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Error in xj[i]: invalid subscript type 'list'
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Region: East Midlands
Project ID: project 1
Impact of new road near Stafford

IFS Property Value Calculator

1 Introduction

2 Type of project

The project is a new **road** in the **East Midlands** region. Figure 1 displays a map of the new road. The road is approximately 38.7 miles long and has 4 junctions. It begins near Stafford and finishes near Nottingham.

Route map for new road

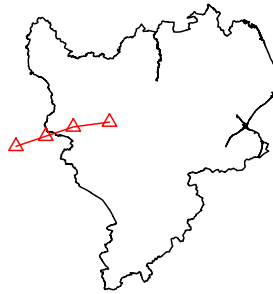


Figure 1: Route map of road

It is assumed that the average speed on the new road is 80 miles per hour (mph). To predict, new travel times for the region, this report assumes:

- House prices are determined by 1) property size and structure and 2) location. Details of the

data used to estimate the model are presented in Section 5. Model details are presented in Section 6.

- Location values are primarily determined by travel time to various destinations, land use in the surrounding area, distance to the coast, and various local amenities and disamenities including greenbelt status, and road noise.
- Travel times to 5 cities are the dominant factors for property values in this region. These cities are: (**Leicester, Nottingham, Peak District National Park, Grantham, Banbury**).
- New travel times after the investment equal the minimum of the baseline travel time and the new travel time using the new road.
- New travel time using the new road consists of:
 1. travel time from each house to the nearest junction/station on the new road.
 2. travel time along the new road.
 3. travel time from the new road to each destination.
- All travel times are estimated using Google Maps.
- The model does not account for changes in congestion or any other changes in travel time induced by the new road.
- The model provides short-run predictions only. In the long run, commuting patterns, job locations and the importance of destinations will likely change. The model does not account for these long run changes.
- The model provides the best approximation to the short run impact of the new road.

3 Impact of the new road

For each city, these tables show the distribution of travel times from each property in the region. The tables also show the distribution of travel times from each property to the nearest rail station (RAIL).

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Error in .stargazer.wrap(..., type = type, title = title, style = style, : object
'drivetime1' not found
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4 Impact on prices

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Error in data.frame(oldprice, newprice, deltaprice): object 'oldprice' not found
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5 Data

6 Model

Section 6.1 shows how log prices depend on building characteristics and time.

Section 6.2 shows how log prices depend on travel times to important cities and destinations in the region as well as on other local amenities and disamenities.

6.1 Model 1

Table 1: Dependence of log property values on structure and time

	<i>Dependent variable:</i>
	logprice
year2009	−0.084*** (0.004)
year2010	−0.042*** (0.004)
year2011	−0.052*** (0.004)
year2012	−0.034*** (0.004)
year2013	−0.015*** (0.004)
year2014	0.038*** (0.004)
year2015	0.089*** (0.004)
year2016	0.150*** (0.004)
year2017	0.199*** (0.005)
propertytypeF	−0.413*** (0.007)
propertytypeO	−0.067*** (0.019)
propertytypeS	−0.260*** (0.002)
propertytypeT	−0.428*** (0.002)
newbuildY	0.151*** (0.003)
tenureL	−0.109*** (0.006)
bSize1	0.127*** (0.022)
bSize2	0.213*** (0.017)
bSize3	0.253*** (0.033)
bSize4	1.174*** (0.040)
bSize5	0.729*** (0.049)
bSize6	1.272*** (0.036)
bSize7	1.207*** (0.032)
bLat1	−1,621.778 (1,589.255)
Observations	100,000
R ²	0.700
Adjusted R ²	0.699
Residual Std. Error	0.257 (df = 99836)
F Statistic	1,427.308*** (df = 163; 99836)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

6.2 Model 2

Table 2: Dependence of log property values on locational amenities

	<i>Dependent variable:</i>
	location_value
builtuparea_pct	0.001*** (0.0001)
busyland_pct	-0.001*** (0.0001)
restrictedland_pct	
localplanrate	-0.386 (0.267)
lu_domestic_shr	-0.120* (0.069)
lu_gardens_shr	0.358*** (0.036)
lu_nondom_shr	0.696*** (0.080)
lu_road_shr	0.694*** (0.066)
lu_rail_shr	0.300*** (0.072)
lu_greenpace_shr	0.322*** (0.032)
lu_water_shr	0.424*** (0.042)
popdensityOA	-0.00002 (0.00002)
imddecile2	0.013*** (0.003)
imddecile3	0.028*** (0.003)
imddecile4	0.036*** (0.003)
imddecile5	0.033*** (0.003)
imddecile6	0.037*** (0.003)
imddecile7	0.038*** (0.003)
imddecile8	0.040*** (0.003)
imddecile9	0.042*** (0.003)
imddecile10	0.058*** (0.004)
prob_4bandHigh	0.001 (0.042)
prob_4bandLow	-0.013 (0.041)
prob_4bandMedium	-0.017 (0.041)
prob_4bandNone	-0.008 (0.041)
prob_4bandVery Low	0.099** (0.042)
noiseclass55.0-59.9	-0.007** (0.003)
noiseclass60.0-64.9	-0.0001 (0.004)
noiseclass65.0-69.9	-0.001 (0.008)
noiseclass70.0-74.9	0.0005 (0.022)
greenbelt	-0.008* (0.004)
log(distance_coast)	-0.069*** (0.018)
I(log(distance_coast)^2)	0.007 (0.005)
log(drive_station)	-0.260*** (0.079)
I(log(drive_station)^2)	0.058*** (0.013)
Constant	-0.657*** (0.245)
Observations	9,923
R ²	0.816
Adjusted R ²	0.814
Residual Std. Error	0.058 (df = 9818)
F Statistic	418.802*** (df = 104; 9818)
<i>Note:</i>	*p<0.1; **p<0.05; ***p<0.01

7 Figures

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Error in density(deltadrivetime[, i1], na.rm = TRUE): object 'deltadrivetime' not found
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Error in density(deltadrivetime[, i1], na.rm = TRUE): object 'deltadrivetime' not found
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Error in density(oldprice, na.rm = TRUE): object 'oldprice' not found  
Error in heatmap1(newdata$m2data_new$longitude, newdata$m2data_new$latitude, : object 'oldprice' not found  
Error in density(newprice, na.rm = TRUE): object 'newprice' not found  
Error in heatmap1(newdata$m2data_new$longitude, newdata$m2data_new$latitude, : object 'newprice' not found  
Error in density(deltaprice, na.rm = TRUE): object 'deltaprice' not found  
Error in heatmap1(newdata$m2data_new$longitude, newdata$m2data_new$latitude, : object 'deltaprice' not found
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