



Ethnic Penalties in Motor Insurance Premiums

Trevor Phillips and Richard Webber

July 2016

Key findings

UK Motorists who live in multi-ethnic districts pay an ethnic penalty in higher average insurance premiums. 12 million adults – more than 1 in 5 – live in these areas.

The estimated average ethnic penalty rises with greater minority presence to over £450 per motorist in inner London.

The ethnic penalty exists in all regions, areas of affluence and in areas of average fear of car theft; we conclude that it is driven by ethnicity rather than other factors.

Report Summary

We have examined the statistical effect of the distribution of minority motorists and the size of average premiums in UK postcode areas.

Our research has revealed that:

- There is a strong statistical relationship between ethnic minority prevalence in a postcode area and the higher cost of average motor insurance premiums for all motorists in each postcode area. This affects 12 million (of 52 million) UK adults, a majority, but not all of them ethnic minority Britons.
- Data for all 125 postcode areas of the UK show that around 60% of the variation in average premium can be accounted for by difference in the ethnic composition of the area.
- In areas of moderate or average fear of car crime, according to the British Crime Survey, ethnic minority composition accounts for 90% of premium variation.
- We find that insurers are imposing an 'ethnic penalty' on motorists who live in areas of high ethnic minority prevalence. We estimate that this penalty can vary from £50 per annum to £458.
- The ethnic penalty affects some 8 million ethnic minority adults who live in areas of high ethnic minority prevalence.

The variations cannot be accounted for by prevalence of crime, fear of crime, available claims data, or by relative affluence. In certain subsets, the correspondence between high premium levels and postcode areas with a high ethnic minority prevalence rises to 90%, meaning that the penalty in these areas is almost entirely accounted for by ethnicity.

Background

Most studies, such as the Equality and Human Rights Commission's triennial review, *How Fair Is Britain?*, suggest that ethnic minority Britons still face entrenched disadvantage as a result of their ethnicity. For the most part, the levels of racial inequality still apparent in today's society are not attributed to widespread direct discrimination.¹

Increasingly attention is focused on "unconscious" or "systemic" bias. The former tends to occur as a result of individuals unwittingly acting to favour one group over another, particularly in employment matters; the latter tends to relate more often to the effect of organisational processes and inertia, and are typically revealed by consistent results showing discrimination against one group or another, particularly in the provision of goods and services.

This report focuses on an instance of the second type of bias, in this case against minority consumers.

There is little current evidence available as to whether so-called "everyday commercial transactions" in consumer markets incur ethnic or racial penalties in the UK. There is extensive literature in the USA, pioneered by the work of Peter Siegelman² in car sales markets.

This work has recently been updated for the online age by the work of Ben Edelman³ showing possible discrimination in the allocation of Airbnb accommodation. Recently a federal jury has found one of the largest privately-owned banks in the USA discriminating against minority homeowners by marketing mortgages with predatory interest rates.⁴

There has been little comparable work on such transactions in the UK. Webber Phillips has been asked by Thompsons Solicitors to investigate whether or not there might be evidence of such systemic bias in the allocation of motor insurance premiums.

Data

Webber Phillips received a file showing average premium by postcode area, based on data from the AA for the first quarter of 2016.

The data from the AA, known as the British insurance premium index, 'records premium movements for 2,800 car insurance 'customers' throughout the UK, from around 80 providers. The Shoparound premium is an average of the cheapest five premiums returned for each 'customer' in each basket of risks, and is thus close to what customers pay for their cover'⁵.

We correlated this with a file showing the distribution of ethnic minority adults by postcode area. A **postcode** is a small group of addresses, typically around fifteen homes e.g. NI 2AB; a **postcode area** is typically a much larger area which groups postcodes e.g. N6.

The relevant measure of *ethnic prevalence* used in this paper is the proportion of all adults in each postcode area who live in *ethnic minority dominated postcodes* i.e. those postcodes where more than 20% of individuals have a name indicating a non-Western European background as interpreted by Origins software. A minority dominated postcode would typically be a postcode where more than 3 out of 15 homes are occupied by households where a non-White British or non-White Other individual is identified as the head of the household.

¹ <https://www.equalityhumanrights.com/en/our-work/how-fair-britain>

² https://works.bepress.com/peter_siegelman/29/

³ <http://www.benedelman.org/publications/airbnb-guest-discrimination-2016-01-06.pdf>

⁴ http://www.nytimes.com/2016/06/28/nyregion/emigrant-savings-bank-discriminated-against-minorities-brooklyn-jury-says.html?emc=edit_tnt_20160627&lid=55520731&tntemail0=y

⁵ <http://www.theaa.com/newsroom/insurance/bipi/british-insurance-premium-index.html>

In other words, our measure of ethnic minority prevalence shows the penetration of non-white populations in each postcode area, and allows us reliably to compare what we call ethnic prevalence with average premiums.

Our analysis of ethnic groups is based on the aggregation of some 250 Origins groups into the 17 ONS census categories. A technical note is available at <https://www.originsinfo.eu/>.

In assessing the influence of factors other than ethnicity, we have included the impact of crime levels. Levels of reported crime are widely considered to be unreliable, especially in relation to car theft. Instead we have adopted a more widely credible proxy – fear of car theft in an area. We have used the most recent data available (a three year average from the British Crime Survey centred on 2010) to establish an “anxiety” index where 100 is the national average reported fear of car theft. The data is unlikely to have shifted materially in the current period.

Methodology

Origins is a segmentation system which classifies consumers according to the part of the world from which their forebears are most likely to have originated.

The Origins classification is built from a global file containing the personal and family names of some 527,000,000 adults from around the world. In addition we have access to personal and family name frequencies covering another 529,000,000 adults. These billion adults are resident in 18 different countries.

Using this information we have been able to establish the likely Origins code for some 2,000,000 different family names and some 700,000 personal names.

We have paid due regard to the effect of London in our findings, given its high concentration of people of ethnic minority background, and its high average premiums. For the most part we have treated inner London as a single postcode; the total numbers of postcode areas to which we refer is therefore 114. Where appropriate we have drawn attention to any anomalies.

Findings

I. Do premiums vary with ethnic minority prevalence?

Yes.

A comparison of average premiums for 114 postcode areas reveals a strong relationship between ethnic minority prevalence and the level of average premium in each postcode area:

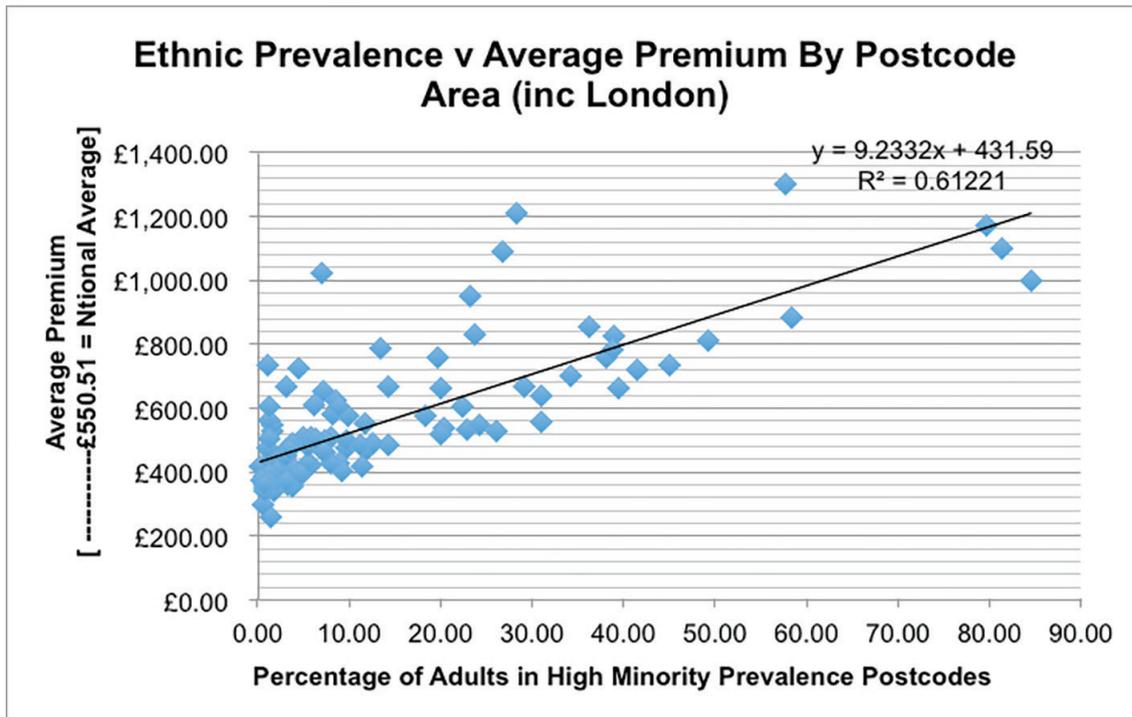


Figure 1

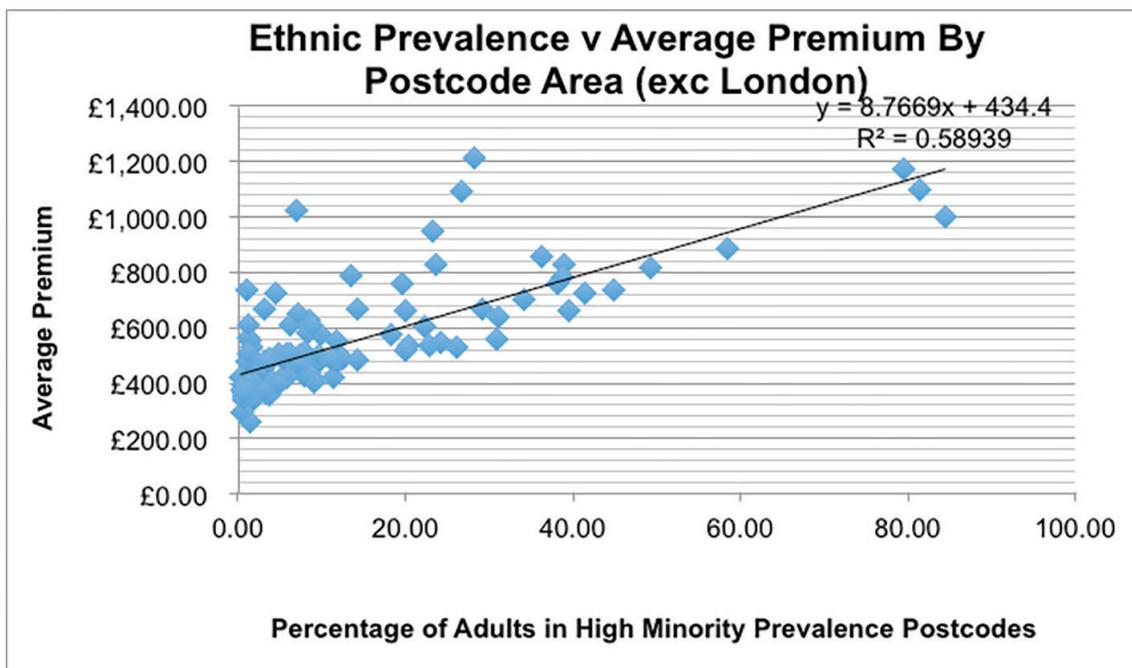


Figure 2

Figures 1 and 2 show that the correspondence between ethnic minority prevalence and premium levels for the 114 postcode areas we studied is around 60%, whether or not London is included. Though we cannot attribute causation, this implies that around 60% of the variation in premium is correlated with our measure of ethnic prevalence. It is important to state that in this model, the relationship holds good, all other things being equal; for example even if premiums are influenced by crime or claims data, in areas with similar levels of crime or claims, whether high or low, there would still be an ethnic penalty displayed.

To put this in money terms we set out to derive an “ethnic penalty”, which, we should emphasise is an average that may be paid by both minority and non-minority motorists in postcode areas with greater than average minority prevalence. We have calculated the penalty for four areas as an illustration.

	% in BME Postcodes	Premium (Average = 550.51)	Excess	r-squared value	Ethnic Penalty
MANCHESTER	30.94	£640.11	89.6	0.61	54.66
HARROW	81.29	£1,101.92	551.41	0.61	336.36
WAKEFIELD	84.49	£1,003.23	452.72	0.61	276.16
LONDON	57.52	£1,302.30	751.79	0.61	458.59

Table 1: Examples of “Ethnic Penalty

2. Does the “ethnic penalty” apply across all areas where there is a significant minority presence?

Yes.

We separated the 114 postcode areas into four bands, each broadly characterised by their level of premium: low, medium, high and super-high (Inner London).

	West Indian	Hispanic	East European	Cypriot	Jewish	Black African	Muslim	Hindu and Sikh	East Asian	Total adults in BME dominated postcodes	Total adults
Premium band											
Lowest band	28.3	20.5	25.6	8.8	8.8	4.4	5.8	4.9	20.7	9.8	30.4
Medium band	28.5	19.4	26.1	13.8	10.2	13.1	16.9	27.9	26	20.1	30.2
High band	31.4	18.5	26.5	33.7	36.7	33.6	45.8	57.3	31.3	40.2	28.8
Super-high band (inner London)	10.2	40.1	20.5	43.5	44.1	48.9	31.5	9.8	21.3	29.5	8.1

Table 2: Insurance Premium Bands by Ethnic Prevalence

Comparing the ethnic profile of each band is revealing. As Table 2 and Figure 3 show, compared with the proportions of motorists in each premium band nationally, the ethnic minority distribution is very different – far more minority-dense postcodes fall into the high premium bands compared to the national average.

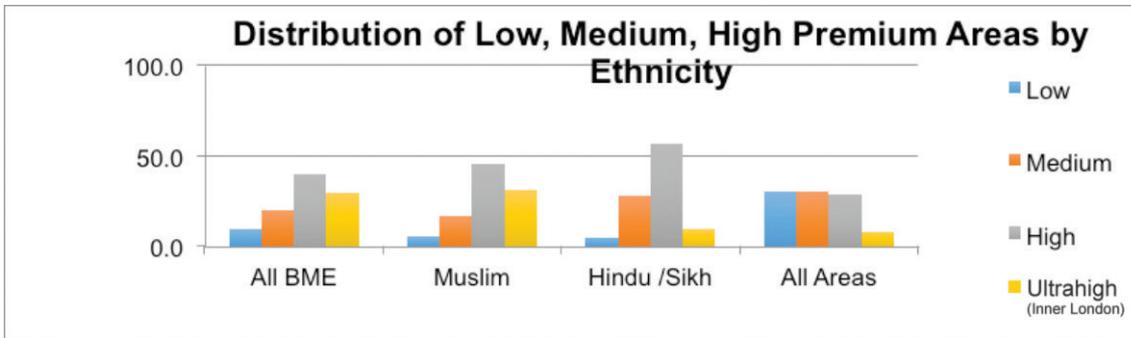


Figure 3

The effect is even clearer if we remove the inner London figures and normalise the average distribution at zero:

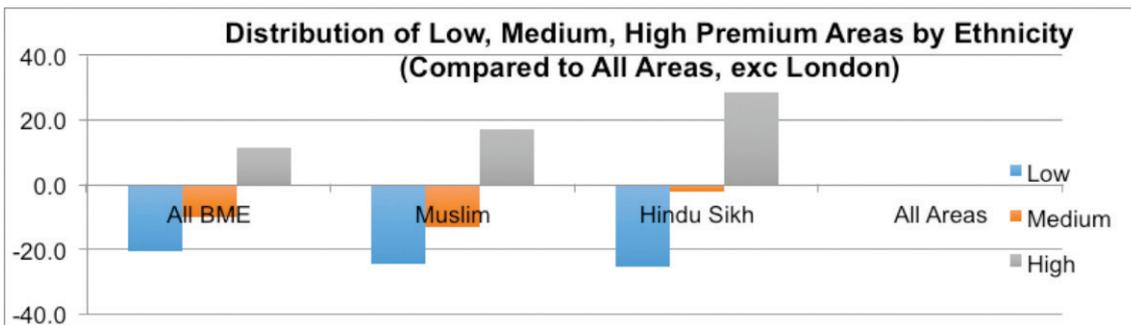


Figure 4

3. Do all ethnic minorities face the same kind of penalty?

No.

The banding of different ethnic groups in Figures 3 and 4 suggests that some groups suffer a larger ethnic penalty than others. This is confirmed by plotting the size of premium against the prevalence of particular groupings. Below we have plotted a graph for the most significant non-white minority group, according to the ONS, Indians (Origins category: Hindu/Sikh) in the same way we did for all BME minorities in Figures 1 and 2.

Statistically, the smaller numbers involved mean that the variation attributable to ethnicity is reduced; but it is still meaningful in areas where there are significant numbers of Hindu and Sikh names present in the data as shown in figures 5 and 6.

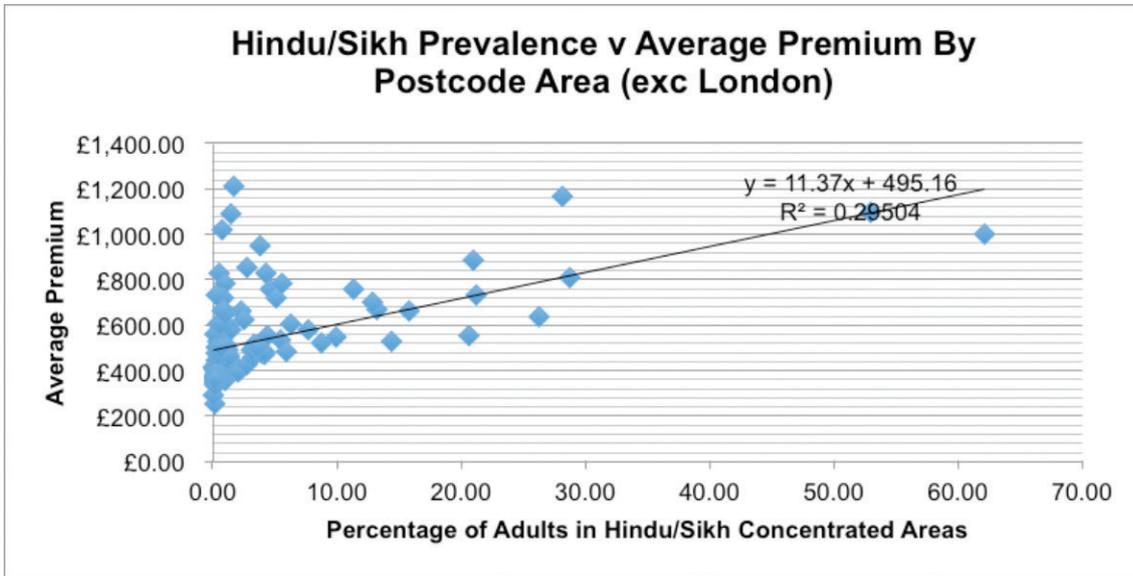


Figure 5

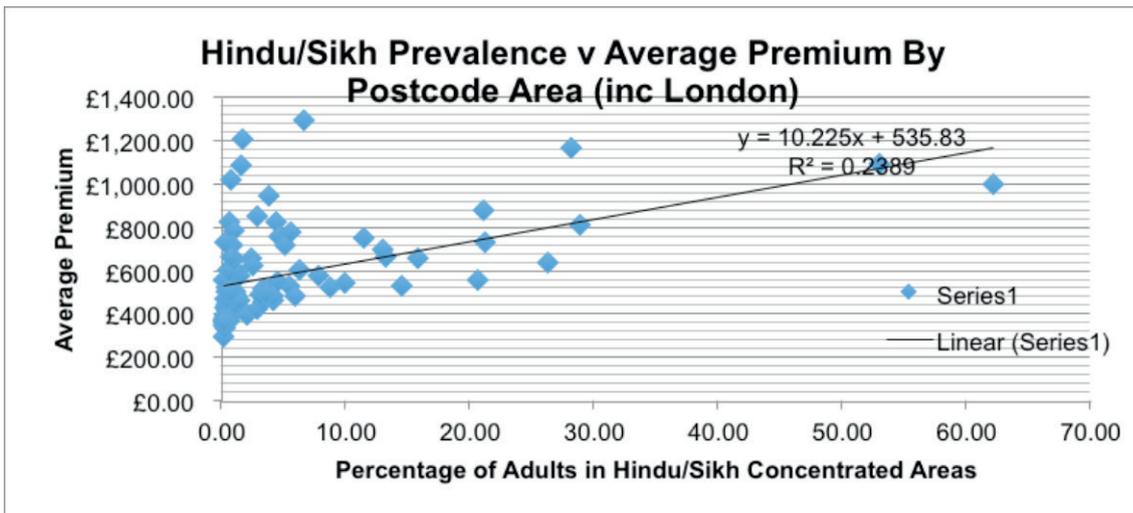


Figure 6

However, what does seem clear is that when we combine the effects for all minorities compared to whites the impact on premium levels is exceptionally strong.

4. Are the correlations affected by levels of crime?

It might be supposed that the ethnic effect described above might simply be a proxy for high levels of crime. Intuitively, most people assume that ethnic minorities are poorer than average and live in areas with elevated crime levels.

However, this explanation is hard to sustain, if only for the reason that the minority group mostly obviously affected in the UK, Indian heritage Britons (an almost exact proxy for Hindu/Sikhs) are far wealthier than other racial minorities, and economically almost indistinguishable from white Britons.⁶ In fact this group is slightly more likely than White Britons to occupy higher skilled professional jobs.⁷ Yet they too pay a significant ethnic penalty.

It is very difficult to test the effect of actual levels of crime, since reported crime data is notoriously unreliable. In particular there is evidence that many individuals do not claim against their car insurance because they fear it will increase their premiums. In any event, the average level of premium is far more likely to be determined by the likelihood of a claim being made than any measure of actual crime; so a better proxy may well be the perceived levels of crime as established by the respected British Crime Survey.

To test the effect of perceived crime levels on the relationship between ethnic minority prevalence and premium levels we decided to strip our data as far as is possible of varying levels of crime. To this end, we used the British Crime Survey to establish a simple index of anxiety over car crime (“fear of car theft”) which is also a good proxy for the likelihood of a claim being made. This is, we understand, an indicator used by insurers themselves to help determine premiums.

Our median index was set at 100. We discarded all postcode areas with indices above 105 and below 95. That left 14 areas with widely varying levels of ethnic prevalence, affluence and geography, but relatively unremarkable levels of anxiety about car theft.

Postcode Area	Ethnic Prevalence	Anxiety Index	Average Premium
AB Aberdeen	3.66	96.0	£356.21
CH Chester	1.50	96.9	£530.99
CR Croydon	58.33	96.4	£886.84
CV Coventry	22.83	99.1	£534.12
DE Derby	11.74	104.7	£471.21
DL Darlington	1.37	104.8	£462.06
EH Edinburgh	5.77	103.7	£423.57
HD Huddersfield	19.94	103.9	£664.80
IG Ilford	79.50	101.5	£1,173.08
KY Kirkcaldy	1.03	105.0	£379.22
LE Leicester	30.83	102.7	£560.14
NN Northampton	9.61	98.5	£500.21
NP Newport	3.43	103.0	£473.56
PL Plymouth	1.21	96.8	£378.85

Table 3

We first tested for any correlation between ethnicity and anxiety levels.

⁶ <https://www.gov.uk/government/publications/weekly-disposable-household-income-by-ethnicity-tax-years-19941995-to-20122013uk>

⁷ see p 49 A Portrait of Britain, Policy Exchange 2014

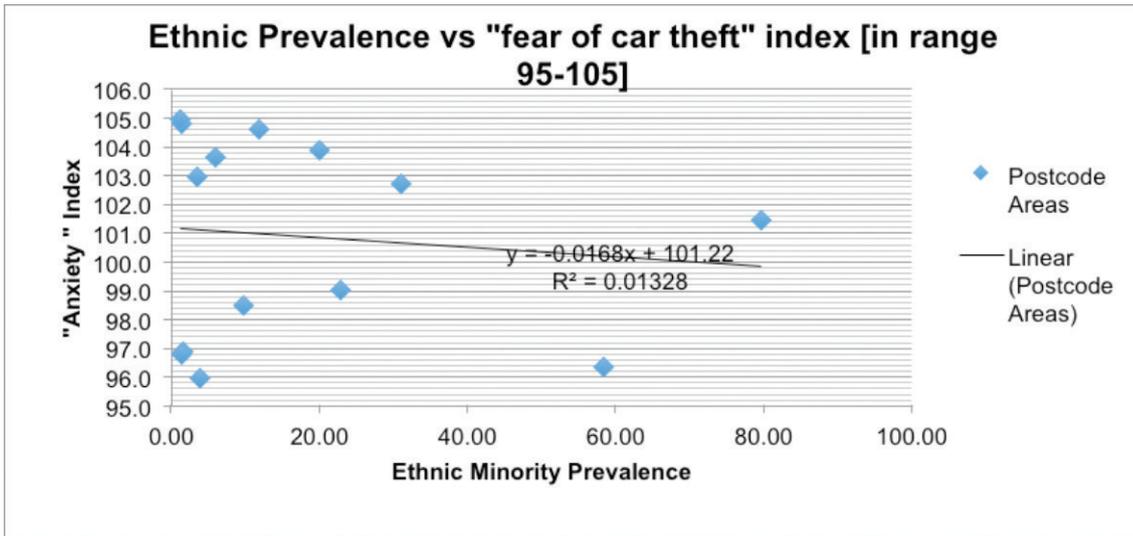


Figure 7

Table 3 and Figure 7 show that there is no significant relationship between ethnic prevalence and levels of anxiety about car crime.

What about prevalence and premiums in these moderate anxiety areas?

The chart below shows the strongest correlation that we found, implying a 90% correlation between ethnic prevalence and levels of premium in areas where car theft is not regarded as a major problem.

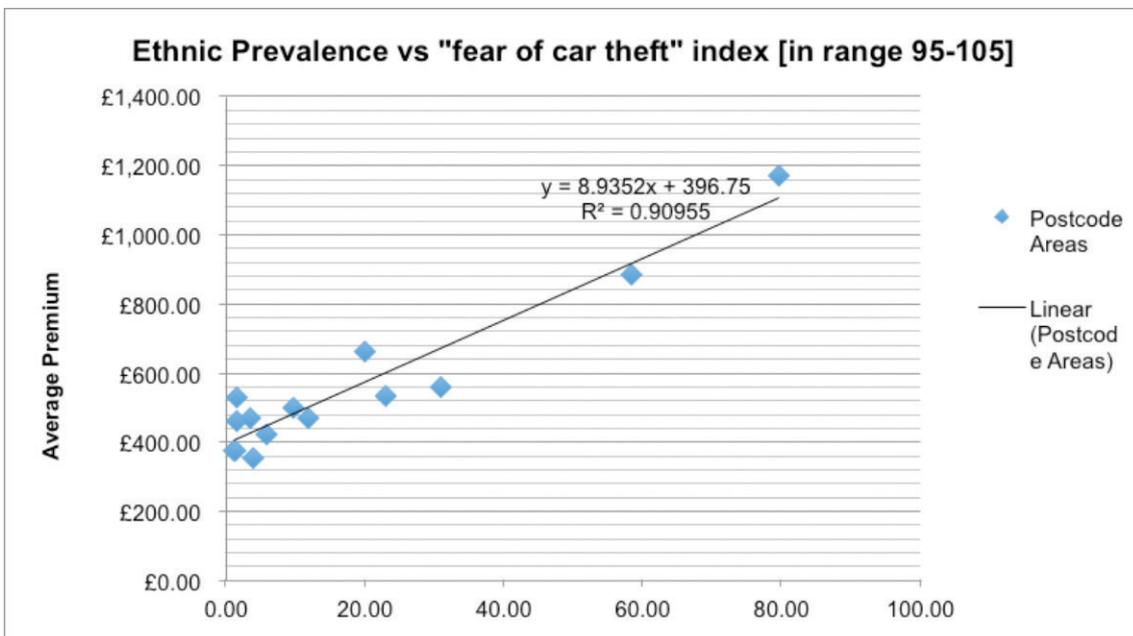


Figure 8

We examine the effect of other measures of crime and of claims data in Annex A; but we do not find that these factors carry any significant weight for our model – that is to say, all other things being equal there is a clear ethnic penalty incurred by motorists in areas with a high ethnic minority prevalence.

Conclusion

Our examination of the data available shows clearly that:

- There is a strong statistical relationship between ethnic minority prevalence in a postcode area and the higher cost of average motor insurance premiums for all motorists in each postcode area. This affects 12 million of 52 million UK adults, a majority, but not all of them ethnic minority Britons.
- Data for all 125 postcode areas in the UK shows that around 60% of the variation in average premium in multi-ethnic areas can be accounted for by difference in the ethnic composition of the area.
- In areas of moderate or average fear of car crime, according to the British Crime Survey, ethnic minority composition accounts for 90% of premium variation.
- We estimate that insurers are imposing an 'ethnic penalty' on motorists who live in areas of high ethnic minorities which can vary from £50 per annum to £458.
- The ethnic penalty affects some 8 million ethnic minority adults who live areas of high ethnic minority prevalence.

We cannot say, without recourse to individual data, whether in areas of high ethnic minority prevalence, it is people from ethnic minorities who are being overcharged, whilst others enjoy moderate levels of premium, or whether all motorists in these areas are being charged more.

We have considered whether or not the discriminatory effect is caused by a higher propensity to claim in areas of high ethnic minority prevalence. We have concluded, from the data available, that there is, if anything, a slightly negative relationship between higher ethnic minority prevalence and the presence of a claims hotspot.

We have also considered other factors, such as taste in vehicles, age profile and immigration status, and cannot rule out the possibility of these having a role to play without access to data held by insurers.

What we can say with confidence is that the process of premium setting has definitely produced an inequality of outcome to the detriment of BME groups, and that insurance providers need urgently to examine their procedures to demonstrate that they are not imposing an ethnic penalty.

TP/RW

July 2016

Annex A: Further Research

Trevor Phillips and Richard Webber

July 2016

Annex A : Further Research

There are several further possibilities that may produce the ethnic penalties we have found.

Each of the possibilities will require further research, with the cooperation of the major insurers, to determine whether they are valid or not.

I Differential choice of vehicles/frequency of claims

One possibility might be an actuarial explanation, for example that some ethnic minority groups typically possess more expensive vehicles which require more insurance; or that, all other factors being equal, motorists in areas with higher ethnic minority prevalence are more likely to make claims against their insurance than motorists elsewhere.

Without individual level data this is hard to establish, but based on the data we have this explanation seems weak; and there are results pointing in the opposite direction. For example, the ethnic penalty appears for all minorities taken together, and also for every group individually. This strongly suggests that neither fear of crime nor affluence can account for the ethnic penalties.

In addition, our data shows that all ethnic minority groups suffer some level of disadvantage; it is unlikely that all minority groups and whites who live near them are a) more likely than average to be prone to suffer car crime and b) more likely than average to make claims.

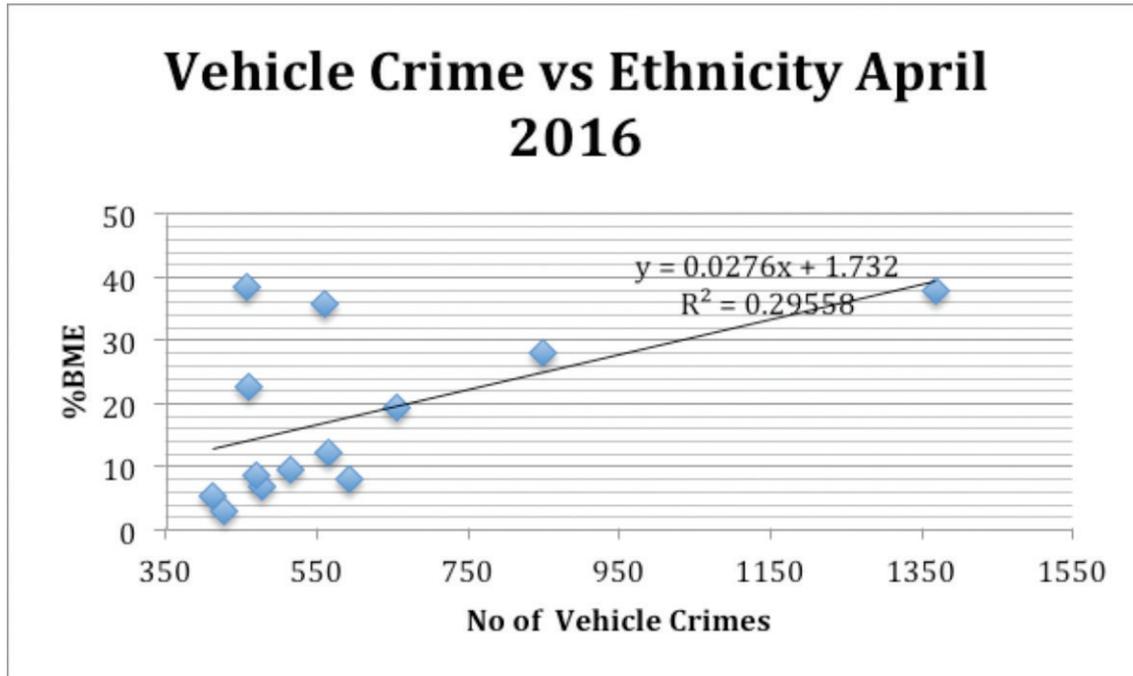
To establish the truth or otherwise of this possibility would require individual level data from which we could construct a multivariate model that includes crime, claims and ethnicity. This data is not available to us without the cooperation of the insurers.

However, we have already established clearly that there is a strong statistical relationship between ethnic prevalence and high premiums. If the real cause of the dependency on ethnicity is another variable, for example crime levels or claims frequency, logically, we can infer that this variable should also be strongly associated with ethnicity. We have sought data that would give us an indication as to whether this is the case or not.

Effect of crime levels

Based on data sourced from the UK Crime Stats website (supported by the UK government) we have been able to identify the twenty top areas for vehicle theft crime in April 2016.¹ We have plotted the relationship below.

The relationship between vehicle crime and ethnic prevalence (and therefore between frequency of claims and ethnicity) is very weak (r-squared value less than half that shown for the relationship between ethnicity and premiums). We have excluded the six areas of London which skew the results in the direction of an even weaker relationship ie the inclusion of London make crime data seem even less significant compared to ethnicity.



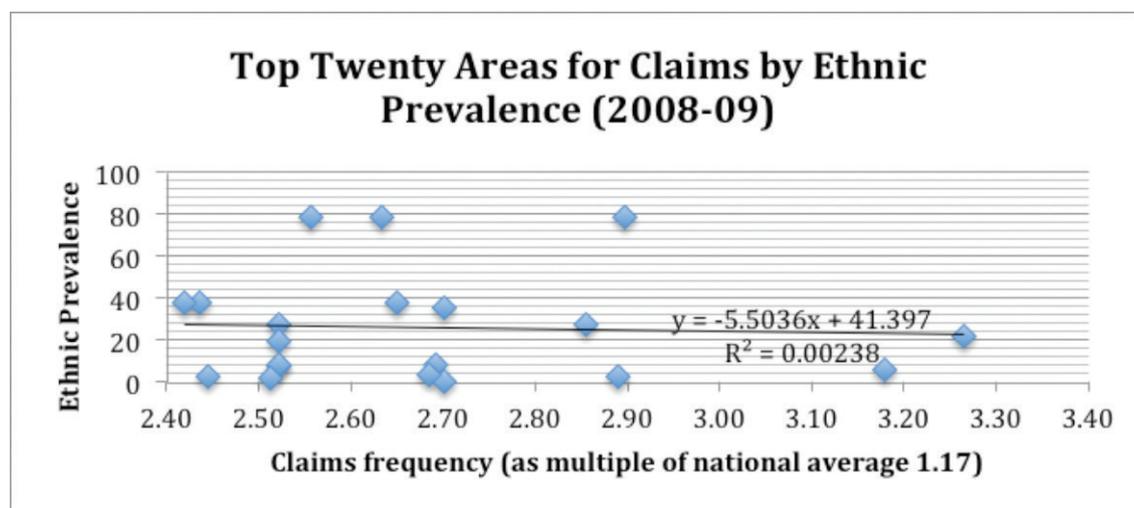
To emphasize the point, the table below shows that some very different areas of the country with widely differing levels of ethnic prevalence display high levels of vehicle crime (both from and of vehicles). For example, though high-ethnicity Birmingham heads the table, there were far more vehicle thefts in Cardiff (8.15% ethnic prevalence) compared to Romford (38.62%) than can be explained by the size or composition of their respective populations.

	No of Vehicle Crimes April 2016	Ethnic Prevalence
Birmingham	1369	38.08
Manchester	849	28.15
Leeds	655	19.56
Cardiff	593	8.15
E Notts/Grantham	566	12.48
Bradford/Skipton	560	36.1
Northampton	514	9.61
Liverpool	478	6.95
Bristol/Weston	470	8.71
Coventry/Stratford	459	22.83
Romford/Hornchurch	457	38.62
Doncaster/Grimsby	427	3.11
Peterborough/Kings Lynn	411	5.46

¹ <http://www.ukcrimestats.com>

The effect of claims frequencies

As regards claims, the relationship with ethnic prevalence is also weak. We sourced a list of the top twenty “hotspots” for motor insurance claims, published by Moneysupermarket, based on a sample of 3.8 million quotes in the year up to August 2009.² The chart below shows a very weak correspondence (r-squared value of about a fifth of that for the relationship between ethnicity and premiums). If anything this graph suggests a faintly negative relationship.



The table below emphasizes the absence of a strong relationship between claims and ethnicity. High ethnic prevalence areas occur at the top and bottom of the table (Bromley and Romford), as do low ethnic prevalence areas (Cleveland and Doncaster).

“Hotspot” Town	Postcode area including “hotspot”	Vehicle theft claims as percentage of all claims	Claims Frequency as multiple of national average (1.17)	Ethnic Prevalence in Postcode area
Chislehurst	Bromley	3.82%	3.26	22.28
Wingate	Cleveland	3.72%	3.18	6.2
Redbridge	Ilford	3.39%	2.90	79.5
Hatfield	Doncaster	3.38%	2.89	3.11
Manchester city centre	Manchester	3.34%	2.85	28.15
Banwell	Somerset	3.16%	2.70	0.88
Bradford city centre	Bradford	3.16%	2.70	36.1
Arbourthorne	Sheffield	3.15%	2.69	8.76
New Tredegar	Newport	3.14%	2.68	3.43
Romford	Romford	3.10%	2.65	38.62
Buckhurst Hill	Ilford	3.08%	2.63	79.5
Woodford Green	Ilford	2.99%	2.56	79.5
Ancoats	Manchester	2.95%	2.52	28.15
Cathays	Cardiff	2.95%	2.52	8.15
Handsworth	Sheffield	2.95%	2.52	8.76
Barwick In Elmet & Crossgates	Leeds	2.95%	2.52	19.56
Wells-Next-the-Sea	Norfolk	2.94%	2.51	1.95
Thorne	Doncaster	2.86%	2.44	3.11
Hornchurch	Romford	2.85%	2.44	38.62
Rainham	Romford	2.83%	2.42	38.62

² <http://www.moneysupermarket.com/c/news/the-twenty--top-car-theft-claim-hotspots/0006738/>

2 Age profiles

A further possible explanation may lie in the differing age structures of minority communities; but if age were a major factor then we would have expected the older age profiles of African Caribbeans and to a lesser extent, Indian Hindus and Sikhs, to moderate the observed penalty, rather than, as seems to be the case, to reinforce it. Again, this would need more detailed data from the insurers.

3 Immigration status

A more credible related explanation may be that premiums are related to immigrant status; for example, that more recent acquisition of a UK driving licence may push up the cost of insurance to the motorist. However, this explanation would probably imply a stronger effect amongst the “white” group of motorists, which includes recent Eastern European migrants, than observed in the data we received.

This explanation would require a specific study with a specially recruited sample.

4 Multicultural mix

Another, intriguing explanation might be that since the correlation involved is not for ethnic minority motorists but for all motorists who live in areas of high minority prevalence, i.e. that the driving factor for higher premiums in these areas lies in the nature of the non-minority population. Minority-rich areas may, for example attract younger individuals. In this case the explanation would be that minority motorists are being charged extra because they live in the same postcode areas as young (non-minority) people who attract higher premiums because of their age.

This might be established by individual level data, perhaps in a random sample of postcode areas.

5 The ‘dumb robot’

One final possibility may be that sophisticated computers, such as those being used by insurers acquire a “learned” bias. For example, it is said by one expert, that one major company’s fraud system inexplicably started to initiate security checks on customers whose names started with “O”. The explanation was that the algorithms, which were “learning”, noticed a high number of fraud incidents involving West African names, which often start with the letter “O”.

— 0 —

Many of these issues could be resolved through further iterations of this research using more granular records of premiums at postcode level; or even better, individual records, processed through the secure Origins platform. Until that can be done, however, it hard to escape the conclusion that at the very least, insurers have a case to answer.

RW/TP

July 2016