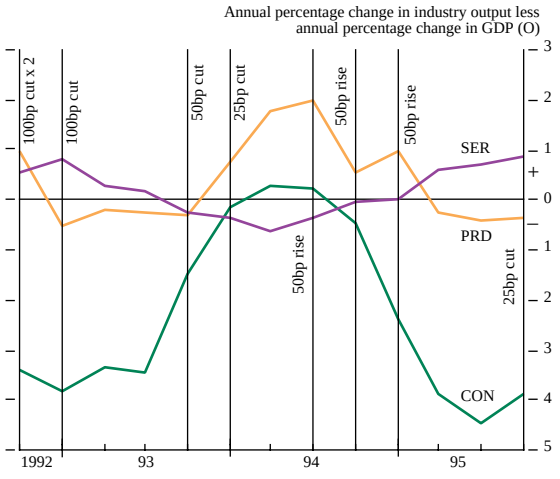
To determine whether these linkages have any statistical significance, Spearman rank correlation coefficients are calculated between the output responses from the VAR model and the two industry characteristics. Both the concentration ratio and the average firm size measures are significantly correlated with the output responses at around the 90% level.(1) So there appears to be some link between industry-size measures and the output responses. One possible interpretation of this is that credit market imperfections may play a role in the transmission mechanism. For example, the textiles and leather industries sell into markets which we would expect to behave similarly over the cycle. But their output responses to the monetary shock are very different. Textiles has the third smallest response, at -1.3%. Leather, where firms are on average little more than half the size of those in textiles, shows a much larger output contraction of -2.4%. Similar contrasts can be observed in other industries like wood products and non-metallic minerals: both serve similar markets, but the firms in wood products are typically much smaller and generate a larger response to the shock than those in non-metallic minerals.

Monetary policy and industrial output since 1992

The results above have shown that the industrial impact of monetary policy shocks has shown a distinct sectoral pattern on average over the last 25 years. In part this appears to reflect variations in the nature of the demand for the different industries' output, but it may also be related to the characteristics of the firms within each industry. Do these results also hold over the final years of the sample period and into 1995?

Sectoral developments in output from the final quarter of 1992 to the end of 1995 are shown in Charts 7 to 9. Vertical lines in these charts show the date of changes in official interest rates. There are several difficulties in translating the results discussed above to the output developments in Charts 7 to 9. First, as the main results confirm, output typically responds with a lag to monetary policy shocks, so the most recent output developments will reflect a combination of responses to prior changes in monetary policy. Second, to some extent the changes in monetary policy may have been *anticipated*. If so, our analysis tells us less about the likely output responses, since it is concerned with *unexpected* changes in interest rates. Third, other factors may have influenced industries' output over this period. Our full-sample results attempted to control for two such factors, namely changes in real GDP and in the price level (measured by the GDP deflator). Charts 7 to 9 attempt to control only for changes in GDP, by plotting industry growth rates as differences from total GDP growth.(2) To some extent, this should control for general cyclical influences.

Chart 7
Selected output developments since 1992: main components of GDP



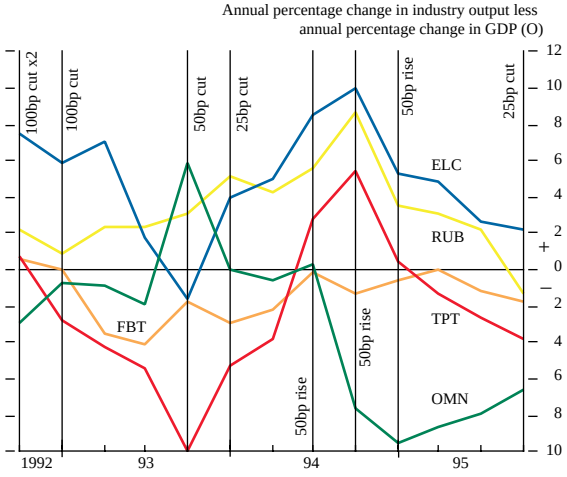
(1) We have not directly combined our mean (average output) and spread (concentration) measures of industry size into a composite indicator for these tests.
(2) Growth of zero implies that an industry grew at the same rate as GDP, positive growth that the industry's output grew quicker than GDP, and negative growth that output grew slower than GDP.

Nevertheless, similar sectoral patterns to those in our main results—based on data from 1970 to 1994—can be observed. Chart 7 focuses on the main components of GDP, although agricultural output is excluded because it is determined largely by non-monetary factors. Of the other sectors, construction has been the most volatile relative to total GDP growth, and services the least. Although growth in construction was lower than GDP growth through 1993 to summer 1994, it recovered, albeit rather slowly, relative to growth in the economy as a whole following the substantial monetary easing in 1992. But through 1995, construction output growth fell rapidly relative to that in total GDP following increases in interest rates in late 1994.

Table C showed a slow response to monetary shocks in the production industries over the main sample period. So the rather delayed increase in their output growth (relative to overall GDP growth) during summer 1994 is consistent with the late 1992/early 1993 reductions in interest rates. As we found in our results in Table C, services generally show the least response to changes in interest rates. However, growth in the service sector has been atypically fast (relative to overall GDP growth) since early in 1995. For given rates of growth in the rest of the economy, this depresses the contribution that other sectors, eg production and construction, may make to GDP growth. This may have exaggerated the relatively slow growth during 1995 in production and construction in Chart 7.

In Chart 8 we consider a sub-set of the manufacturing industries. Their developments are typical and are consistent with the results for the main sample period. Rubber products and food, drink and tobacco showed the largest and smallest responses respectively to a monetary policy shock in the main results. Recent developments in the industries fit this pattern. Growth in food, drink and tobacco has closely followed that of GDP; while in rubber products growth expanded at a faster rate through 1993–94 following the prior interest rate reductions. Then in 1995 its quarterly growth fell below GDP growth, so that its annual

Chart 8
Selected output developments since 1992: manufacturing industries

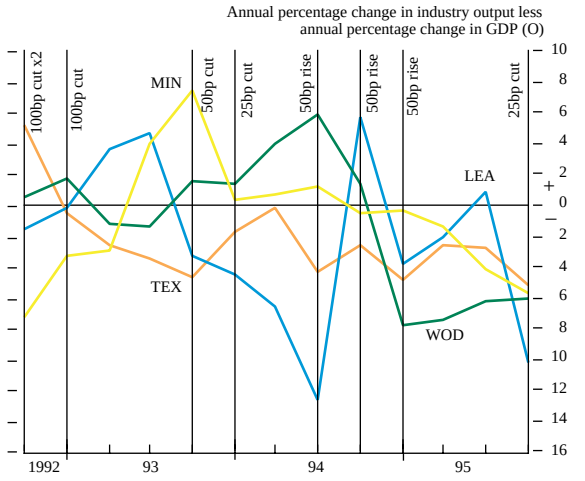


growth rate began to fall back relative to annual GDP growth. Developments in electrical equipment (ELC) are also consistent with our results. Overall it exhibited the third largest response of all manufacturing sectors to monetary shocks, but unlike rubber products this response occurred with a relatively long lag (see Table C). This is also apparent in Chart 8: through 1993 growth in office machinery slowed (relative to GDP) following the monetary tightness of the ERM period, but then in 1994 its output recovered—approximately two years after the post-ERM monetary policy loosening.

But recent developments in some other industries are more difficult to interpret in terms of our main results. Vehicle manufacture for example appeared to have an output response which was both slow (Table C) and among the smallest in manufacturing (Table D). But through 1993 growth in vehicle production fell sharply relative to GDP growth, only to recover during 1994, before suffering another bad year in 1995. And other manufacturing seems to have responded more slowly than in the past.

In Chart 9 we compare developments in non-metallic minerals and wood products, and in textiles and leather. The main results suggested that firm-size characteristics influenced these different sectors' responses to monetary policy shocks. But recent developments are less consistent with our earlier results, with no obvious differences apparent between the two pairings. One possible explanation could be the financial retrenchment of industrial and commercial companies (ICCs). The 1992–95 period saw net repayments of bank credit by ICCs, which may have lessened the relative importance of different firms' access to credit finance in determining their response to monetary developments.

Chart 9
Selected output developments since 1992: manufacturing industries



Summary

The effects of monetary policy tightening seem to be unevenly distributed across sectors of the economy. The size and timing of contractions in output confirm that some

industries are especially sensitive to a tightening of monetary conditions. As might be expected, sectors such as construction show a sizable and rapid decline in output whereas others, like services, show a much more muted reaction. Manufacturing as a whole also responds quite sharply to a monetary tightening but some large industrial sectors, notably the utilities, show a subdued response. Within manufacturing there is a quite wide variation in responses. The smallest is in the manufacture of food, drink and tobacco, which shows only a very modest decline in output, while others—including rubber products and electrical equipment—show much larger changes. Some of the industries showing the largest responses are made up of relatively small firms, perhaps indicating that credit market imperfections may play a role in the monetary policy transmission process.

Annex

SIC (1992) industry definitions

AGR:	Section A; B	Agriculture, hunting and forestry; fishing
PRD:	Section C; D; E	Mining and quarrying (MQA); manufacturing (MAN); electricity, gas and water supply (UTL)
CON:	Section F	Construction
SER:	Sections G to Q	All service industries
DST:	Section G; H	Wholesale and retail trade, repairs; hotels and catering
CMM:	Section I	Transport, storage and communications
OSR:	Section J, K, L, M, N, O, P, Q	Financial and business services; public administration, education, health and other services
FBT:	Subsection DA	Manufacture of food products, beverages and tobacco
TEX:	Subsection DB	Manufacture of basic textile fibres and clothes
LEA:	Subsection DC	Manufacture of leather products and footwear
WOD:	Subsection DD	Manufacture of wood products and building materials
PPP:	Subsection DE	Manufacture of paper, publishing and printing
PET:	Subsection DF	Manufacture of refined petroleum products, coke and nuclear fuel
CHE:	Subsection DG	Manufacture of basic chemical products, paint, soap, pharmaceuticals
RUB:	Subsection DH	Manufacture of tyres, rubber products and building materials
MIN:	Subsection DI	Manufacture of non-metallic mineral products, glass, tiles, building materials
MET:	Subsection DJ	Manufacture of iron and steel, castings
MAC:	Subsection DK	Manufacture of machine tools, basic components
ELC:	Subsection DL	Manufacture of office machinery, electric motors and parts
TPT:	Subsection DM	Manufacture of motor vehicles, aircraft, shipbuilding
OMN:	Subsection DN	Other manufacturing of furniture, miscellaneous household goods

Source: *Standard Industrial Classification of economic activities 1992* (London: HMSO) from which fuller details can be obtained.

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