

**Assessment of QEC Forecasts,
1984-90**

T. J. Baker and Anne Wren

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**T. J. BAKER
S. SCOTT
A. WREN**



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1. Introduction

Like most economic forecasters, we keep an informal check on the performance of our forecasts. Significant errors are analysed in the hope of minimising their recurrence in the future. There is a strong case, however, for undertaking and publishing a more structured overview of forecasting performance from time to time. Studying several years' forecasts together should indicate whether there is any tendency for errors to follow persistent patterns. Accordingly, this exercise examines the forecasts presented in *Quarterly Economic Commentaries* (QEC) for the years from 1984 to 1990.

The idea of comparing economic forecasts with the measured results of economic performance is simple and obvious. In practice, the task is quite complex. Each QEC contains projections for about fifty independent items, as well as for sub-totals of these items and major National Accounts aggregates. Moreover each year is covered by eight sets of forecasts or estimates, starting in the preceding summer and concluding in the spring of the following year. To examine each forecast for each item would be unduly onerous for both writer and reader. Clearly a degree of selection is necessary.

Comparison is further complicated by frequent and sometimes substantial revisions to official economic series, and particularly to National Accounts estimates published in *National Income and Expenditure* (NIE). Thus there can be considerable uncertainty as to the appropriate measure of "actual" performance with which the forecasts should be compared.

In an attempt to deal with these problems within a reasonable length, the structure adopted for this exercise is as follows. For the period as a whole we shall examine only the major aggregates of GNP and GDP, and such key items as personal consumption, gross fixed capital formation, exports, imports, aggregate non-agricultural wages, unemployment and the consumer price index. Comparisons will be in terms of annual percentage volume changes, except, of course, for consumer prices. Only the initial forecasts and final estimates from the QEC will be plotted against the latest NIE estimates, with the preliminary NIE estimates also shown where these diverge substantially from the 1989 results. Following this overview of major items, the full run of GNP forecasts for each year will be presented, with discussion of how and why the forecasts may have diverged from the actual out-turn. Finally conclusions will be drawn, concerning the overall accuracy of the QEC forecasts, the relevance of policy advice, and whether any persistent weaknesses can be eliminated.

2. Overview

2.1: GNP 1984-90

Chart 1 sets out annual percentage changes in the volume of Gross National Product for each year from 1984 to 1990, as first predicted in the QEC, usually

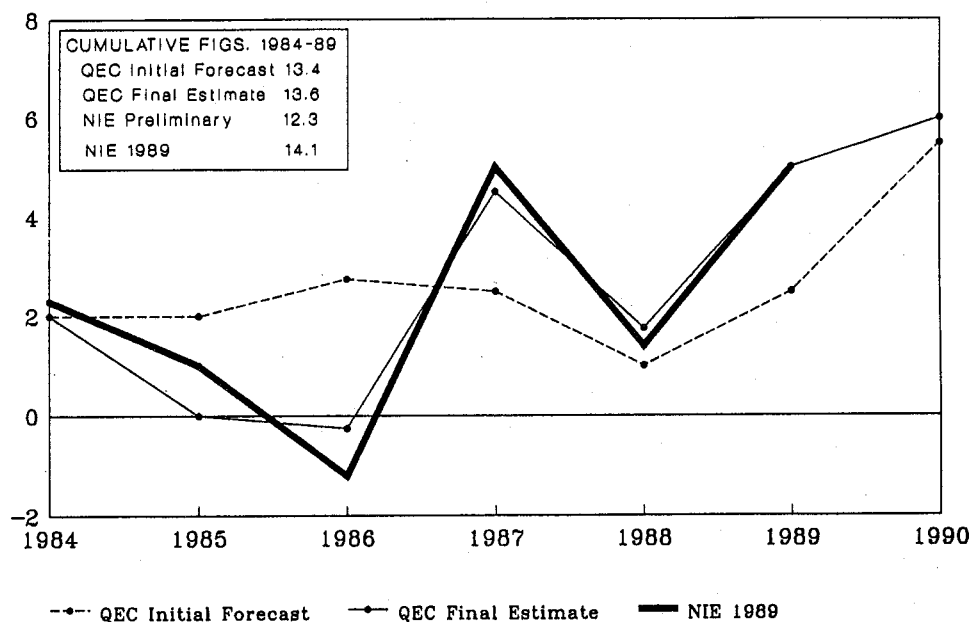
in the previous summer, as finally estimated in the QEC in April of the following year, and as shown in the latest, 1989, NIE. The chart also shows the cumulative growth between 1984 and 1989 on each of these measures. For those who prefer to read numbers rather than assess them from a chart, the appendix presents the data in tabular form, and also shows the preliminary NIE estimates.

It can clearly be seen that the final QEC estimates are fairly close to the NIE measures. This is not surprising as the final estimates are made three or four months after the end of the year, when many important indicators for the year, such as the trade statistics and retail sales index are already available. Nevertheless, it is reassuring to confirm that the final QEC estimates are generally a reliable guide to the previous year's growth rate, bearing in mind that they appear several months before the preliminary NIE.

The initial forecasts, made five or six months before the start of the year obviously perform less satisfactorily, with an average error of almost 1.8 per cent *vis-a-vis* NIE 1989. The deviations in individual years will be discussed in a later section of this exercise. So far as the general picture is concerned, two features stand out. The first is that there is no persistent tendency towards either optimism or pessimism in the forecasts. As the cumulative totals show, the forecast growth over the entire period lay close to the actual, indicating that the growth trend over the period as a whole was correctly predicted, although there was some tendency towards over-prediction in the earlier years and under-prediction in the later.

CHART 1: REAL GNP 1984-90

Annual % Change, Expenditure Data



The second feature is that the initial forecasts show much less variability than the actual out-turns. It would be going too far to say that the initial forecasts represent a naive projection of the average growth rate over the period, but it is clear that only the forecasts for 1988 and 1990 fall outside the narrow range of 2 to 2¼ per cent. Few of the substantial deviations from the medium-term trend were foreseen eighteen months or so in advance.

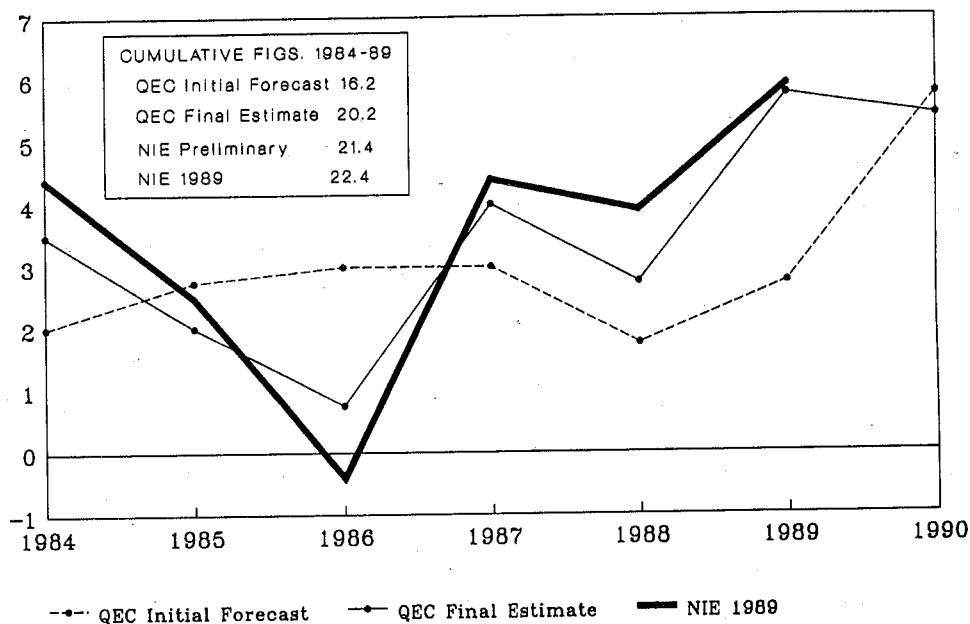
2.2 GDP 1984-90

Chart 2 plots changes in real GDP, on the same basis as Chart 1 for GNP. The broad picture of the QEC final estimate being close to the actual out-turn, while the QEC initial forecast showed insufficient variability, is similar to that for GNP. However, there is one significant difference between the two charts. In the case of GDP, the initial forecasts substantially underestimated the growth between 1984 and 1989. Underestimation occurred in four of the six years, while the cumulative increase forecast was 5 or 6 per cent below the actual.

This tendency towards pessimism concerning GDP growth is compatible with the lack of bias in GNP forecasts because it is offset by a tendency towards optimism in forecasting the very volatile item of Net Factor Flows.

CHART 2: REAL GDP 1984-90

Annual % Change, Expenditure Data



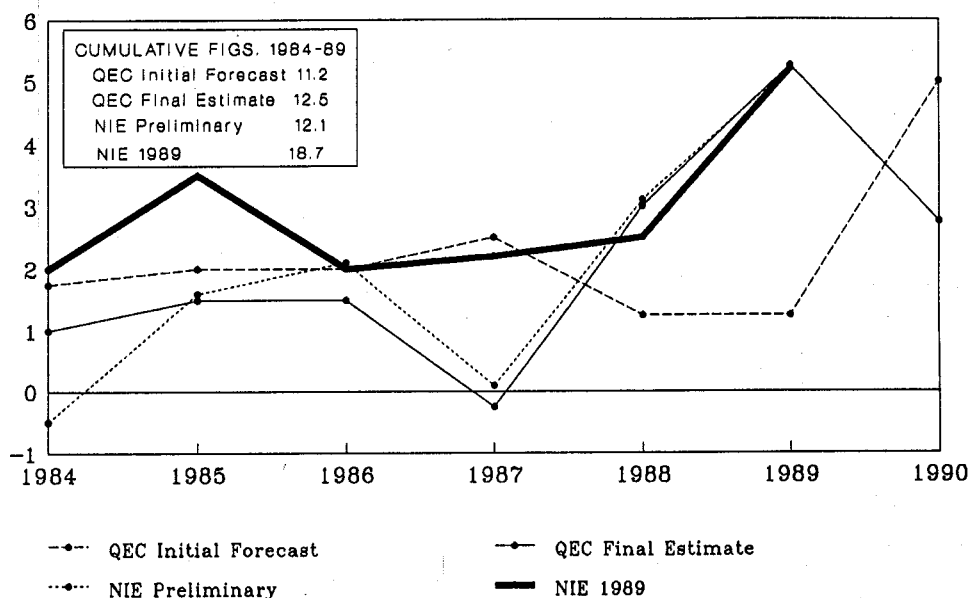
2.3 Personal Consumption 1984-90

As we move on to consideration of the major components of Expenditure on GDP, the practical difficulties of defining the actual result with which to compare our forecasts become increasingly apparent. The difference between the preliminary NIE estimates shown in Chart 3 and the latest revisions contained in NIE 1989 exceed the differences between QEC initial forecasts and final estimates in 1984 and 1985 and cumulatively over the period. Moreover, the NIE estimates in some of the intervening years showed even greater variability. The retail sales volume index is also included in the appendix table, to illustrate that as a short-term indicator of personal consumption volume it is a far from reliable guide.

As might be expected, the QEC final estimates fit reasonably well with the preliminary NIE estimates, although not with the latest revised NIE figures. The initial QEC forecasts show much the same cumulative growth as the NIE preliminary estimates, with overestimation in the earlier years being offset by a failure to predict the strong recovery in personal consumption in 1988 and 1989. Compared with the latest NIE revisions, the initial QEC forecasts tend towards under-prediction even in the earlier years.

CHART 3: REAL PERSONAL CONSUMPTION 1984-90

Annual % Change

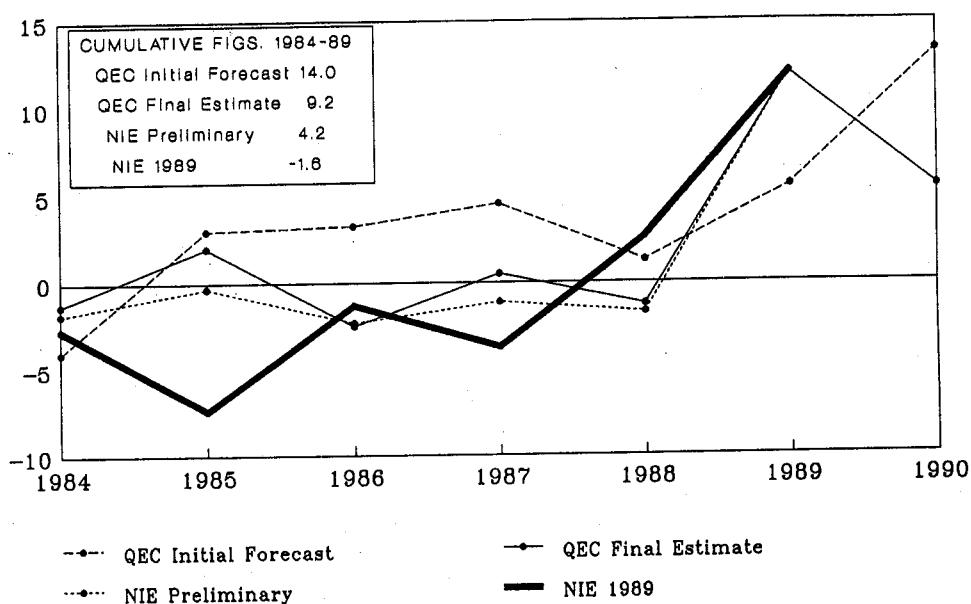


2.4 Fixed Investment 1984-90

As Chart 4 shows, NIE revisions to estimates of real gross domestic fixed capital formation are even more startling than the revisions to real personal consumption. In the extreme case of 1985 the NIE estimates range from an initial fall of -0.3 per cent in the preliminary estimate to a fall of -8.3 per cent in the 1988 NIE, before receding to -7.6 per cent in the latest NIE.

Nevertheless, the gyrations of official estimates do not obscure the fact that the forecasting record of the QEC in relation to fixed investment has been poor. Even the final estimates have proved over-optimistic, with a cumulative rise between 1984 and 1989 of 9.2 per cent, compared with 3.3 per cent on NIE preliminary estimates and a cumulative decline of 1.6 per cent in NIE 1989. Initial forecasts were even more optimistic, with increases predicted for 1985, 1986 and 1987, when actual declines took place according to any subsequent NIE measure. Only for 1984 and 1989 were the initial forecasts proved too pessimistic.

CHART 4: REAL GROSS DOMESTIC FIXED CAPITAL FORMATION 1984-90
Annual % Change



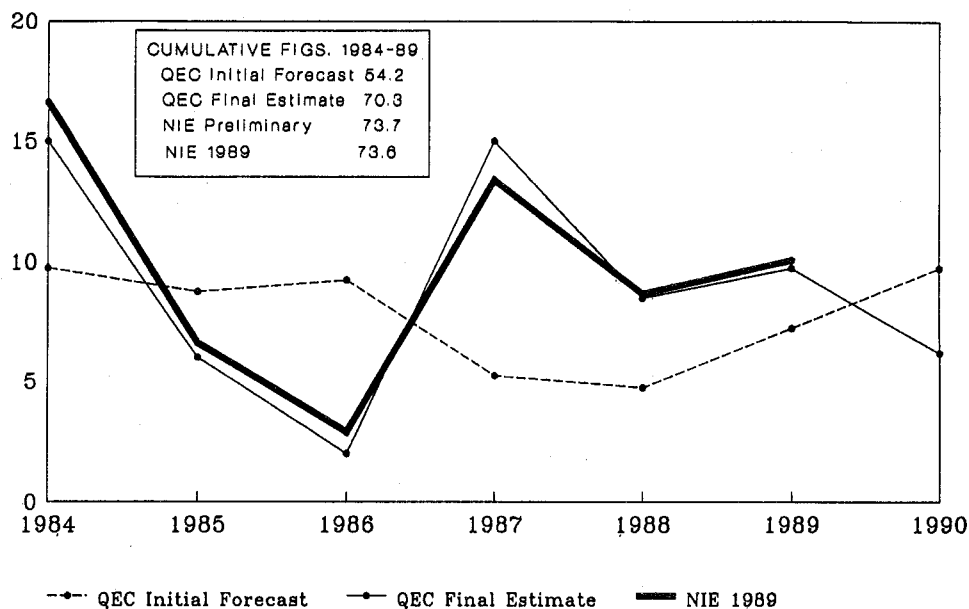
2.5 Exports 1984-90

For exports and imports of goods and services, revisions to NIE estimates do not present a problem in the period covered, as any changes have been marginal. Little credit can be claimed for the fact that QEC final estimates are quite closely in line with the out-turn. In every year trade statistics were available by the time of the final estimate, and in some years the initial balance of payments figures were also to hand. The minor differences seen in Chart 5 between the QEC final estimates and the actual results are thus due mainly to small errors in deflating the available value figures to volume terms.

Cumulatively, the QEC initial forecasts have proved significantly too pessimistic, predicting less than 75 per cent of the actual real growth in exports of goods and services between 1984 and 1989. Growth was underestimated in five of the six years, and seriously overestimated only in 1986.

CHART 5: REAL EXPORTS OF GOODS AND SERVICES 1984-90

Annual % Change

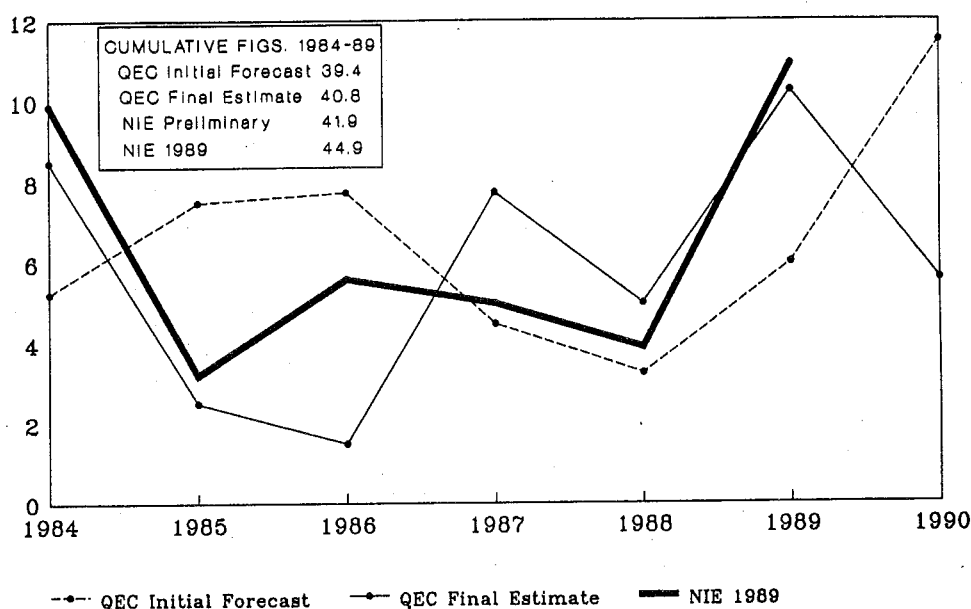


2.6 Imports 1984-90

As with exports, the differences between the QEC final estimate and the actual volume of imports of goods and services are due largely to problems of price deflation. The errors shown in Chart 6 for 1986 and 1987 are thus surprisingly large, although they tend to cancel each other out on a cumulative basis. There is no evidence of persistent optimism or pessimism in the initial forecasts. The cumulative increase is quite close to the actual, and the pattern is what would be expected, with overestimation in the years when GNP growth was less than forecast and underestimation when growth was faster than predicted.

CHART 6: REAL IMPORTS OF GOODS AND SERVICES 1984-90

Annual % Change



2.7 Other Expenditure Components

No data are shown here for the other components of expenditure on GNP. Initial forecasts of government consumption tend to be quasi-normative assumptions rather than true predictions, although cumulatively over the period they proved quite realistic, postulating a fall of 6.4 per cent against an NIE 1989 actual cumulative fall of 8.9 per cent.

Stock changes are difficult to compare, as the volume figures are conceptually different in the QEC from the NIE estimates. In value terms, the cumulative effects of stock building over the period were under-predicted to the extent of about 1 per cent of GNP.

As already noted, the rise in net factor outflows was seriously underestimated in the QEC initial forecasts. In part this is a logical consequence of underestimating export growth and in part it is because the earlier forecasts were based on seriously inaccurate preliminary official estimates of previous

years' outflows. Even when these "black-hole" errors had been corrected, it was some time before new relationships based on the revised figures could be established.

2.8 *Non-Agricultural Wages Etc. 1984-90*

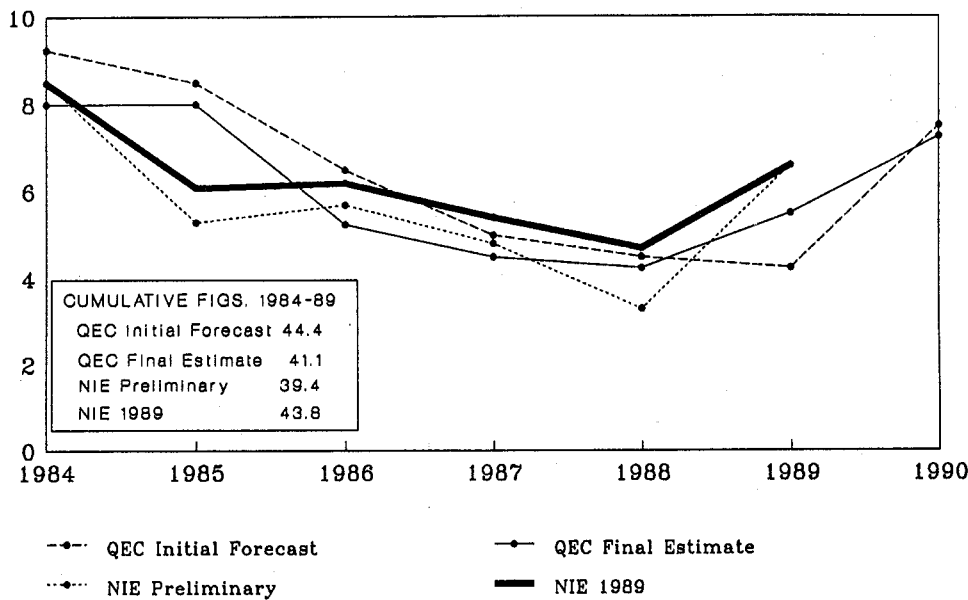
Attention so far has been focused on volume changes in the expenditure components of GNP. Our National Accounts forecasts also include income components, although these are presented only in current price value terms. The most important of these components, accounting for more than half of GNP, is remuneration of non-agricultural employees, generally referred to as wages, although it also includes salaries, occupational pensions and employers' contributions to social welfare.

Chart 7 shows the forecasts and out-turns in relation to aggregate wages, on the same basis as the previous charts except that the annual percentage changes are in value rather than volume terms. It can be seen that, as in the case of several expenditure items, the NIE estimates are subject to considerable revision. It is also apparent that the final QEC estimates are less accurate than in the case of most expenditure items. This is not particularly surprising, as reliable figures for employment levels and economy-wide changes in pay rates are not available by April of the succeeding year when the final QEC estimates are compiled.

However, the initial QEC forecasts for aggregate wages have proved considerably more reliable than the initial forecasts for most expenditure items. The cumulative increase over the period is almost exactly in line with the 1989 NIE, while only in two years has the annual error exceeded 2 per cent.

CHART 7: AGGREGATE NON-AGRICULTURAL WAGES ETC. 1984-90

Annual % Change



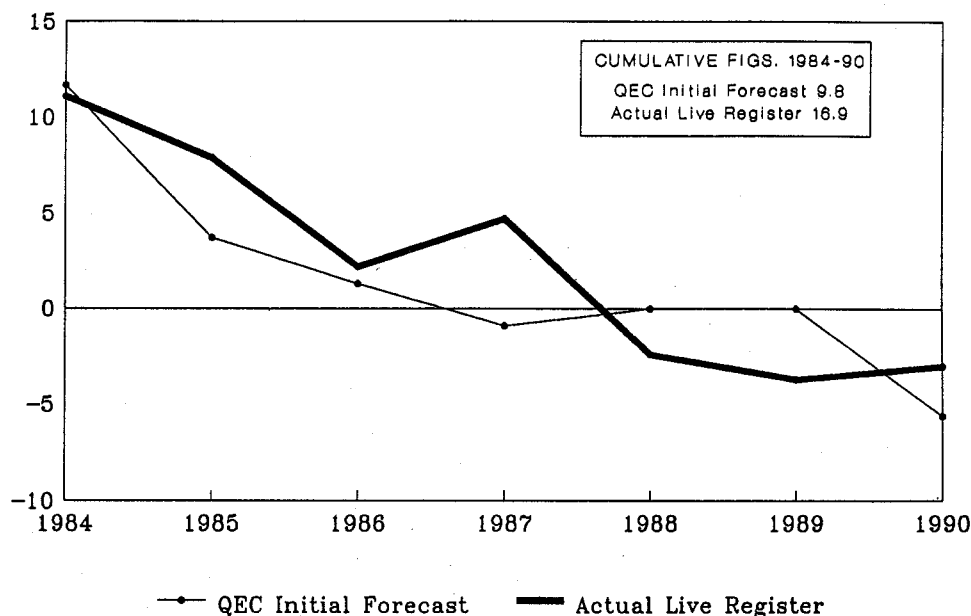
2.9 Live Register 1984-90

One reason for inaccuracy in forecasts of aggregate wages and consumption was the fact that they were based in part on mistaken predictions of trends in the size and composition of the Labour Force. Particularly in the earlier years of the period, there were long delays in the publication of official Labour Force Estimates based on the annual Labour Force Surveys. Thus significant errors in QEC Labour Force estimates could persist for a considerable time, influencing the projections for the following years. An unduly pessimistic QEC estimate of the total at work in April 1986 thus biased downwards the initial QEC forecasts for wages and consumption in 1987, 1988, and, to some extent, 1989.

The only item relating to the Labour Force which is amenable to comparison on an annual basis is the total unemployment as measured by the Live Register, which is shown in Chart 8. It can be seen that the initial QEC forecasts were not very accurate, with the rise in unemployment under-predicted until 1987, and the subsequent fall not picked up until the initial forecast for 1990. This tendency to lag behind actual developments is due largely to the difficulty in predicting, or even monitoring, trends in net emigration, which have a major influence on the level of unemployment in Ireland.

CHART 8: NUMBER ON LIVE REGISTER 1984-90

Annual % Change

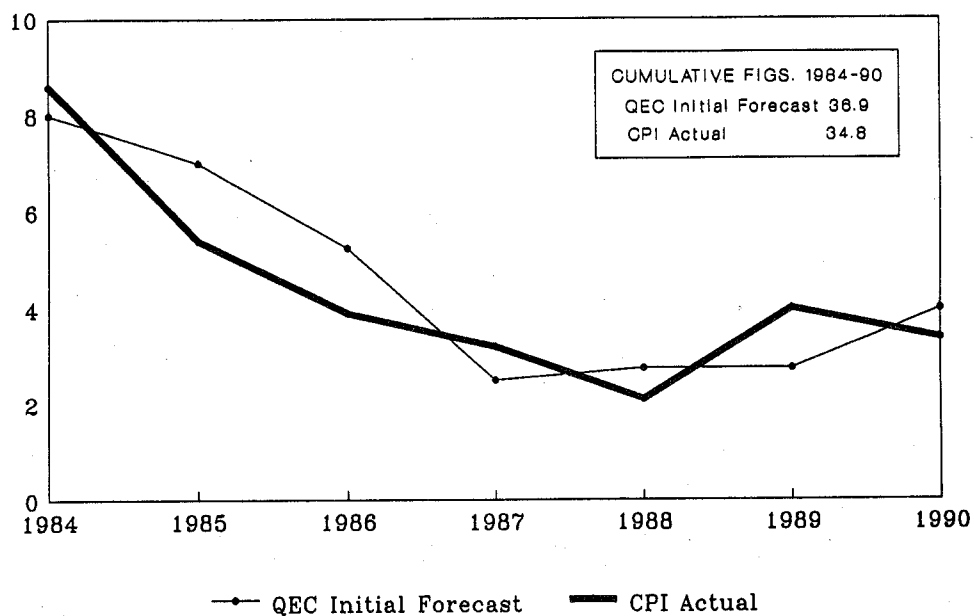


2.10 Consumer Prices 1984-90

Although not a National Accounts component, the consumer price index is widely regarded as the prime measure of price inflation and is the subject of more inquiries than any other element of our forecasts. It thus seems more relevant to compare our consumer price index forecasts with the actual outcome than to base price comparisons on any of the implicit deflators within the National Accounts framework. Chart 9 compares our initial forecasts with the outcome. (The temptation to illustrate our perfectly accurate final estimates has been resisted, because, of course, the actual figures are available by the time our final estimates are prepared in the following April.)

No overall bias is apparent, with the cumulative increase over the seven years forecast at less than 2 per cent higher than the actual. Individual years show moderate errors, usually reversed in the succeeding years, as the timing of trends has proved more difficult to capture than the direction.

CHART 9: CONSUMER PRICE INDEX 1984-90



2.11 Change in GNP Growth Rate

One inescapable problem in short-term forecasting is uncertainty concerning the present position from which one is trying to predict the future. If one does not know quite where one currently is, or the direction and speed at which one is moving, then clearly it becomes much more difficult to project one's likely

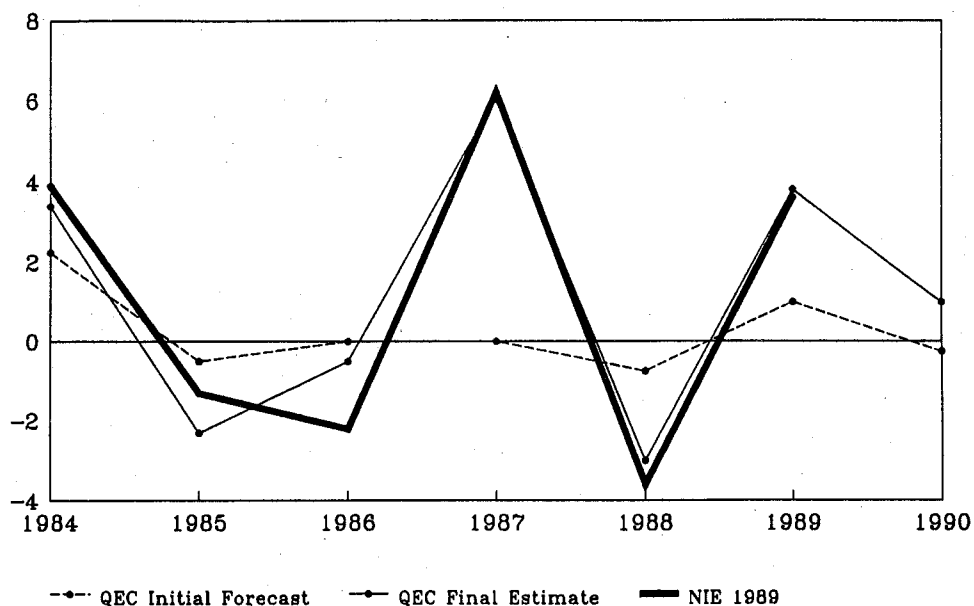
destination. Initial forecasts for each year are made in the middle of the previous year. If the mid-year forecasts for the current year prove inaccurate, which they frequently do, then the error is likely to be compounded in the prediction for the succeeding year.

In an attempt to remove the effects of this type of cumulative error, it is useful to consider, not the simple growth rate for the second year, but the change in the growth rate forecast compared with the expected growth rate in the initial year. Changes in the GNP growth rate are shown in Chart 10. For the initial QEC forecast, the change shown is that over the contemporary QEC forecast for the current year. For the final QEC estimate, the change is that over the NIE preliminary estimate for the preceding year, which is available by that time. NIE preliminary estimates are shown in Appendix Table 10 as changes over the preliminary estimate for the preceding year, rather than over the revised estimate, while for NIE 1989, the latest revisions for each year are used.

The interesting comparison is between the change in growth rate predicted in the QEC initial forecasts and the actual changes shown in either of the NIE outcomes. None of the predicted changes in the growth rate was in the wrong direction, although for 1986 and 1987 an unchanged rate of growth was forecast rather than the small decline and massive rise which actually occurred. However while the direction of change was generally predicted correctly, in every case the magnitude of the change was seriously underestimated. Chart 10 thus illustrates very clearly the tendency for initial QEC forecasts to remain unduly close to the average medium-term growth rate.

CHART 10: CHANGE IN GNP GROWTH RATE 1984-90

Change in Annual % Change



3. *Individual Years*

3.1: So far only the initial forecasts and final estimates in the QEC have been considered. These are the two extremes in time of the eight separate forecasts which were made for each year since 1985. As has been seen, the final estimates were, not surprisingly, much more accurate than the initial forecasts. It is interesting to look at the time-path of forecasts for each year to see how the initial prediction moves towards the final estimate.

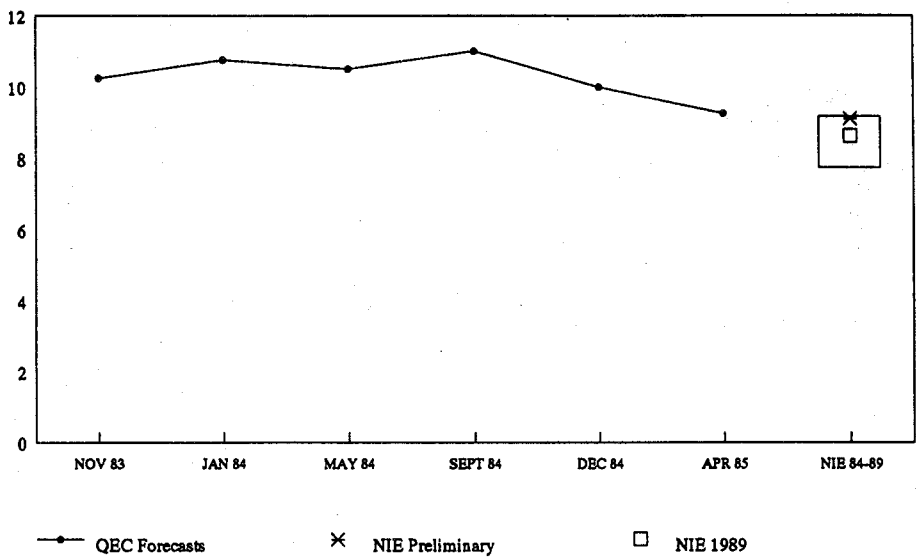
At the same time, concentrating on each year in turn enables some of the major factors which influenced the projections to be noted, and explanations offered for some of the major divergences between prediction and reality. Only the forecasts for GNP are considered, as this is generally regarded as the key economic aggregate. However, while in the previous section attention was focused exclusively on the constant price or volume growth rate, here the opportunity is taken to examine also the current price or value forecasts. Each pair of charts is more or less self explanatory, with successive forecasts for a year plotted, and the range of NIE estimates shown at the right hand edge of each chart.

3.2 *1984 GNP*

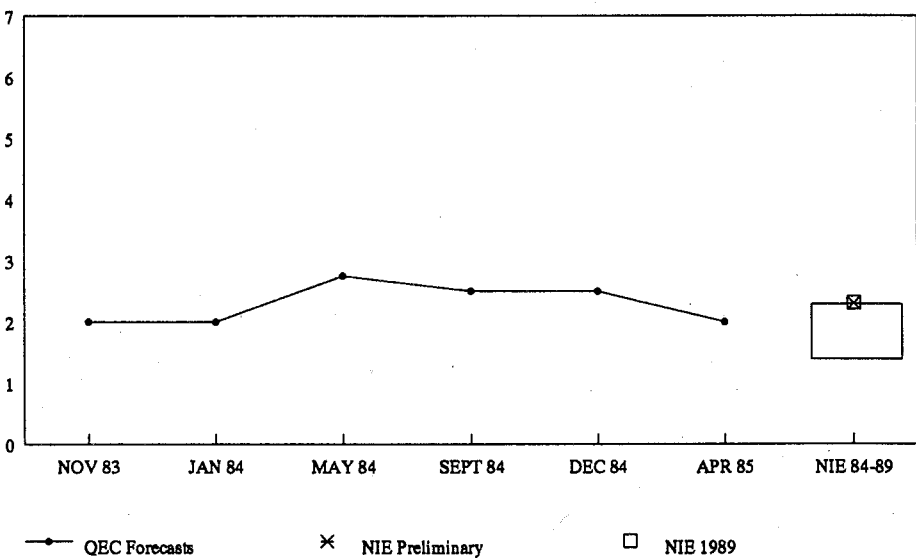
As Chart 11 shows, the volume forecasts of GNP growth started and finished within the range of subsequent NIE estimates. In mid-1984 they rose to a level which proved slightly too optimistic. This was entirely due to an underestimate of net factor outflows, which is understandable as the major "black-hole" revision of the balance of payments figures was not made until the summer of 1984. Thus the factor flow projections up to May 1984 were based on a seriously erroneous picture of past trends.

Although the volume forecasts throughout remained fairly close to the out-turn, the value forecasts remained significantly too high until December 1984. Clearly, the GNP price deflator was overestimated. This reflects a slowness to acknowledge the extent and speed of the continuing reduction in domestic inflation, which had peaked at over 18 per cent in 1981, and had still been in double figures in 1983.

CHART 11: GNP FORECASTS, 1984
(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



Length of inset box illustrates the range from the lowest to the highest NIE estimates over the period shown

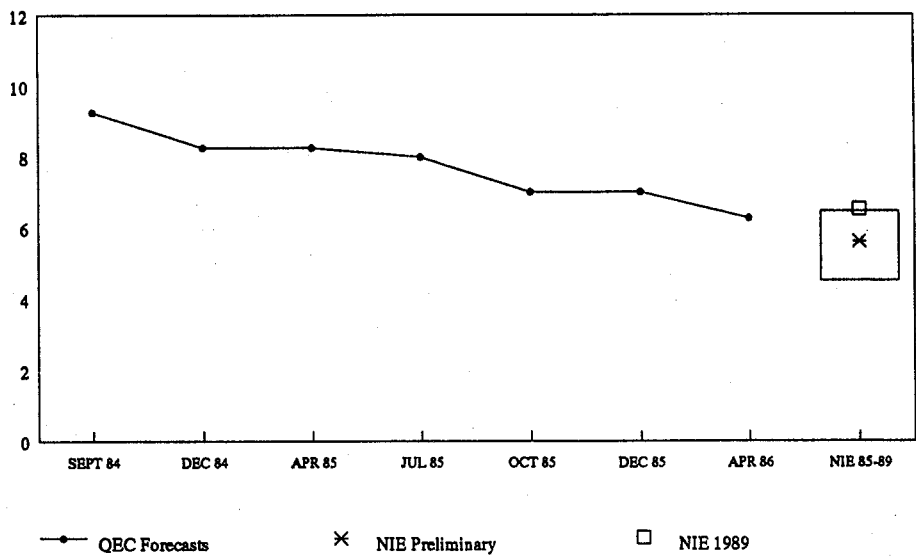
3.3 1985 GNP

As can be seen from Chart 12, the forecasts for 1985 GNP growth were much less accurate than for 1984. Moreover the volume forecasts diverged progressively further from the actual outcome between the initial forecast in September 1984 and July 1985. A severe downward revision, following the poor summer weather and a run of poor trade returns, brought the October 1985 prediction close to the range of subsequent NIE estimates.

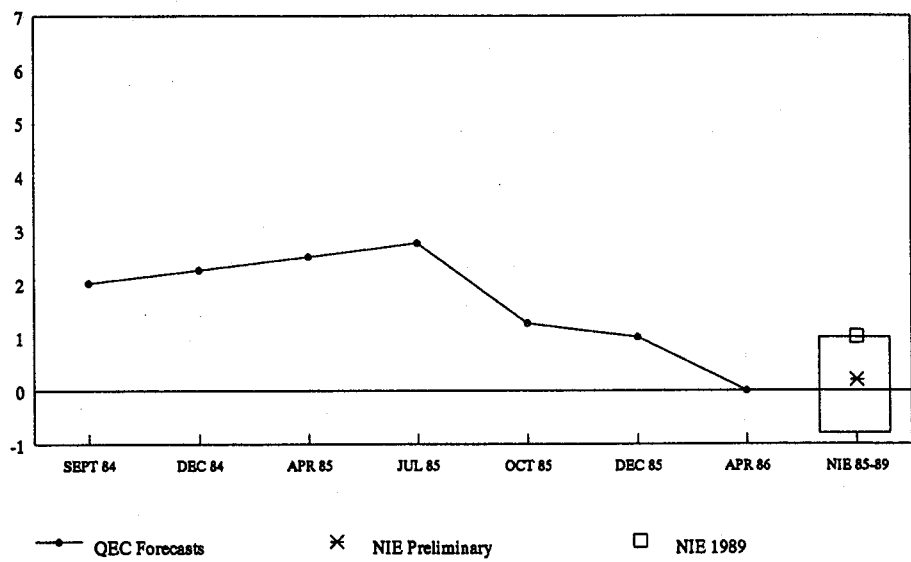
There were three principal reasons for the overprediction of the growth rate until mid-1985. The first is that the export boom which had begun in the middle of 1983 was still continuing strongly in the first quarter of 1985, and we failed to foresee the sharp turn-down which occurred in the middle of the year. The second reason was that on our usual assumption of normal weather conditions we anticipated a modest further rise in the volume of agricultural output after its rapid increase in 1984, while in fact adverse weather conditions led to a substantial fall in output. By its nature this could not be known until well into the summer. The third reason was that, as in 1984, the rise in net factor outflows was underpredicted, partly because the strength of past trends was still not fully reflected in the official estimates.

Forecasts of GNP value were also too high, although in this case there did tend to be a steadier convergence between the initial forecast and the actual result. This smoother progress was due to downward revisions in the GNP deflator as the out-turn for the previous year became apparent.

CHART 12: GNP FORECASTS, 1985
(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



Length of inset box illustrates the range from the lowest to the highest NIE estimates over the period shown

3.4 1986 GNP

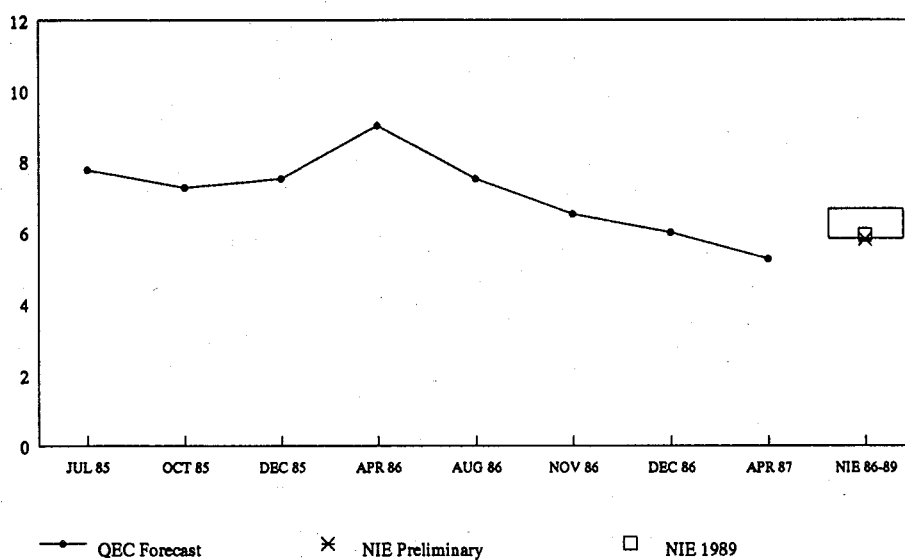
The pattern of GNP volume forecasts for 1986, shown in Chart 13, was more complex than for 1985, and, as it transpired, even more inaccurate. The initial forecast, made in July 1985, reflected the optimism then felt about economic prospects, based largely on the expectation that export growth would continue. This was scaled down in October 1985 along with the downward revisions of the current year's forecast. The upward revisions in December 1985 and April 1986, which proved wholly erroneous, are interesting. They exhibited the optimism that was almost universal among economic analysts following the collapse in world oil prices that winter. This was expected to lead to a rapid fall in inflation and an early boost to output, trade, and investment throughout the industrialised nations. At the same time, the substantial fall in the value of sterling during 1986 was not foreseen, and there was an assumption that agricultural output would recover with a return to normal weather.

Later forecasts were scaled down rapidly as it became apparent that expectations of a world industrial boom were premature, that the depreciation of sterling was having a severe effect on Irish industrial exports, that the tourist industry was suffering from Americans' reluctance to travel after the bombing of Libya, and that the weather was even worse than in 1985, leading to a further big reduction in agricultural output. Net factor outflows, for once, did not contribute to the forecasting errors as, almost uniquely, 1986 was a year in which our forecasts of this item were almost correct.

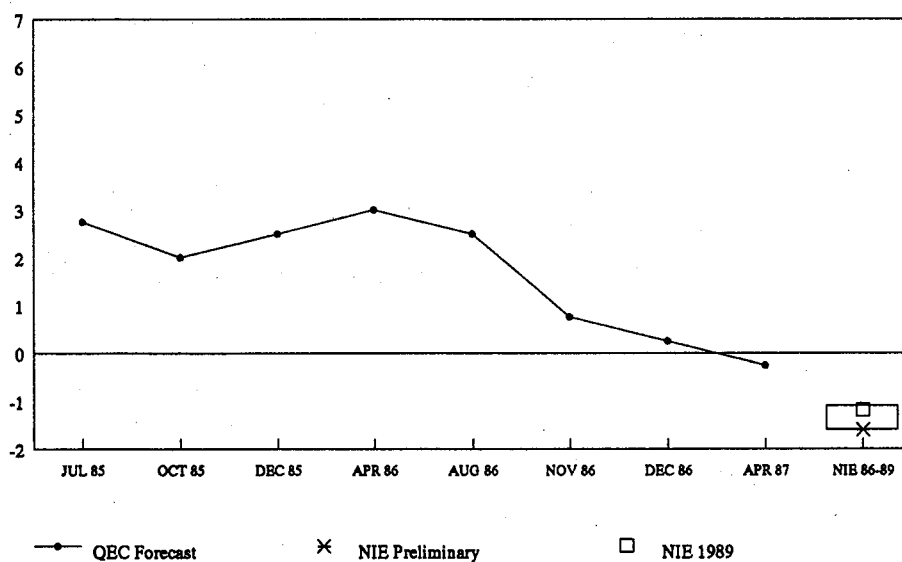
The current price GNP forecasts remained almost parallel with the constant price, with relatively little change throughout the period in the forecast GNP price deflator. As it turned out, the deflator was under-predicted, with the result that the current price forecasts were less spectacularly mistaken than the volume predictions.

CHART 13: GNP FORECASTS, 1986

(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



Length of inset box illustrates the range from the lowest to the highest NIE estimates over the period shown

3.5 1987 GNP

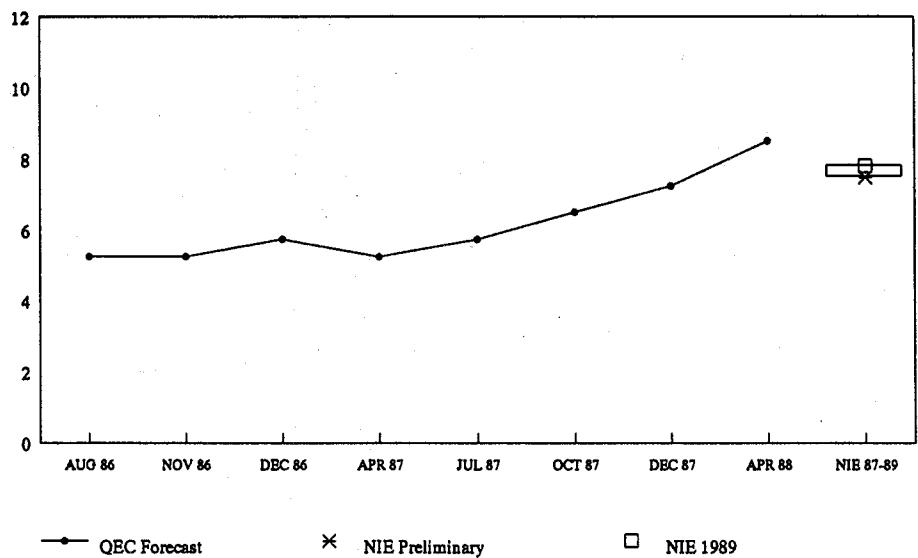
It is apparent from Chart 14 that the pattern of GNP volume forecasts for 1987 was almost a mirror image of the pattern for 1986. They started too low, went even lower in the early part of the year, and then converged towards the actual very high rate of growth towards the end of the year. On the credit side, the forecasts did at least remain positive throughout. The scaling down of growth projections for 1987 until April 1987 tended to follow the successive downward revisions of the forecast outcome for 1986. In particular, the failure of the anticipated world boom to materialise in 1986 following the oil price collapse led to pessimism concerning the trend of world trade, and thus to forecasts of slow export growth. In the event, the world boom was delayed rather than failed, and 1987 saw a rapid expansion in world trade. At the same time sterling appreciated significantly, which was not foreseen, the devaluation of August 1986 led to a sustained improvement in Irish competitiveness against continental countries, and the Irish computer industry benefited from the depreciation of the dollar against the yen. For all these reasons Irish exports grew much faster than anticipated, while domestic activity was stimulated by a major reduction in interest rates.

As these developments became apparent, the QEC forecasts for exports and GDP growth were revised substantially upwards from the middle of 1987. However, these revisions were not sufficient to bring the GNP forecasts into line with reality because a significant rise in net factor outflows was still being predicted. Only when the official balance of payments estimates became available was it apparent that there had actually been a fall in net factor outflows, and that GNP had accordingly risen faster than GDP.

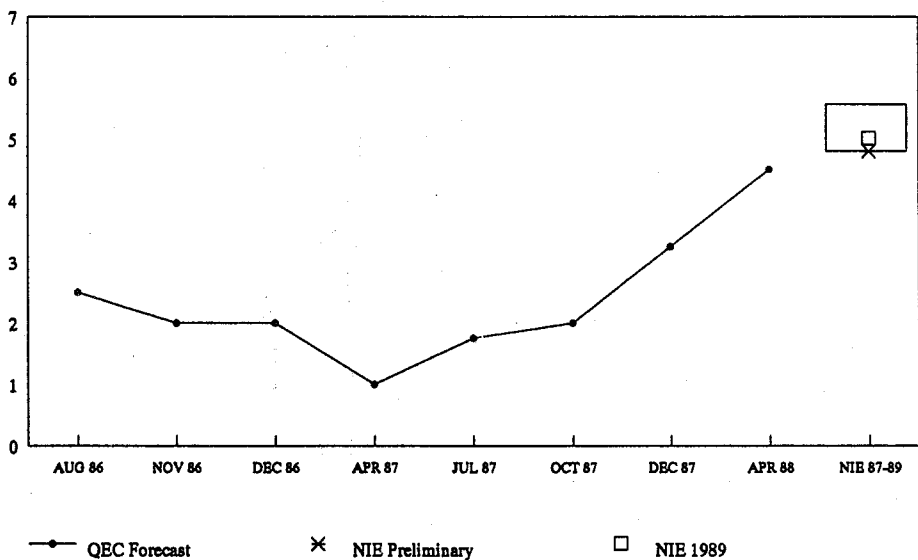
Another cause of understating growth which persisted until late in the year was the failure to appreciate the scale of the recovery in agricultural output, when two very bad years were succeeded by exceptionally favourable weather conditions in 1987.

With the GNP price deflator overstated in all but the initial QEC forecast, another consequence of the delayed reaction to the 1986 oil price fall, the current price GNP forecasts were closer to the out-turn than the volume forecasts, although still too low for most of the period. Taking both volume and value forecasts together, the main fault with regard to 1987 was a failure to predict that Ireland's luck in terms of such uncontrollable factors as the weather and the external economic environment, was about to change radically for the better!

CHART 14: GNP FORECASTS, 1987
(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



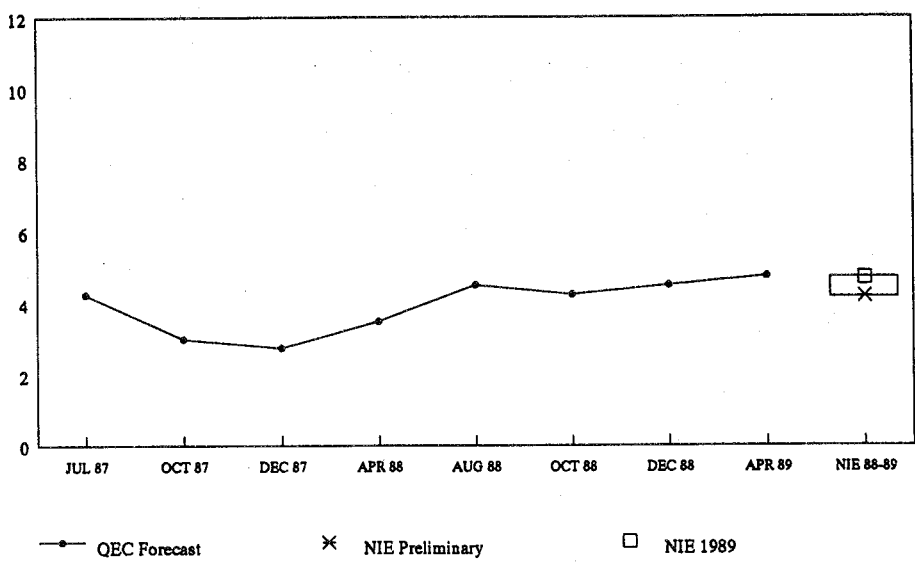
Length of inset box illustrates the range from the lowest to the highest NIE estimates over the period shown

3.6 1988 GNP

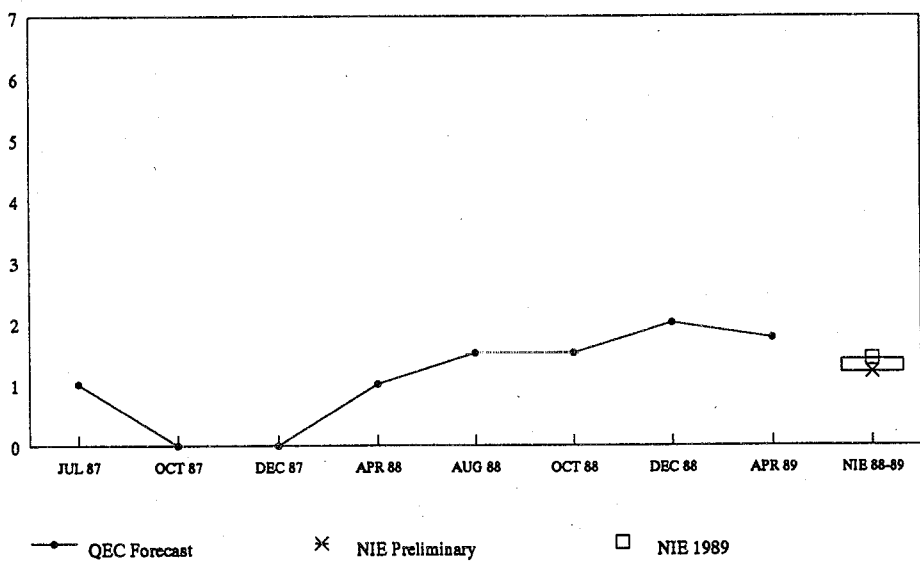
The GNP forecasts for 1988, shown in Chart 15, were reasonably accurate, correctly predicting near stagnation in the volume of GNP and low domestic inflation as measured by the GNP deflator. The temporary reduction to a zero growth rate forecast in October and December 1987 was made in the aftermath of the world stock market collapse, when it was generally believed that this could have a major impact on world output growth and international trade. In fact, our zero growth rate forecasts proved too pessimistic, although not seriously misleading. It is worth noting that during the winter of 1987/88 practically all other forecasters of the Irish economy were predicting a significant fall in real GNP.

Although the GNP forecasts, on the whole, were satisfactory, the forecast composition of growth was less so. Throughout the forecasting period, the volumes of consumption and exports, and thus of GDP, were somewhat under-predicted, but this was offset by making insufficient allowance for the renewed rise in net factor outflows. The most spectacular forecasting omission in 1988, which we shared with every other commentator, was the failure to predict the scale of receipts from the tax amnesty, which revolutionised the prospects for the public finances in future years.

CHART 15: GNP FORECASTS, 1988
(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



Length of inset box illustrates the range from the lowest to the highest NIE estimates over the period shown

3.7 1989 GNP

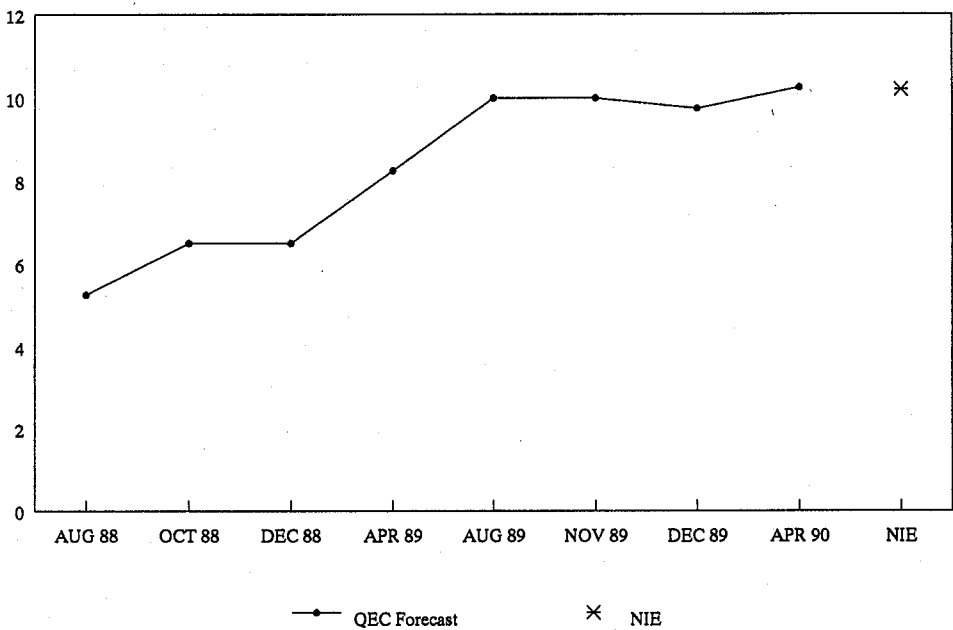
Given the slowdown in growth in 1988, it is not surprising that the early forecasts for 1989 GNP volume were rather cautious, as can be seen from Chart 16. Nevertheless they did predict a significant recovery in the growth rate, based largely on continued buoyancy in exports and a recovery in fixed investment.

As indicators of economic activity within the year became available, the forecasts were revised upwards, overshooting marginally in the summer and autumn, before settling back to a final QEC estimate almost exactly in line with the NIE Preliminary Estimate. By late 1989, not only the rate of GNP growth, but also its composition, were accurately predicted.

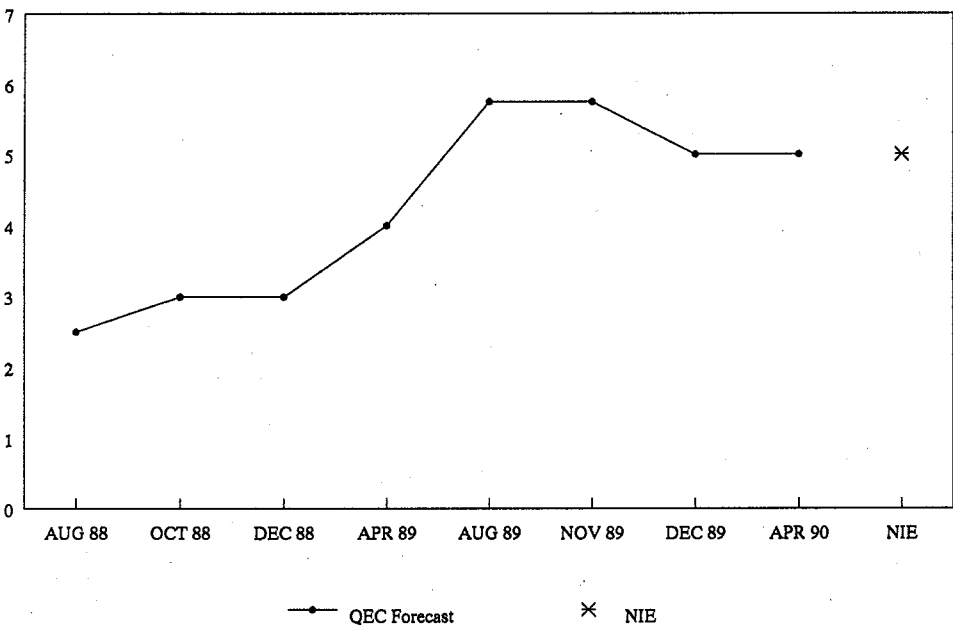
For most of the forecasting period the GNP price deflator was somewhat under-predicted, as the temporary rise in Irish inflation was not foreseen. Thus the current price GNP forecasts tended to be slightly below the preliminary out-turn until the final QEC estimate in April 1990, which proved accurate.

CHART 16: GNP FORECASTS, 1989

(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



3.8 1990 GNP

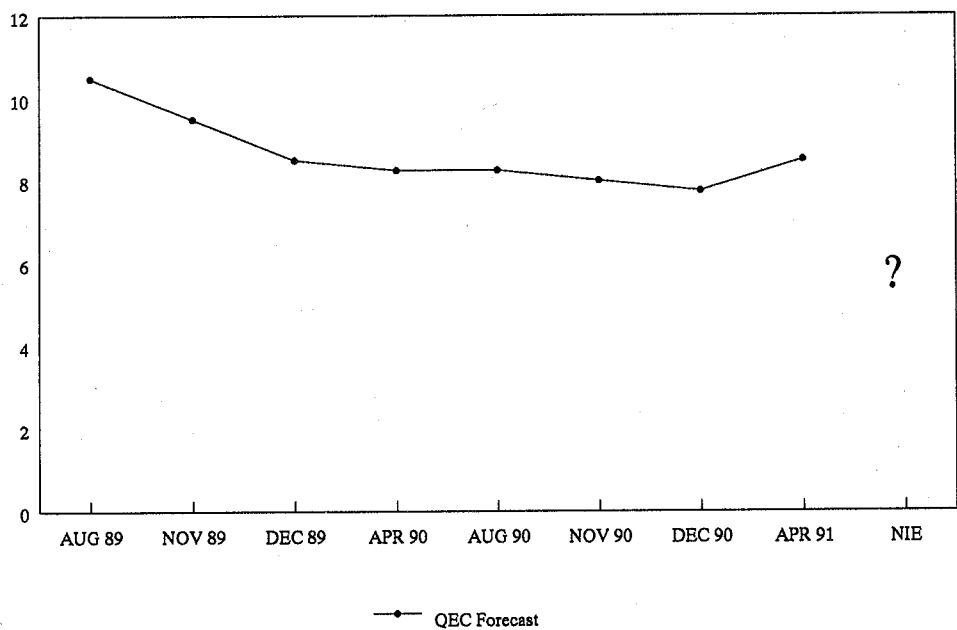
No official National Accounts estimates are yet available for 1990, as NIE 1990 is not due to be published until the summer of 1991. However the final QEC estimates have proved a reasonably accurate guide to NIE results in the previous six years, and there is no cause to expect that they will not do so with regard to 1990. Thus Chart 17 plots the progress of forecasts for 1990 in relation to the QEC final estimate.

The initial forecast, published in August 1989, broke with our usual cautious practice of predicting next year's growth close to the medium term growth rate. At 5½ per cent our initial volume forecast was almost in line with what was then expected to be the 1989 rate of GNP growth. Although retreating slightly in the middle of the sequence, all subsequent forecasts were for a growth rate well above the average of the recent past. This confidence appears to have been justified so far as GNP growth is concerned, although, at a less aggregated level, export volumes, GDP and net factor outflows were all over-predicted for most of the forecasting period.

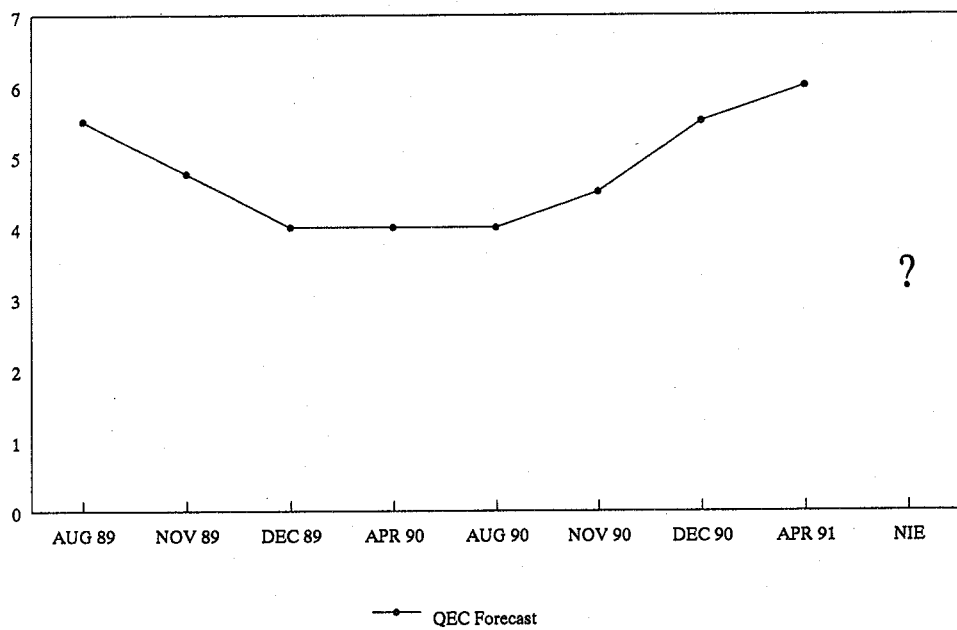
The predicted value of GNP tended to be a little too high in the early forecasts as the reduced rate of increase in the GNP deflator resulting from the differential fall in export prices was not foreseen.

CHART 17: GNP FORECASTS, 1990

(A) Current Price, Annual % Change



(B) Constant Price, Annual % Change



4. *Conclusions*

It would be unreasonable to expect perfect accuracy in short-term predictions of the Irish economy. International forecasts, on which we have to rely for a picture of the external economic environment, frequently prove mistaken, inherently unpredictable factors such as the weather can have a significant influence on an individual year's growth rate, and some important economic relationships are imperfectly understood, especially with regard to the timing of an expected response.

Within this context of inescapable uncertainty, the record of the QEC forecasts over the past seven years can be regarded as fairly satisfactory. Although the initial forecasts failed to pick up some of the large swings in GNP growth from year to year, the direction of change was usually predicted correctly, and the convergence during the second half of each year to a generally accurate final QEC estimate was reasonably steady. The initial forecasts of the consumer price index were also quite good, correctly predicting the steady movement towards a low-inflation economy in the first half of the period and the maintenance of low price rises in the second half.

The most important finding with regard to both real GNP and consumer price forecasts is that over the seven years covered there was no persistent bias. The cumulative increases forecast were very close indeed to the actual cumulative increases with over and under predictions cancelling each other out. The reputation that the ESRI in general, and the QEC in particular, have developed in some quarters of being "optimistic" forecasters is thus not borne out by the evidence since 1984. Indeed, in the period since 1987, which is when the "optimistic" reputation appears to have taken root, the QEC forecasts have tended towards pessimism, with the real GNP growth rate slightly under-predicted on most occasions. The reputation must rest on a comparison of QEC forecasts with those of the commercial commentators, which have proved considerably more pessimistic than our own.

Although there was no long-term bias in QEC forecasts of GNP or consumer prices, or in the generally accurate forecasts of aggregate non-agricultural wages, some of the disaggregated forecasts of components of expenditure on GNP do exhibit persistent patterns of over or under estimation. On the basis of the cumulative increases over the period, predictions for exports, net factor flows, consumption and GDP all tended to be too low, while predictions for investment tended to be too high. The manner in which these tendencies cancelled each other out suggests that the greater the degree of aggregation the greater the reliance that can be placed on the balance of the forecast.

The QEC is not merely a vehicle for presenting economic forecasts, although that is its primary role. It also contains qualitative assessments of the economic issues facing the country and offers a degree of advice to policy makers, in government, companies and trade unions. Obviously a detailed review of the views expressed over the seven year period would be even more difficult to present than the review of the forecasts. However, it is possible to check whether the occasional misreading of the short-term economic prospects has led to any serious cases of misleading advice. Even with full hindsight it is difficult to find examples of advice which we would now think inappropriate to the time at which it was given.

In the earlier years of the period, constant stress was laid on the necessity of reducing the Exchequer borrowing requirement. Even retrospectively, the recommendation that public expenditure should be restrained more through low public service pay increases than through cuts in the level of services appears justified. Had decision-makers in the unions and in government followed the recommended path, the necessary improvement in the public finances could have been achieved with a less severe impact on employment than that which actually followed the real expenditure cuts of 1987 and 1988. As the public finances improved, the QEC was among the earliest publications to draw attention to the impending opening up of options. From mid-1988 onwards we pointed out that further reductions in the borrowing requirement remained necessary, but as one among several policy aims, rather than, as hitherto, as the sole over-riding imperative of budgetary strategy.

Apart from fiscal policy, the QEC has also consistently advocated moderation in pay increases as the essential concomitant of a strong exchange rate policy, and has recommended a consensus approach to macro-economic management since well before the discussions which led to the Programme for National Recovery. Despite the essentially short-term focus of the QEC forecasts, a persistent theme of the text has been the need for corporate and union decision-makers to take a long-term view of their interests.

On the evidence presented here, we feel confident in claiming that the QEC has offered a useful service to its readers. However, the review of the record has shown up various weaknesses in the forecasts.

The tendency to over or under predict certain categories of expenditure needs to be addressed, although hopefully without introducing a bias into the aggregate GNP forecast. The availability of additional statistical series relating to the building industry and financial services, and the more timely release in recent years of Labour Force Estimates should be of assistance in this regard.

The degree of caution in the initial QEC forecasts has clearly been excessive, if understandable. A conscious effort to be bolder in predicting greater annual variations from the medium-term growth rate would seem to be desirable.

Above all, an attempt must be made to improve our assessment of the likely timing of economic developments. Apart from the genuinely random factors, such as the weather, the cause of most of the forecasting errors outlined in this review has been a failure to foresee the correct time path of developments which have been predicted correctly with regard to their direction and approximate magnitude. No simple answer exists to this problem of timing. Some help might be obtained from more sophisticated formal analysis of economic relationships, but the main hope for improvement probably lies in the simple awareness that in the past responses to economic stimuli have generally proved somewhat slower than generally anticipated.

Even if our efforts are effective in reducing errors in the QEC forecasts, it remains inevitable that in certain years the predictions will prove incorrect. We therefore intend to continue our practice of pointing out areas of major uncertainty in each forecast, and making heavy use of the conditional case in our textual presentation. The results of this review confirm our belief that "seems" and "might" are more appropriate expressions than "are" and "will" when attempting to describe the future.

Appendix Tables

Table 1: *Real GNP 1984-90*

	<i>Annual Percentage Change, Expenditure Data</i>							<i>Cumulative 1984-89</i>
	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	
Q.E.C. Initial Forecast	2	2	2¾	2½	1	2½	5½	13.4
Q.E.C. Final Estimate	2	0	-¼	4½	1¾	5	6	13.6
NIE Preliminary	2.3	0.2	-1.6	4.8	1.2	5.0		12.3
NIE 1989	2.3	1.0	-1.2	5.0	1.4	5.0		14.1

Table 2: *Real GDP 1984-90*

	<i>Annual Percentage Change, Expenditure Data</i>							<i>Cumulative 1984-89</i>
	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	
Q.E.C. Initial Forecast	2	2¾	3	3	1¾	2¾	5¾	16.2
Q.E.C. Final Estimate	3½	2	¾	4	2¾	5¾	5½	20.2
NIE Preliminary	4.4	2.0	-0.3	4.1	3.7	5.9		21.4
NIE 1989	4.4	2.5	-0.4	4.4	3.9	5.9		22.4

Table 3: *Real Personal Consumption 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-89</i>
	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	
Q.E.C. Initial Forecast	1¾	2	2	2½	1¾	1¾	5	11.2
Q.E.C. Final Estimate	1	1½	1½	-¼	3	5¾	2¾	12.5
NIE Preliminary	-0.5	1.6	2.1	0.1	3.1	5.2		12.1
NIE 1989	2.0	3.5	2.0	2.2	2.5	5.2		18.7
Retail Sales Index	-1.2	1.8	-0.5	-1.3	2.1	4.7	2.7	5.6

Table 4: *Real Gross Domestic Fixed Capital Formation 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-89</i>
	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	
Q.E.C. Initial Forecast	-4	3	3¾	4½	1¾	5½	13¾	14.0
Q.E.C. Final Estimate	-1¾	2	-2½	½	-1¾	12	5½	9.2
NIE Preliminary	-1.8	-0.3	-2.3	-1.1	-1.7	12.0		4.2
NIE 1989	-2.7	-7.4	-1.3	-3.7	2.6	12.0		-1.6

Table 5: *Real Exports of Goods and Services 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-89</i>
	1984	1985	1986	1987	1988	1989	1990	
Q.E.C. Initial Forecast	9¼	8¾	9¼	5¼	4¾	7¼	9¼	54.2
Q.E.C. Final Estimate	15	6	2	15	8½	9¼	6¼	70.3
NIE Preliminary	16.9	6.7	2.7	13.3	8.7	10.1		73.7
NIE 1989	16.6	6.6	2.9	13.4	8.7	10.1		73.6

Table 6: *Real Imports of Goods and Services 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-89</i>
	1984	1985	1986	1987	1988	1989	1990	
Q.E.C. Initial Forecast	5¼	7½	7¼	4½	3¼	6	11½	39.4
Q.E.C. Final Estimate	8½	2½	1½	7¾	5	10¼	5½	40.8
NIE Preliminary	9.5	2.8	4.3	4.9	3.9	10.9		41.9
NIE 1989	9.9	3.2	5.6	5.0	3.9	10.9		44.9

Table 7: *Aggregate Non - Agricultural Wages Etc. 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-89</i>
	1984	1985	1986	1987	1988	1989	1990	
Q.E.C. Initial Forecast	9¼	8½	6½	5	4½	4¼	7½	44.4
Q.E.C. Final Estimate	8	8	5¼	4½	4¼	5½	7¼	41.1
NIE Preliminary	8.5	5.3	5.7	4.8	3.3	6.6		39.4
NIE 1989	8.5	6.1	6.2	5.4	4.7	6.6		43.8

Table 8: *Number on Live Register 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-90</i>
	1984	1985	1986	1987	1988	1989	1990	
Q.E.C. Initial Forecast	11.7	3.7	1.3	-0.9	0	0	-5.6	9.8
Actual	11.1	7.9	2.2	4.7	-2.4	-3.7	-3.0	16.9

Table 9: *Consumer Price Index 1984-90*

	<i>Annual Percentage Change</i>							<i>Cumulative 1984-90</i>
	1984	1985	1986	1987	1988	1989	1990	
Q.E.C. Initial Forecast	8	7	5¼	2½	2¾	2¾	4	36.9
Consumer Price Index Actual	8.6	5.4	3.9	3.2	2.1	4.0	3.4	34.8

Table 10: *Change in GNP Growth Rate 1984-90*

	<i>Change in Annual Percentage Change</i>						
	<i>1984</i>	<i>1985</i>	<i>1986</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>
Q.E.C. Initial Forecast	2¼	- ½	0	0	- ¾	1	- ¼
Q.E.C. Final Estimate	3.4	- 2.3	- 0.5	6.1	- 3.0	3.8	1.0
NIE Preliminary	3.7	- 2.1	- 1.6	6.4	- 3.6	3.8	
NIE 1989	3.9	- 1.3	- 2.2	6.2	- 3.6	3.6	