1. Forecasting The MKSM Impact – Methodology

Introduction

1.1 The following details the methodology employed in forecasting the development of the MKSM economy through to 2031 and predicting its likely development impact on the West Midlands region.

1.2 The methodology is based around forecasting all aspects of the local labour market, within the context of anticipated international, national and regional economic developments, and then translating the resultant findings into potential impacts on the economy of the West Midlands region.

1.3 At the centre of the forecasts is a small area forecasting model specified by reference to local population, employment and other available data. This model is, in the base case, driven by the labour market and output forecasts for the UK and for the relevant regions, produced by the Cambridge Econometrics national and regional forecasting models. The relevant regions are the ones in which the various elements of the MKSM area are situated, namely the South East, the East of England and the East Midlands.

1.4 The high growth forecast is based on information gleaned from the MKSM strategy. The main components of this information are: population, households, economically active labour force and the number of jobs expected to be created locally.

1.5 All forecasting models are extremely data hungry. Unfortunately, much of the data that would ideally be needed in order to specify a full economic model of the MKSM area is not available. As such, there is inevitably a degree of estimation involved in producing forecasts of the MKSM area. Despite this, the forecasts presented in this report are considered to be robust and to represent the best available assessment of the future under the different scenarios.

1.6 The following details the way in which the model operates and explains how the various inputs into it have been devised. In this way, it provides detail of how the forecasts have been generated.

The Model

Population

1.7 The starting point for the base model is the demographic structure of the current and future population of each of the local authority areas that together make-up the MKSM area.

1.8 Rather than generate its own forecasts, the model normally makes use of forecasts generated either by the local authority itself or by third parties such as a County Council of which the local authority is a constituent part, or by the Office for National Statistics.

1.9 In this particular case, two different sets of population forecasts were used. These were:

- population projections sourced from the Office for National Statistics – these form the population projections underpinning the base case scenario
- population projections produced as part of the MKSM strategy.

1.10 Both sets of projections used show the population of the MKSM area growing over the forecast period to 2031. The rates of growth are, however, different, such that two different 2031 population estimates result. The lower of these estimates is the 1.9 million produced by the Office for National Statistics, while the higher is the 2.05 million included in the MKSM strategy.

1.11 Both sets of projections have a common, 2001 starting point, estimating the MKSM population at around 1.547 million.

1.13 In both cases, the projections were made by age and by gender. This is important, as the population figures are used, by the model, to generate numbers of economically active persons within the population and hence the resident labour-force.

Economic Activity Rates

1.15 Translating the resident population figures into workforce estimates requires assumptions to be made about current and future economic activity rates.

1.16 The economic activity rates used in the model are specified by reference to age and gender, such that changes in the demographic structure of the area generate changes in the number economically active.

1.17 The model assumes that no individual aged under 16 is economically active. It also assumes that economic activity can and does continue after normal retirement age, but with the proportion of those economically active declining with age.

1.18 The actual economic activity rates used in the base case were derived from the 2001 Population Census and were then projected forward in line with identified national trends. The resultant forecasts show a general decline over time in male economic activity rates and a general increase over time in female economic activity rates.

1.19 The economic activity rates in the MKSM strategy were taken from the MKSM strategy, in that the strategy specifies the number of economically active persons that are expected to be linked with the assumed level of population. As such, activity rates are implicit rather than explicit.

1.20 The model does not assume that labour supply and labour demand equate to each other. Rather, it forecasts labour supply and labour demand independently.

1.21 In this way and as with the real economy, imbalances in the labour market lead to unemployment or to a change in commuting or to a change in the proportion of the economically active population that has more than one job.

1.23 In practice, the model shows the economic activity rate, (total number economically active expressed as a percentage of the population of normal working age), as generally following an upward trend over the forecast period. This is, in part, due to a rising level of economic activity amongst females and, in part, due to an increase in the number of people electing to work beyond normal retirement age.

Employees in Employment

1.24 The base data used in forecasting the number of employees in employment in the MKSM area is sourced from the Annual Business Inquiry. This employer-sourced information provides an estimate of the number of employees in employment whose jobs are based within the MKSM area.

1.25 The information from the Annual Business Inquiry, (ABI), is accessed as two different data series together running from 1998 through to 2005. The data is drawn down from NOMIS at a four digit minimum list heading level. The fact that the data comes in two different series reflects definitional changes that have taken place over the period, in turn reflecting changes in the industrial structure of the UK economy and a need to conform to EU reporting definitions.

1.26 The first stage in the forecasting process is to examine the data in order to identify and, where necessary, correct any miscoding or other obvious data errors. This

exercise also facilitates a degree of familiarisation with the structure of the local economy.

1.27 Information on the agricultural sector is frequently lacking for some years. Where necessary, trend analysis is used to fill in the gaps.

1.28 For forecasting purposes, the employment data is aggregated into 28 different industrial sectors. These are the industrial sectors used by Cambridge Econometrics in reporting their regional and associated national forecasts. The aggregation process automatically removes some of the data series inconsistencies. Estimation and allocation techniques are used to remove the remainder.

1.29 Aggregation also has the benefit that it hides many of the sensitive data entries contained within the raw data and thereby facilitates publication.

Self Employment

1.30 Although information on self-employment is available from the Labour Force Survey, (LFS), it is notoriously unreliable at a small area level. This is due to the relatively small numbers that are sampled by the LFS.

1.31 In order to overcome this problem, information from the 2001 Population Census is used to estimate the proportion of the resident population in each of the local authority areas that make up the MKSM area that is self-employed.

1.32 Specifically, the Population Census information is used to determine the ratio of self-employment to employees in employment by gender and by industrial division.

1.33 The assumption is then made that each ratio will either remain constant over the forecast period. The consequence of this is that as employment in a particular sector rises or falls, so self-employment in that sector also tends to rise or fall.

Employment Projections

1.34 The employment projections for each of the local authority districts in the MKSM area are substantially driven by the forecasts for the regions in which the local authority districts are respectively located, with leading forecasting group Cambridge Econometrics producing the regional forecasts used to drive the MKSM area projections.

1.35 This does not mean that the sub-areas within the MKSM economy are assumed to be microcosms of the regional economies in which they sit. Rather, the model assumes that the overall performance of the MKSM economy is determined by a combination of:

- local factors within each industrial sector
- the overall industrial structure
- regional, national and international factors.
- 1.36 Of these, local factors are determined by reference to the historic performance of the local sector, relative to the regional sector, and by reference to time trends. As such, the model allows a local sector to behave differently from the same sector, both regionally and nationally.
- 1.37 As the model forecasts at an industry level, it explicitly recognises that the economy of the MKSM area has a different structure from that of the UK and the regions in which it sits and that this will, irrespective of other factors, produce different growth rates for the area's economy from those of the regions or the UK.

1.38 Regional, national and international factors are taken on board through using the Cambridge Econometrics model to drive the local forecasting model. Effectively, the local model allocates employment within the regions between the areas that form part of the MKSM area and the rest of the region.

1.39 This allocation is performed at a 28 industry level and, as indicated above, takes account of factors local to the MKSM area in the allocation.

1.40 As the model produces forecasts for employees in employment, so, and as described above, it produces forecasts for self-employment.

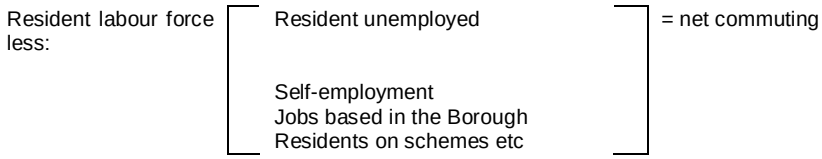
1.41 All of the forecasts are reviewed in order to determine that they look reasonable and are consistent with known events such as major factory closure, expansion or inward investment events. In practice, little manual adjustment is ever warranted.

Commuting

1.42 In producing a comprehensive picture of the MKSM labour market, the model needs to take account of the extent to which jobs within the MKSM area are taken by people who are resident outside of the area in places such as Daventry, Nuneaton, Birmingham and Coventry. Equally, it needs to take account of the extent to which MKSM area residents hold down jobs outside of MKSM, for example, in London and the South East region.

1.43 This requirement arises because the population and labour force forecasts are residence based and the employment forecasts are place of employment based.

1.44 Normally, up to date information on in- and out-commuting is very difficult to obtain, such that net commuting has to be estimated, through the model, for a given year when all other elements of the labour market are known. Specifically, the level of net in- or out-commuting is derived as the balancing factor such that:



1.45 If the net commuting figure is a negative, it means that there is a net outflow of residents into employment outside the area. If the net commuting figure is positive, the area is a net importer of labour.

1.46 In the case of this study, the 2001 Population Census results were analysed in order to gain a full understanding of commuter flows, both into and out of the MKSM area, including into and from the West Midlands.

1.47 The forecasting model does not assume that net commuting remains unchanged over time. Rather, the model looks at the relative size and performances of the MKSM labour market and the labour market in the South East and London and assumes that net out-commuting increases if demand for labour in the rest of the South East and in London grows at a faster rate than the demand for labour in the MKSM area. In-commuting into the MKSM area is assumed to be driven by the number of jobs in the MKSM area.

Students

1.51. Whilst full-time students are not treated as being economically active, a number do have part-time paid employment in retail outlets, bars and the like. The number of such individuals has been growing over recent years as a consequence of the overall increase in student numbers, changes to the way in which HE students are financially supported and a growth in the number of part-time employment opportunities.

1.52. This means that it is not appropriate to ignore the role of students in the labour market. The assumption within the model is that the ratio of full-time students with part-time jobs to the resident population aged 16-24 remains a constant.

Double Jobs

1.53 One feature of the labour market over recent years has been a growth in the number of people that have more than one job. Typically, people with more than one job have one full-time job and one part-time job, rather than a portfolio of part-time jobs.[1]

1.54 The model works on the assumption that the incidence of individuals with more than one job will continue to grow over time.

1.55 Balancing the MKSM labour market for 2001 requires there to be around 5% of the resident workforce with more than one job, assuming that no individual has more than two jobs. This is a relatively high percentage and, in reality, contains not only double jobs but also the error terms associated with the amalgamation of data from a wide range of different sources.

Unemployment / On Schemes

1.56 The model mirrors the labour market in that it treats unemployment as a residual.

1.57 In this context, unemployment is the difference between the resident labour force in MKSM area and those who are either employed or self-employed, irrespective of whether the employment or self-employment is based in the MKSM area.

Value Added

1.58 In the absence of information on value added specific to the MKSM area, the model assumes that value added per person employed in the MKSM area is the same, in each sector, as is value added per person employed in that sector in the associated region.

1.59 Equally, the model assumes that labour productivity gains within each sector in each region will be mirrored in the MKSM area. As such, any overall differential performance between the MKSM area and the relevant regions is solely the result of differences in the areas' respective industrial structures.

[1] M Simic and S Sethi, People with Second Jobs, Labour Market Trends, May 2003.