Ordinary Working Families in Nottingham and the UK:
Technical Working Paper: Objective and Subjective Measures of Income and Earnings
What is Nottingham Civic Exchange?

Nottingham Civic Exchange has been established by Nottingham Trent University, working in partnership with the RSA, to:

- maximise research, policy and practical impact by bringing our University colleagues together with partners seeking to address the needs of our communities;
- influence debate by becoming one of the region’s best-established and high-profile arenas for discussion and information sharing;
- act as a bridge between NTU research and current policy debates, linking to government departments, shadow departments, select committees and other policy fora;
- support NTU’s civic engagement through linking together our students and colleagues with civic agencies through placements, volunteering, or research projects; and
- provide a focus for our students of social sciences to gain practical experience of the analysis, dissemination, and impact of policy.

Published: August 2017

Working in partnership with:
The report ‘Out of the Ordinary: Exploring the lives of ordinary working families’ was published at the launch event of the Nottingham Civic Exchange on the 15th June 2017. The report summarised a series of linked research projects that investigated households with low to medium incomes and the neighbourhoods in Nottingham and Nottinghamshire where they were most likely to be located. It identified factors that lead individuals to subjectively feel they are Just About Managing, and discussed the nature of jobs, pay and the structure of employment locally and nationally. The research inputs included a policy-oriented literature review; interactive mapping of neighbourhood-level income data; and original empirical analysis of waves 1 through to 6 of ‘Understanding Society’, a panel survey of UK households.

This Technical Working Paper provides a more detailed summary of two of these inputs, to be read in support of ‘Out of the Ordinary…’ It establishes an initial macroeconomic context from the relevant official statistics, explores objective measures relevant to income, including output/productivity, household income and individual earnings. This working paper goes on to summarise the structure of employment in the Nottingham and Nottinghamshire to help explain relative earnings and income levels. It then goes on to briefly summarise the key findings of the ‘Understanding Society’ analysis undertaken by Daniel Wheatley (University of Birmingham), which provides comparative insight into subjective measures of household income.

Key Findings from Out of the Ordinary

- Economic precariousness is indeed an important feature of the lives of Ordinary Working Families. This can either be in objective terms, where they may live financially close to the poverty line; or in subjective terms, where they may feel a level of insecurity in relation to financial resilience.

- Many households move between living in and just above poverty levels even if they have a member who is employed. This is due to insecure, changing or low income, and variations in living costs, such as those consequent to the birth of a child.

- There are differences between governments’, economists’ and families’ understanding of what it means to be Just About Managing. Analysis of the Understanding Society survey shows that average net household income for those who see themselves as just about getting by is £34,500.

- This means that 40% of this group within the Understanding Society sample have a household income above the currently used financial measure for Just About Managing households. We estimate there are at least 6 million adults in working households with income above the national average but who self-identify as Just About Managing financially.

- Using the Resolution Foundation’s 2016 income-based definition, we have found that Ordinary Working Families are more likely to be found in the East Midlands than in the East, London, South-East and South West regions of the UK.

- In the city of Nottingham, Ordinary Working Families are particularly affected by low pay. Compared to the UK as a whole, a higher proportion of Nottingham residents work in sectors
and occupations where low pay is more common, such as caring roles and the leisure industry. One of the implications of this is for housing affordability. Our analysis at a local level shows the areas across Nottingham where the average household income will be insufficient to support the purchase of an averagely costed home within the neighbourhood. There is an income disparity between Nottinghamshire and Nottingham City. A relatively large number of highly paid and highly skilled workers in Nottingham City are resident elsewhere, and a lower proportion of residents are able to access or progress within the better-paid and more highly skilled jobs within the city.

- Our work connects directly to our own student body. A large proportion of Nottingham Trent University students come from households that can be defined as Just About Managing. 21% of our full-time 2015 undergraduate intake came from areas classed as Just About Managing. However, this figure rises to 32% of our 2015 cohort from Nottingham and Nottinghamshire.

Policy Context

Theresa May announced a focus on the Just About Managing class in her first speech outside Downing Street as prime Minister in 2016. This focus was reiterated by the Chancellor in his first Autumn Statement in 2016, with the preferred terminology moving to Ordinary Working Families (OWFs) through 2017 (e.g. Department for Education, April 2017). ‘Out of the Ordinary…’ interprets this as a response to the increased vulnerability felt by low and middle-income households, despite the recovery of the UK economy from the 2008 recession, and perceived tendency of policy makers to prioritise either the poorest or the wealthiest in society.

OWFs have been defined as having a household income from £12,000 to £34,000 per annum, which potentially covers up to 6 million households in the UK and more than 10 million individual working age adults - most of which are in full-time employment (The Resolution Foundation, 2016). However, this is not an established classification in the literature or official statistics, but a term that has emerged in recent political discourse. Devising a definition that is meaningful from an empirical perspective, and is amenable to policy intervention, is much more complex.

The term implies constrained disposable income and a limited financial resilience, for example households that do not have £200 in available savings for a ‘rainy day’ and would reach crisis if encountering unexpected costs, such as a car breakdown or a broken washing machine. (CHASM 2016) It is a more flexible concept than ‘poverty’, affected by popular perceptions of what a working household ‘should’ be able to afford (for example, one family holiday a year). It has been used - sometimes interchangeably - alongside similar terms including:

- ‘Hard Working Families’ (Gordon Brown, 1995);
- ‘The Squeezed Middle’ (Ed Miliband when Leader of the Opposition, 2010-2015);
- ‘Alarm Clock Britain’ (Nick Clegg when Deputy Prime Minister, 2010-2015);
- The Just About Managing (JAM) classes (the Policy Exchange, 2015, and Theresa May’s first speech outside Downing Street, 2016); and
- More technical terms drawing from taxonomies used in the official statistics, such as Low-to-Middle-Income (LMI) households (The Resolution Foundation, 2016) or C1/C2 voters (the Policy Exchange, 2015, and YouGov, 2016).
Not all these terms draw on the same criteria - and a number of the more policy-driven terms have little empirical basis. What they have in common is a focus on families or households rather than individual adults, and an interest in disposable income and financial security or insecurity rather than individual earnings. Income for these households is likely to be supplemented by benefits, but the main source will be earnings from paid work. This group can therefore be viewed as ‘benefit reliant’ rather than ‘benefit dependent’, in contrast to the 10% of households on the lowest incomes where the majority of working age adults are out-of-work.

Where empirical analysis has been undertaken, it suggests that these groups are more likely to include working age adults educated to at least a first degree, overlapping with our interests in NTU around the quality of graduate employment and earnings from paid work - including concerns around recent graduates in non-graduate employment (ONS, 2013, ‘Graduates in the UK Labour Market’). Similar concerns were expressed by the Nottingham Trent University Final Year students who contributed to research exploring the relatively low graduate retention rates in Nottingham, on behalf of the Nottingham Post and Nottingham Business School (Blackley and Lawton, 2016).

Research Terms and Data Sources

The challenge for this initial secondary analysis of published official statistics is that reliable estimates of household income are limited at a sub-national level: there is no single dataset from which estimates can be made of the number of individuals or households within a given income band for Nottingham as distinct from the UK overall. Rather, this scoping exercise requires triangulating broad observations from trends over time and geographical variations in output, income and earnings.

The research terms used in this paper relate to geography and the indicators of output, income and earnings as follows:

- **Geography**: Official Statistics are published at the level of administrative (e.g. County, District) or statistical (e.g. NUTS 1, 2 and 3 or Census Super Output Area) boundary. In the case of Nottingham, the city centre and its immediate suburbs (including St Ann’s, Radford, Lenton, Sherwood, Mapperley, Sneinton, Dunkirk etc. and Clifton) are covered within the Unitary Authority boundary for which Nottingham City Council is responsible – referred to in this note as ‘Nottingham City’. There is an established practice between Nottingham City and Nottingham County Councils to describe the wider conurbation or economic geography of Nottingham as: Nottingham City plus Rushcliffe, Broxtowe and Gedling Local Authority Districts - referred to in this paper as ‘Greater Nottingham’. Finally, the County of Nottinghamshire can be subdivided into the statistical NUTS 3 geographies of North Nottinghamshire and South Nottinghamshire (alongside Nottingham City NUTS 3, which is the same boundary as the Unitary Authority);

- **Output**: the most widely used measure of economic output or aggregate wealth is Gross Value Added (GVA), which is equivalent to Gross Domestic Product (GDP) at a sub-national level (GVA equals GDP plus taxes, less subsidies). Estimates for local and regional GDP are based on income data, expressed at a workplace level (where the economic activity is taking place);

- **Income**: available measures of income relate to the household (whether single or multiple occupancy), and may or may not account for estimates of costs, but are residence-based
Gross Disposable Household Income (GDHI) is the most widely available sub-national measure. The Office for National Statistics (ONS) (2016) define GDHI as "The amount of money that all of the individuals in the household sector have available for spending or saving after income distribution measures (for example, taxes, social contributions and benefits) have taken effect." However, GDHI does not provide a measure that relates to actual households or family units (or the number of households in a given income group) - it is an aggregate measure that covers regions and local areas in the UK, and is published as an annualised figure (total, per head, as an index of the UK=100, and the components of income). An alternative measure for small areas is provided by the ONS' modelled estimates of income for Census Output Areas (in this case, Middle Layer Super Output Areas, or MSOAs) (ONS, 2016). These estimates are not directly comparable to GDHI, and are derived from the Family Resources Survey (FRS) modelled to MSOA level through analysis of relevant covariates including DWP benefit and HMRC data, house price statistics and energy consumption data. Although this modelled data is subject to fairly large confidence intervals for some local areas, it enables neighbourhood-based analysis of income at a household level that is not available from other data sources; and

- **Earnings**: a measure of the earnings from paid work at an individual, rather than household, basis. The main source is the Annual Survey of Hours and Earnings (ASHE), which is available to a relatively small level of geography based on where the individual lives ('residence-based') or where they work ('workplace-based'). This enables important comparisons within cities like Nottingham, which have a centre-periphery pattern of economic activity, including differences in earnings between those who live and those who work in an area.
Macroeconomic Context

The recession that started in the UK in 2008 was the longest and deepest on record. Although unemployment did not increase to anything like the rate experienced in the recessions of the 1970s, 80s and 90s, the sustained period of sub-inflation earnings growth placed significant pressure on households even when - as in the vast majority of cases - a period of unemployment was avoided.

UK national estimates, published by the ONS, suggest that average (median) disposable household income now exceeds the pre-recession level, and that headline measures of inequality have remained stable compared to pre-recession. This measure of disposable income is based on: original income (earnings from paid work, investments etc.) plus benefits; minus direct taxes, national insurance and local taxes. It does not account for housing costs, so should not be directly compared to estimates of net income after housing costs summarised later in the section on Small Area Estimates of Household Income. Both these measures are, however, ‘equivalised’ estimates of income. ‘Equivalised income’ means that the total estimated income for a given household has been adjusted on the basis of household size and composition, effectively representing the income level of each individual in a household - enabling comparisons across households of different sizes and compositions. (ONS, 2016)

In the financial year ending in 2016, median equivalised disposable household income was estimated to be £26,332 in the UK, slightly higher than the pre-recession level of £25,355 (year ending 2008) and more than £2,000 higher than the recent low in 2012/13.

Chart 1: Median Equivalised Disposable Household Income (2015/16 prices) in the UK, 2000/1 to 2015/16 (accounts for taxes and benefits, but not adjusted for housing costs)

Although the recent increase in the median income for all households has been driven by an increasing rate of adults in employment, as well as growth in average earnings from employment, the 2015/16 income for working households remains slightly lower than in 2007/8. In contrast, the income for retired households has increased throughout the period, and did not appear to have been affected by the recession. Chart 1 shows that, between 2007/8 and 2015/6, median disposable income for all households increased by 3.9%. It increased by 13% for retired households, whilst income for non-
retired households in 2015/16 was 1.2% less than in 2007/8. A detailed review of living standards and inequality has recently been published by the IFS which offers an in-depth analysis across the UK. (Cribb, Hood, Joyce and Keiller, 2017)

The trend illustrated in Chart 1 further justifies the focus of our investigation on working or ‘non-retired’ households. However, recent research by the authors (e.g. Wheatley and Lawton, in Caven and Nachmias Eds., in press), which identifies older workers experiencing varying levels of financial distress related to employment circumstances, suggests that there should not be an arbitrary cut-off age limit for a household to be considered Just About Managing.
Output - Gross Value Added

The trend in income illustrated in Chart 1 has been significantly affected by the trend in output in Chart 2, although the two express very different characteristics.¹

Chart 2 shows that output per head fell sharply in the UK, the East Midlands and the North Nottinghamshire NUTS3 area in 2008, but recovered between 2009 and 2010, exceeding the pre-recession level by 2011 in all three cases. Output in Nottingham has been consistently higher than the UK and East Midlands averages, but recovery has been uneven (although Nottingham did not experience a similar sharp fall in output in 2008). In both 2009 and 2010, GVA per head in Nottingham was 17% higher than the UK average, but as the UK has recovered more strongly, the difference between Nottingham and the UK average fell to 9% by 2015. South Nottinghamshire has had a consistently lower level of workplace-based GVA, which also recovered more slowly from recession (not exceeding the pre-recession level until 2013).

Chart 2: Gross Value Added (GVA) per head of population, 1997 to 2015


¹ The income estimate in Chart 1 reflects the balance of income after taxes at a household level, which includes benefits paid, pensions and other income in addition to paid wages; GVA in Chart 2 is a measure of wealth generated in workplaces, albeit derived from income estimates.
Regional Gross Disposable Household Income

The trend in GVA (Chart 2) shows that the level of wealth per head produced in workplaces in Nottingham significantly exceeds the East Midlands average and both North and South Nottinghamshire NUTS3 areas (with South Nottinghamshire having the lowest GVA per head). Charts 3 and 4 shows that the reverse is true for the sub-national measure of household income - Gross Disposable Household Income (GDHI). This contrast is interpreted in ‘Out of the Ordinary…’ as follows: “Nottingham has a distinctive economic geography. Nottingham city centre is both a centre of economic activity, a wealth generator, and the locator of more deprived neighbourhoods.” (p. 8)

GDHI measures aggregate income across the whole household sector (including income generated from employment and ownership of assets), after distribution measures such as taxes and benefits. It does not consider housing costs and the estimates are published at current basic prices, meaning that they are not adjusted for the effects of general price inflation.

Not only has total GDHI per head in Nottingham been consistently below the national average, but also the gap has widened over time. Chart 3 shows GDHI per capita for the UK, the East Midlands and Nottingham, South Nottinghamshire and North Nottinghamshire NUTS3 areas. Chart 4 shows GDHI per capita for the Nottingham NUTS3 area as an index where the UK average is expressed as 100. The charts show that in the first five years of the time series from 1997, GDHI per head for Nottingham was much closer to the UK average, at 76-78%. GDHI in Nottingham then grew more slowly than the UK average in the years prior to the recession that started in 2008, but also recovered more slowly after the recession, causing the index value for Nottingham against the UK to fall significantly (Chart 4). In 2008, the average person in Nottingham had £11,284 a year to save or spend, which was 68.9% of the UK average.

In 2012, when disposable income was increasing in the UK overall, it remained flat in Nottingham - and was equivalent to just 65.9% of the national average. After this point, income in Nottingham began to recover more strongly. In 2015, the latest year in the available time series, GDHI in Nottingham was £12,779 per head, 66.9% of the UK average. GDHI per head for Nottingham in 2015 was the lowest of all 173 NUTS3 areas in the UK in 2015. Leicester had the lowest GDHI in the UK in 2014.

GDHI in South Nottinghamshire has consistently been very close to the national average (and has exceeded it in the latest estimate, for 2015), whilst North Nottinghamshire has been below (but in line with the East Midlands average).

Other NUTS3 areas with the ten lowest GDHI values in 2015 include Blackburn with Darwen and Manchester, at 68.2% and 69.6% of the UK average respectively, Hull (at 71.4% of the UK) and Stoke-on-Trent (at 72.2%). Stoke-on-Trent was the only NUTS3 area in the bottom 10 to experience a fall (of 0.9%) in GDHI between 2014 and 2015. All the bottom ten NUTS3 areas were in the northern and midlands regions. The top ten NUTS 3 areas with the highest GDHI were all in London and the South East, with Kensington and Chelsea having the highest, at 273.7% of the UK average in 2015.
Based on the components of these GDHI estimates, the recent increases in income experienced in most NUTS3 areas, including Nottingham, have been driven by earnings from employment. This is due to both average earnings growing in real terms through 2014 and 2015 and because of the continued growth in the proportion of adults in employment (currently at a record level). Although income from employment was the main driver of GDHI growth, it was also the main reason for variations between regions and local areas, with less variation in income from social benefits or from property between most NUTS3 areas. GDHI figures highlight the growing disparity between Nottingham and the other NUTS3 areas across Nottinghamshire.

Chart 4: Nottingham NUTS 3 area, Indices of GDHI per head UK=100, 1997-2015

Small Area Estimates of Household Income

The ONS’ alternative, small area estimates of income are calculated through a model-based method at the level of Middle Layer Super Output Area (MSOA, one of the aggregations of the Output Areas developed for the 2011 Census to create stable small areas for statistics that would be unaffected by political boundary changes). These are produced using survey data from the ‘Family Resources Survey’ (FRS), the 2011 Census and several administrative data sources, with estimates published for the 7,201 MSOAs in England and Wales for the financial year ending 2014 for:

- **Total household weekly income** (unequivalised) - the sum of the gross income of every member of the household plus any income from benefits such as Working Families Tax Credit;
- **Net household weekly income** (unequivalised) – the sum of the income of every member of the household less common deductions from salaries, such as Income and Council Tax payments, National Insurance and occupational pension contributions;
- **Net household weekly income before housing costs** (equivalised) – as above, but equivalised to account for different household sizes and composition (thus representing the income of every individual member of a household); and
- **Net household weekly income after housing costs** (equivalised) – as above, but adjusted for deductions prior to equivalisation including: rent (gross of housing benefit, mortgage interest repayments, insurance, ground rent and service charges). (ONS, 2016)

To express the role of housing costs on individual households’ objective and subjective experience of being *Just About Managing*, we have used the **Net household weekly income after housing costs** series. In more detail, this series reflects:

**Income**
- Wages and salaries (gross) and earnings from self-employment
- Investments
- Tax credits
- State Pension and Income Support or Pension Credit
- Other pensions
- Other benefits
- Disability benefits
- Other sources of income

**Deductions**
- Income Tax payments
- National Insurance contributions
- Domestic rates or Council Tax
- Contributions to occupational pension schemes
- All maintenance and child support payments, which are deducted from the income of the person making the payments
- Parental contribution to students living away from home

**Housing Costs**
- Rent (gross of housing benefits)
- Water rates, community charges and council water charges
- Mortgage interest payments (net of any tax relief)
- Structural insurance premiums
- Ground rent and service charges
- (An equivalisation scale is then added to give Net Income after housing costs per individual household occupant) (ONS, 2016)

Map 3: Nottingham and Nottinghamshire map of household income based on ONS income estimate data, financial year ending 2014 (ONS 2016)
In-line with the sub-regional picture from GDHI, in which Nottingham stood out nationally in terms of lower household incomes, the East Midlands has no MSOAs in the top decile (10%) of highest income after housing costs and is over-represented in the lowest income deciles. Across England and Wales, MSOAs in the South East appear to have significantly higher household incomes relative to bordering regions (despite higher housing costs), whilst the North East - particularly South Tyneside - was most likely to have MSOAs in the lowest income bandings.

Table 1 shows the count and percentage distributions by decile (calculated on the basis of distribution of MSOAs in income bandings for all of England and Wales) for MSOAs in the East Midlands, Nottingham and Nottinghamshire and Greater Nottingham; and Chart 5 shows the percentage distribution of MSOAs in each decile for Nottingham and Nottinghamshire and Greater Nottingham compared to the national picture. To enable comparisons with existing definitions of Just About Managing and Ordinary Working Families, we have produced monthly and annual versions of the ONS’ weekly estimates.

Chart 5: Monthly Net Income after Housing Costs for MSOAs in England and Wales, Nottingham and Nottinghamshire and Greater Nottingham, Distribution (%) by Decile (of the E&W distribution), financial year ending 2014

Table 1: MSOAs by Decile (England and Wales) for Net Weekly Household Income (equivalised) after Housing Costs, financial year ending 2014

<table>
<thead>
<tr>
<th>Decile</th>
<th>Lowest £</th>
<th>Highest £</th>
<th>Median Monthly £</th>
<th>Median Annual £</th>
<th>Count of E&amp;W MSOAs</th>
<th>% of E&amp;W MSOAs</th>
<th>Count of EMids MSOAs</th>
<th>% of EMids MSOAs</th>
<th>Count of N&amp;N MSOAs</th>
<th>% of N&amp;N MSOAs</th>
<th>Count of GN MSOAs</th>
<th>% of GN MSOAs</th>
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<tbody>
<tr>
<td>1</td>
<td>997</td>
<td>1,560</td>
<td>1,430</td>
<td>17,160</td>
<td>837</td>
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<td>13.8</td>
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<td>18.8</td>
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E&W= England and Wales; EMids= East Midlands; N&N= Nottingham and Nottinghamshire; GN=Greater Nottingham (Nottingham City Unitary Authority plus Rushcliffe, Gedling and Broxtowe Local Authority Districts)
Chart 5 and Table 1 show that MSOAs in Greater Nottingham are over-represented in the lowest decile, where monthly household income after housing costs are between £997 and £1,560, at 25.6% of MSOAs in the city region compared to 11.6% nationally and 13.8% in the East Midlands. MSOAs in Nottingham and Nottinghamshire are also over-represented in the 2nd, 4th and 5th deciles (where monthly income falls within the £1,603-£1,733; £1,907-£1,950; and £1,993-£2,080 bands respectively). On an annualised basis, these deciles have median incomes (nationally) of £20,280, £23,400 and £24,440 respectively.

Finally, Table 2 shows the 5 MSOAs with the highest income after housing costs and the 5 lowest in Nottingham and Nottinghamshire. This clearly illustrates that the MSOAs with the highest household incomes are over-represented within Rushcliffe district (4 of the 5 highest incomes in the city and county), whilst those with the lowest are significantly over-represented in Nottingham City, which accounts for all five of the lowest, with the area around Forest Fields (MSOAs Nottingham 017 and 018) 5th and 2nd lowest respectively.

<table>
<thead>
<tr>
<th>MSOA</th>
<th>Description</th>
<th>Decile (England &amp; Wales)</th>
<th>Monthly Net income after housing costs</th>
<th>Yearly Net income after housing costs</th>
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<tbody>
<tr>
<td><strong>Top 5 MSOAs by Net Income</strong></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Rushcliffe 006</td>
<td>Gamston to Holme Pierrepont</td>
<td>9</td>
<td>£2,730</td>
<td>£32,760</td>
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<tr>
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<td>West Bridgford (Radcliffe Road)</td>
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<td>£32,240</td>
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<td>Newark and Sherwood 013</td>
<td>Epperstone to Gunthorpe</td>
<td>9</td>
<td>£2,643</td>
<td>£31,720</td>
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<td>Rushcliffe 001</td>
<td>East Bridgford to Granby</td>
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<td>Tollerton to Willoughby on the Wolds</td>
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<tr>
<td><strong>Bottom 5 MSOAs by Net Income</strong></td>
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<td>Nottingham 017</td>
<td>Forest Fields (East)</td>
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<td>£1,257</td>
<td>£15,080</td>
</tr>
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<td>Arboretum</td>
<td>1</td>
<td>£1,127</td>
<td>£13,520</td>
</tr>
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<td>1</td>
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</tr>
<tr>
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<td>1</td>
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<td>£13,000</td>
</tr>
<tr>
<td>Nottingham 023</td>
<td>Central (North East, Huntingdon St)</td>
<td>1</td>
<td>£1,083</td>
<td>£13,000</td>
</tr>
</tbody>
</table>


Nottingham Civic Exchange, through our Out of the Ordinary programme has begun to explore where we may find higher numbers of households that are Just About Managing. The map below highlights MSOAs where the average (mean) yearly household income is within the second to sixth household income decile range. We have highlighted this range of deciles to match the Resolution Foundation’s definition of this group who can be considered to be low to middle income households (Resolution Foundation 2016). It is worth highlighting that 60% of Nottingham MSOAs fit into these deciles, across the UK that figure is 50%. Household income is important for understanding the financial position of households but is only one factor which will play into whether households and individuals feel they are Just About Managing.
Map 4: Nottingham and Nottinghamshire map of household income based on ONS income estimate data of income deciles two to six, financial year ending 2014 (ONS 2016)
Earnings

The most detailed sub-national data relates to individual earnings, from the Annual Survey of Hours and Earnings (ASHE). These estimates are not adjusted for tax and other payments (i.e. they are gross estimates) and do not take into account living costs, so need to be interpreted carefully when considering disposable income and its relationship to prices. However, earnings enable several important sub-national observations to be made, including:

- Change in median earnings over time at a relatively small local level;
- The difference between earnings on a residence- and workplace-basis (which helps explore the contrasting relative position of Nottingham vis-à-vis GVA, a workplace-based measure of wealth production, and GDHI, a residence-based measure of income);
- The distribution of earnings by percentile ranges; and
- Earnings by occupation (enabling us to identify the Standard Occupational Groups, or SOCs, most likely to be associated with Just About Managing or Ordinary Working Families in the UK, Nottingham and the East Midlands).

Chart 6 illustrates the trend in median earnings between 2004 and 2016. The median (the value at the centre of the distribution) is the preferred measure in the case of earnings, as it is not as affected by a small number of very high earnings as the mean (the arithmetically calculated average). These estimates are nominal, in that they are not adjusted for changing prices (note that the rate of inflation exceeded the rate of earnings growth from the onset of the recession in 2008 and through the initial period of relatively weak recovery).

Chart 6: Median residence-based earnings (nominal) for full-time workers, 2004-2016


The chart shows that median earnings for individuals living in Nottingham City have been consistently lower than the national average. In 2016, the median of annual earnings for residents in Nottingham was estimated to be £23,346, compared to £26,593 in the East Midlands and £28,213 in the UK.
Chart 6 shows a widening disparity between Nottingham and the UK towards the end of the time-series, as nominal earnings growth in the city recovered more slowly - growing by just 3.1% between 2012 and 2016 compared to 6.6% in the UK (although earnings in Nottingham grew more strongly in the period immediately preceding the recession). Over the time-series shown in Chart 6, the difference in earnings between residents of Nottingham and the UK increased from £2,914 per annum in 2004 to £4,746 in 2008 (before falling back to £3,095 in 2012) and to £4,867 in 2016.

The trend for the East Midlands followed the UK average, with a slightly lower growth following the onset of recession but a very similar rate of recovery from 2012.

Within the Greater Nottingham area, earnings for residents of Nottingham City have consistently been lower than in Gedling, Broxtowe or Rushcliffe - with Rushcliffe a clear outlier. Residents in Rushcliffe have significantly higher median earnings than both Nottingham and the UK average, with the gap widening in recent years as earnings growth in Rushcliffe recovered more strongly than average (increasing in nominal terms by 8.7% between 2012 and 2016). The latest estimate for median earnings of residents of Rushcliffe was £35,119 per annum, £11,773 more than the median for Nottingham City.


Chart 7 illustrates the extent, and the direction, of the differences between residence- and workplace-based earnings across the Greater Nottingham area. It shows that:

- On a workplace basis, the median for full-time workers is lower than the UK average in all parts of Greater Nottingham. The lowest is in Gedling, at £24,476, whilst the highest is in Rushcliffe, at £27,516;
- However, residence-based earnings in Broxtowe and, more significantly, Rushcliffe exceed the national average. Residence-based earnings in Rushcliffe were £7,603 higher than the median for workplace-based earnings in the district in 2016. This suggests that more highly paid, highly skilled individuals commute to work elsewhere, with a large proportion commuting to Nottingham City, as well as Leicester, according to Annual Population Survey commuting analysis (ONS Commuter View, 2013); and
For Nottingham City, workplace-based earnings were £2,755 higher than residence-based earnings. This suggests that a relatively large number of highly paid, highly skilled workers in Nottingham City are resident elsewhere (including Rushcliffe) and that a lower proportion of residents can access or progress within the better paid/more highly skilled jobs in the city.

Estimates from the ASHE are available for a percentile range (the distribution split into 10 percentiles, in addition to 25% and 75% earning bands). This can be used to investigate whether the overall earnings distribution has widened or narrowed over time, and can be used to identify any changes for the lower-middle and middle-earnings groups of interest to this project.

Chart 8a shows the earnings distribution for full-time workers in the UK overall. Similar to trends in Disposable Household Income summarised at the start of this paper, there has been little change in the difference between higher and lower earnings following the recession. The highest earnings percentiles (75%, 80% and 90%) increased at a similar rate as the median since 2008 (around 12% in nominal terms), whilst the lowest earnings percentiles (10% and 20%) have increased by slightly more in the same time period (14.2% and 13.6% respectively since 2008). The gap between the bottom 25% and the top 25% of earners in the UK has remained stable throughout the period shown in the chart (as has the gap between the bottom 10% and top 10%).

However, this specifically relates to full-time equivalent workers. Earnings for part-time workers will be analysed later in this section. This is an important consideration. Firstly, because part-time workers receive, on average, lower pay per hour than their full-time counterparts do. Secondly, because of evidence of increasing involuntary part-time working (where individuals state that they are working part-time because they have been unable to find full-time work) during the period of recovery from recession, including, but not restricted to, individuals on zero hours contracts.
Chart 8b presents the earnings distribution for residents in Nottingham City compared to the UK in 2016. The data available at a local level is more limited, with some gaps in the time series and estimates suppressed for the higher and lowest earnings percentiles (due to a smaller number of observations). For this reason, estimates for the first, 8th and 9th deciles are all unavailable for Nottingham. With these limitations in mind, the chart shows the following:

- The median of earnings for full-time workers resident in Nottingham was 17.3% lower than in the UK in 2016, with a smaller difference in the lower-middle and middle-earnings bands.
- The estimate for the second decile for Nottingham was 10.8% lower than for the UK, at £16,636 per annum compared to £18,649. It was 15.6% lower for the 3rd decile; and
- For the higher earnings deciles (for which estimates are available), the difference between Nottingham and the UK estimate is much larger - indicating suppressed earnings in Nottingham compared to the UK at the higher end of the distribution. For the 7th decile, earnings in Nottingham were 21.5% lower than in the UK (and 23.8% lower for the top 75%).

Compared to the UK (Chart 8a), where earnings in each of the deciles grew at a similar rate since 2008 (with slightly higher rates of growth for the lower deciles), in Nottingham the rates of growth in the higher earnings deciles were significantly slower than the median between 2008 and 2016 (at 6.9% for the 6th decile and 5.6% for the 7th decile, compared to a growth in median earnings of 14.3%). This is likely to have been affected by the sectoral and occupational composition of employment in Nottingham compared to the UK (with the UK average affected by London, including the concentration of high pay activities in the Financial Services). Previous analysis (e.g. Bickerton, Lawton and Thompson, on behalf of the Nottingham Post, 2014) identifies notable concentrations of employment in relatively routine or lower value services, particularly the 'Business Administration and Support' sector (accounting for 23.8% of employment in Nottingham in 2013 compared to 8.4% in Great Britain).
Chart 9a shows the difference in hourly earnings for part-time and full-time workers in the UK, East Midlands and the districts within Greater Nottingham. This shows that the median hourly pay (excluding overtime) for part-time workers is very significantly lower than for full-time workers in all areas and that, with the exception of Rushcliffe, there is relatively little difference in part-time earnings across the areas shown (again, this is likely to be significantly affected by the national minimum wage, which is currently £7.50 per hour for people aged over 25).

Chart 9a: Hourly pay (median, excluding over-time) for full-time and part-time, residence-based, 2016

Nottingham City, which has the lowest full-time earnings of the areas shown (£11.37 per hour) has the smallest difference with part-time earnings (which are £2.94 less, at £8.43 an hour). Rushcliffe, which has the highest full-time earnings (£17.54) has the largest difference with part-time earnings (which are £7.11 less, at £10.43 an hour).

Nottingham City, which has the lowest full-time earnings of the areas shown (£11.37 per hour) has the smallest difference with part-time earnings (which are £2.94 less, at £8.43 an hour). Rushcliffe, which has the highest full-time earnings (£17.54) has the largest difference with part-time earnings (which are £7.11 less, at £10.43 an hour).

Chart 9b illustrates the variation in the proportion of employed residents who state that they work part-time in 2008 and 2016. This shows that, in all areas except Gedling and Nottingham City, the proportion working part-time has increased slightly since the onset of recession (from 24.4% to 25.1% in the UK overall, or an additional 594,000 people working part-time since 2008). The highest proportion working part-time in 2016 was in Rushcliffe and the lowest was in Gedling, with Nottingham City in line with the UK average - indicating little correlation with earnings levels and proportions working part-time.

The variations in earnings between Nottingham and the UK are therefore very likely to be closely related to the structure of employment by occupation. Standard Occupational Classifications (SOCs) are extremely useful analytically, as they are derived from Labour Force Survey responses on the skill level (e.g. equivalent to a first degree, a school leavers’ qualifications, or unskilled) and skill specialisation (e.g. cognitive or manual) of individuals’ main jobs. SOCs thus directly relate to the kind of work individuals do and the skill required to do them.
Chart 10 shows that the residents of Nottingham City have a markedly different skill profile than the UK overall:

- Employment in the highest skilled occupation in the SOC hierarchy, Managers, Directors and Senior Officials (SOC 1) is underrepresented amongst residents of Nottingham, at 6.8% compared to 10.5% in 2016;
- Conversely, the lowest skilled occupation, SOC 9: Elementary Occupations, which require no qualification, skill or formal training to perform (e.g. routine factory or warehouse work) are over-represented in Nottingham, accounting for 15.5% of employed residents compared to 10.7% in the UK. This is equivalent to 21,400 individuals in Nottingham City;
- Nottingham also has an over-representation of employed residents in Caring, Leisure and Other Service Occupations, at 11.5% compared to 9.2%. Although this group covers jobs that are in the centre of the skills hierarchy (usually requiring the equivalent of at least an NVQ Level 2 or 5 GCSEs at grades A*-C), analysis of the ASHE by SOC suggests that it is, on average, less well compensated compared to other intermediate skilled occupations; and
- More positively, Nottingham has a notable over-representation of Associate Professional Occupations (SOC 3), usually requiring at least a NVQ Level 3, 2 good A-Levels or a first degree to perform (including associate and technical occupations in health, education, academia and legal services, and ‘new’ professions in ICT and the creative industries). According to analysis by Blackley and Lawton (2016), the wider Greater Nottingham area also has one of the highest proportions of employment in SOC 2, Professionals, of the Core City group of large and medium-sized ‘primary urban areas’.

Chart 11: Annual Earnings (median) for full-time workers by SOC Group in the UK and the East Midlands (workplace-based), 2016

Analysis of the ASHE by Occupation at a UK and East Midlands-level, illustrated in Chart 11, shows that the hierarchy of median earnings closely follows the occupation-skill hierarchy at either end of the categorisation. Estimates for Nottingham City or the districts in the Greater Nottingham area are not available by SOC due to sample size:

Source: ONS Crown Copyright, 2017. ‘Annual Survey of Hours and Earnings by Occupation (2 Digit SOC): Table 2 – 2016 (provisional)’, accessed from ons.gov.uk [28th April, 2017].
In the UK, Managers (SOC 1) were paid a median of £42,109 in 2016, £13,896 more than the median for all occupations. For SOC 1 earnings in the East Midlands, there was a greater difference between the UK average than for all full-time employees. Managers in the East Midlands were paid a median of £37,897 in the region, £4,212 less than in the UK overall;

Professional Occupations (SOC 2) are over-represented in Greater Nottingham, associated with public sector employment in education, health and public administration. Although the median earnings for Professional Occupations is lower in the East Midlands than in the UK, the gap is less than average – with Professionals in the region paid a median of £35,581 compared to £37,675 in the UK; and

The median earnings for Elementary Occupations (SOC 9) in the UK were £18,462, which is £9,751 less than the median for all occupations. In the East Midlands, Elementary Occupations had median earnings of £18,345 – with the slight difference with the UK average likely to be a function of the national minimum wage.

However, in the middle of the occupation-skill hierarchy, there is significant variation, with the Skilled Trades (SOC 5), a traditionally male-dominated group including the skilled construction trades (e.g. plumbers, electricians etc.), paid a median of £26,131 in the UK and £25,649 in the East Midlands. This is significantly higher than Caring, Leisure and Other Services (SOC 6) occupation, median earnings for which are estimated to be £17,665 in the UK and £17,060 in the East Midlands. This is the lowest occupational earnings estimate both nationally and regionally out of the nine SOC groups.

Key inferences from this for Nottingham City and Greater Nottingham are:

- As the median pay for residents in Nottingham City is below the East Midlands average, this is likely to also be the case for a Nottingham residents working in most SOC groups, with the possible exceptions of Professionals and Associate Professionals (SOCs 2 and 3) - where we would assume that the higher demand for employment in these activities would result in higher wages, all other things being equal;
- However, the highest paid occupations nationally and regionally are under-represented amongst residents of the City Unitary Authority. This may explain the relatively suppressed pay growth at the upper end of the earnings distribution in Nottingham compared to the UK;
- The low skill Elementary Occupation is significantly over-represented in Nottingham City, and is also associated with one of the lowest earnings; but
- Nottingham City’s over-representation in Caring, Leisure and Other Services is notable because it is this intermediate-skilled occupation that has the lowest pay of all nine categories in 2016 (including lower pay that activities that require little in the way of skill, education or training to perform). Note that these estimates are for full-time workers, so are not affected by the higher rates of part-time working often associated with SOC 6.

Together, this indicates that individuals working in Caring, Leisure and Other Services resident in Nottingham are of particularly interest to the Out of the Ordinary programme. Further analysis is required to explore the gender and household dimension of this (for example, Caring is a highly gendered occupation, in which women are significantly over-represented). It will also be important to explore more qualitative aspects around the changing nature of modern work, such as the impact of precarious, zero-hour or involuntary part-time working for a household to be Just About Managing. These topics will be covered in the next phases of the Out of the Ordinary programme by Nottingham Civic Exchange.
Objective and Subjective Measures of Income from The Understanding Society survey analysis

Understanding Society is a UK-wide survey, based on interviews with a panel of the same households year-on-year, providing insight into how their lives are changing over time. Waves 1 (2010-11) through to 6 (2014-15) were analysed in collaboration with researchers at the University of Birmingham (Wheatley, in progress) to explore differences in the distribution of responses to subjective compared to objective views of financial status. A key outcome of this was to move towards more sophisticated, evidence-based definitions of Just About Managing and Ordinary Working Families.

Responses to (objective) gross household income (not adjusted for housing costs etc.) were banded as follows: Low income (under £12,000); Just About Managing (based on the Resolution Foundation, 2016 - £12,000-£34,000); Middle income (£34,000-£50,000); Upper middle income (£50,000-£75,000); and High income (over £75,000).

Subjective views of household income were derived from responses to the following question: “How well would you say you yourself are managing financially these days?” Responses were on a 5-point scale, as follows: “finding it very difficult”; “finding it quite difficult”; “just about getting by”; “doing alright”; and “living comfortably”.

Chart 12: Distribution of members of households by objective and subjective financial status – Objective Measure (gross household income)

The summary statistics from this analysis, illustrated in Charts 12 and 13, indicate a different distribution of responses to questions on (gross) household income compared to subjective views of financial status:

- Objectively, 28.2% of respondents were in the £12,000-£34,000 household income band equivalent to Just About Managing in the literature, whilst 25.1% (subjectively) responded that they were “just about getting by”;
- A higher proportion (subjectively) felt they were ‘living comfortably’ (28.1%) than those who were (objectively) within the upper middle income banding (£50,000-£75,000) (24.8%), but;
• A higher proportion also stated that they were (subjectively) ‘finding it quite difficult’ (6.7%) compared to those who were on low incomes objectively (under £12,000) (4.1%).

The mean household income for those who responded that they were (subjectively) ‘just about getting by’ was significantly higher than the mean income for households in the (objective) Just About Managing/£12,000-£34,000 banding, at £42,117 compared to £24,739. More generally, a greater diversity of individual and household characteristics was evident amongst those who (subjectively) felt they were Just About Managing compared to the equivalent objective household income banding.

Chart 13: Distribution of members of households by objective and subjective financial status – Subjective Measure (responses to question on perceived financial status)


Both objectively and subjectively, respondents in the Just About Managing groups were most likely to be employed part-time (48.9% of those in the objective household income banding and 44.8% of those who responded that they were ‘just about getting by’) rather than employed full-time or self-employed. Objectively, respondents in the Just About Managing group were most likely to be working in Elementary Occupations (16.7%), whilst those who (subjectively) responded that they were ‘just about getting by’ were most likely to be Associate Professionals (14.9%). In terms of household tenure, owning with a mortgage accounted for the largest share of both objective and subjective responses.

According to the objective banding, the family status of those in the Just About Managing income banding were more likely to be single/unmarried or divorced/widowed compared to higher income groups. Individuals in the Just About Managing income group were more likely to be in the younger or middle-aged age groups, and were also significantly more likely to have children and dependents under the age of four. Ordinary Working Families can therefore be usefully understood as a significant sub-group of the wider Just About Managing class - and factors that can lead a household to experience precarious financial circumstances include insecure or low income and/or of the impacts of caring for young children (see ‘Out of the Ordinary…’ pages 5, 8 and 9).

Respondents in the objective Just About Managing income band were also more likely to be providing care for ill or elderly relatives or friends. Carers were also more likely to respond subjectively that they were ‘just about getting by’.
Finally, in common with GDHI and the analysis of small area household income estimates, households in the objective *Just About Managing* income group were least likely to be located in London, the East, South East and South West regions and more likely to be located in the East Midlands and the other northern and midlands regions. However, when considering subjective financial status those in London, the South East and South West are more likely to report more difficult financial situations or ‘just about getting by’. This result contrasts the objective measure, potentially reflecting the impact of the relatively higher costs of living, as well as other factors, in these regions.
Concluding Observations

Due to data availability at a sub-national level, it is challenging to quantify the number of households or individuals within given income or earnings bands. This technical working paper attempts to provide useful context for interpreting existing research, including other outputs produced for this project (such as the compendia of maps of MSOA income estimates). The key contributions are: 1) to illustrate the importance of employment - the quality of work and associated skill level, and the extent to which this is linked to pay (particularly in the case of those working in caring occupations, where an intermediate level of skill is associated with low, rather than mid-range, earnings), and to inform; 2) a more sophisticated understanding of the definition of Ordinary Working Families, with the implication from the Understanding Society Survey analysis that these households are a large subset of the wider Just About Managing group (i.e. not all households that are Just About Managing have children, but households with young children are more likely to be Just About Managing).

This paper also establishes some clear messages on how Nottingham City and the wider Greater Nottingham and Nottinghamshire areas differ from the UK average.

Although the earnings and income distributions in the UK have not changed significantly since the onset of recession in 2008 and subsequent recovery, with stronger growth towards the lower end of the distribution (assisted by redistribution through the benefits system, increases in the National Minimum Wage, and a significantly increased employment rate), the gap between the UK and Nottingham City has widened. National and local evidence suggests that lower earnings from paid work and lower earnings growth are likely to be the main drivers in this.

Nottingham City exhibits high levels of workplace wealth generation (although the extent of the difference in GVA per head between Nottingham and the UK has reduced in recent years due to slower recovery in Nottingham). Conversely, Nottingham also exhibits lower household incomes and a big difference between residence and workplace-based earnings. The distribution of earnings and the occupational structure, with subdued growth towards the upper end of the distribution and an under-representation of highly paid occupations for residents, suggest that the structure of employment, and barriers to entering high pay/high skill jobs for residents, are the key factors that explain lower earnings and incomes in Nottingham City. Caring, Leisure and Other Service Occupations stand out as both an important employment occupation in Nottingham and an activity that is paid significantly less than average (both locally and nationally it is the lowest paid occupation, despite requiring an intermediate level of skill and/or qualification to access and perform).

Further findings will be forthcoming from the next phases of the Out of the Ordinary programme initiated by the Nottingham Civic Exchange. Further empirical work will explore the links between household composition, age, caring responsibilities (particularly childcare) and other factors, including structure and quality of work. Further analysis will also be undertaken on small area variations in wellbeing and life satisfaction (from the ONS’ wellbeing series in the Annual Population Survey), to investigate the extent of correlation with income and earnings at a local level. Alongside this, a programme of primary research will also be initiated, to not only gain qualitative insight from those households who are experiencing these challenges, but to test potential responses in terms of policy and practice.
What we are going to do next

Nottingham Civic Exchange will:

- work with Nottingham Trent University staff, our partners, students and communities to establish a distinctive and innovative programme of research on Ordinary Working Families,

- continue to engage Ordinary Working Families by undertaking relevant research, designed collaboratively to explore the particular issues which these families and family members experience,

- organise events which will bring together community representatives, professional agencies and public sector bodies with understanding and experience of the issues relating to Ordinary Working Families, to consider the outcomes of the research,

- support the development of practical solutions and policy interventions of relevance to Ordinary Working Families in Nottingham, Nottinghamshire, and the wider region.

How to get involved

To find out more about the work of Nottingham Civic Exchange, or to help shape our upcoming work on Ordinary Working Families please get in touch.

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More information about the programme as it develops can be found on our website:

www.ntu.ac.uk/outoftheordinary

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