

Review of the Relationship between Outlet Density and Crime in NHS GGC February 2010 Updated June 2010

Background

In 2008 a pilot study was carried out to assess the relationship between alcohol related crime and licensed premises for two areas in NHS GGC. This study indicated that there was a strong positive relationship between the number of licensed premises in a given area and crimes associated with alcohol (breach of the peace, simple assault, serious assault and threats). There was also a strong positive relationship between these crimes and deprivation. The Alcohol Action Team requested that this work be extended to explore this relationship further and provide guidance for all local licensing boards in assessing overprovision of licensed premises in their area, a requirement of the Licensing (Scotland) Act 2005.

Prior to extending this work further advice was sought from the police and the central legal office to confirm the most appropriate crime to include in the modelling process. A small body of relevant literature was also reviewed, a short summary of which is included.

Literature Review

High alcohol consumption

Young people aged 18-24 drink more alcohol than any other group in the population and over half of 15 to 17 year olds have drunk on licensed premises.¹ In fact some UK pubs deliberately target younger drinkers though this is illegal in Scotland, and may result in insulating this group from the restraining influence of their elders and the wider community.² Over half of young adults drink to excess and half of these drank to get drunk.³ Young men drink around two and a half times as much as young women.¹

Market effects licence hours

Market forces have encouraged the growth and development of the night-time economy.⁴ Frequently, individuals are the focus of police intervention while the association of crime with the night time economy is ignored.⁴ However, its dramatic growth has been linked to a significant increase in alcohol consumption, particularly by young people.³ The UK alcohol market is worth about £25 billion a year, but alcohol misuse costs the country £20 billion a year (when crime and anti-social behaviour, alcohol related health and disease, loss of productivity in the workplace, and domestic violence are considered).²

The liberalisation of the Licensing Act in England and Wales in 2005 permitted licensees to open for up to 24 hours a day, every day. In general, on-licence premises requested moderate extensions to licenses mainly at weekends, but many supermarket chains applied for 24 hour licenses for hundreds of stores across the country.³ In Scotland on-licence premises have seen similar increases in hours at evenings and weekends while the licensing legislation in Scotland restricts the operation of off-sales from 10.00am to 10.00pm and local licensing boards have power to restrict these hours further within the powers of the Licensing (Scotland) Act 2005 where necessary.

Effects of alcohol

Numerous studies have shown that alcohol intoxication per se does not necessarily induce aggressive behaviour, but there is an increased tendency to behave aggressively and to commit violent crime following alcohol consumption.^{5,6,7} The effects of alcohol are the result of multiple complex interactions including pharmacological, social and cultural factors.⁷

Pharmacological effect

Alcohol impairs perception, motor skills and cognitive functions, and when these are combined with a deviant or hostile predisposition can result in violent crime.^{5,6} For instance, the impairment of perception reduces pain sensitivity, and may thus result in aggression due to reduced concern about painful consequences.⁶ Impaired motor function increases the risk of bumping into others and eliciting an aggressive response, as well as contributing to dangerous driving.⁶ Impairment of cognitive functions narrows the perceptual field resulting in the immediate aspects of experience having a disproportionate influence on behaviour and emotion which, when combined with impairment of perception of situational cues and internal values and cues and may decrease the ability of the drinker to think of peaceful solutions.⁶

Cultural and social influences

A fuller understanding of the relationships linking alcohol consumption and crime, therefore, requires identifying those individuals, situations and circumstances likely to increase the chances of violent and other criminal behaviour (i.e. mediators) and those that reduce the likelihood (i.e. moderators). It also requires an understanding of how those factors interact with each other and the pharmacological effects of alcohol.⁶

Many customers enter nightclubs after drinking at other locations earlier in the evening.⁸ It is possible that the type of clientele attracted to these premises (male under 25s) increases the risk of an alcohol related offence on these premises.⁸ Mediators increasing the risk of crime may be grouped under the headings of the general environment, the condition of premises and client type and behaviour.⁶

Factors shown to contribute to the risk of violence in the general environment include high outlet density, poverty, and an urban city centre environment.⁷ Premises that are untidy or dirty, poorly ventilated, dimly lit and crowded, with dancing, bands, loud music and little provision of food increase the risk of violence, as do premises that are frequented by clients consisting of groups of males rather than solo males and couples.^{5,6,8} Competition for women, swearing, sexual activity, prostitution, drug use and dealing, and an “anything goes atmosphere” and patrons being refused drinks, or denied entrance by doormen may also precipitate violence.^{5,6}

Moderators which decrease the risk of violence conversely include well lit, tidy premises which are not overcrowded, provision of food, and one where clients attend for the entertainment.^{6,8} In the United States additional factors influencing the occurrence of crime included ethnicity, and the age and social structure of the population.⁷

Alcohol and crimes

The 2005 British Crime survey indicated that increasing use of alcohol had resulted in a decrease in acquisitive crime and a matched rise in violent crime.³ Whether this change is real or apparent is still to be clarified but the survey showed a significant rise in recorded stranger violence and a quadrupling of violent assaults between 1997 and 2003-04, and this appeared to be closely linked to the development of the night time economy at weekends.³ A statistically significant relationship between violence rates and per capita alcohol consumption has also been reported from Norway.⁵

A survey of adult male offenders in England found that more spontaneous offences were associated with alcohol and frequently offenders had been drinking more than usual on the day of the offence.¹ Many young male offenders reported excessive alcohol consumption with subsequent aggression and involvement in fights after drinking.¹ Heavy drinkers are at

increased risk of becoming a victim of crime, and victims of violent crime frequently perceive their offenders to have been drinking.^{1, 6} Between midnight and 5.00am 70% of all attendances at A&E have been linked to alcohol use.³

In England, a detailed analysis of young offenders who had committed serious crimes found there was no significant difference between the average amounts drunk by acquisitive and violent offences groups.⁹ This finding was confirmed among English adult male prisoners who also reported drinking more in a typical week than the general population of similar age and sex.¹ However, violent young offenders had drunk significantly more spirits compared to their normal amount at the time of the offence.⁹ Alcohol use, not necessarily to the point of being drunk at the time of the current offence, was associated with offences of violence rather than acquisition.⁹ There was a significant positive association between habitual drunkenness and the number of previous convictions for acquisitive offences.⁹ Evidence from the United States has also shown a higher blood alcohol concentration in property offenders than violent offenders.⁶ English studies have shown that people arrested for disorderly offences (breach of the peace, criminal damage, common assault) were more likely to be assessed by the police as having recently consumed alcohol than those arrested for burglaries or other offences.¹

Alcohol offences by premises type

An Australian study explored the relationship between premises type and alcohol related offences (drunken driving offences, alcohol related traffic accidents and assaults). After standardisation for volume of alcohol sold it found a significant correlation between premises type and alcohol related problems.⁸ This indicated that either the characteristics of the drinking setting or the types of drinker who frequented them were important.⁸ A highly significant and consistent relationship was shown among the five major licence types in Australia and their association with alcohol related harm. The study concluded that per dollar of alcohol sold, there was a higher probability that customers of nightclubs, hotels and taverns would be involved in alcohol related incidents than customers of clubs and restaurants. Licence type is therefore an important risk factor in crimes related to alcohol.⁸

Location and time of offence

In England and Wales, 70% of crime audits identified an association with alcohol and public order offences with 20-30% of violent offences occurring in or near licensed premises.¹ In Sweden violence rates are more strongly associated with changes in public drinking (indicated by on-premises alcohol sales) than to changes in private drinking (off-sales).⁵

In England, most areas with high levels of crime also contained high concentrations of licensed premises and the highest number of incidents occurred between midnight and 3.00am on Friday nights/Saturday mornings and Saturday nights/Sunday mornings.⁴ Disorderly behaviour is intimately connected with weekend drinking and the pub going behaviour of local young people.¹ The problems of violence, disorder, antisocial behaviour, criminal damage, vandalism and noise are not restricted to urban leisure zones, but are frequently seen in the public space as customers move from venue to venue and along the dispersal routes such as taxi ranks, bus stations and fast food outlets as well as within domestic contexts.^{3, 4} The overwhelming evidence is that increases in the number and especially density of licensed premises, their total capacities and terminal trading hours contribute to an increase in assaults and public order offences.⁴ As capacity increases, more crime and disorder will be generated in the streets and public spaces of night time leisure zones.⁴ Research indicates that recorded crimes are only a fraction of the problem. Much more alcohol related violence has been uncovered by reviewing data from hospital emergency departments associated with the night time economy.⁴

Outlet density and ecological analysis

Ecological correlation is a statistical technique which has been developed to explore the association between the characteristics of discrete populations rather than individuals in different geographical areas or periods of time. It has been used by researchers to analyse and predict the influence of outlet density on crime. Studies using this method have been carried out in the United States, Norway and Australia. Cross sectional studies have been used to assess the spatial associations between outlet density and alcohol consumption at a single point in time. They can provide information on the link between outlet density and consumption, but are not designed to explore the relationship between outlet density changes within a particular locality over time.¹²

American work recognised that both social and cultural factors in addition to alcohol outlets were required to develop the best descriptive model of alcohol related crime in a geographical area.¹⁰ The ecological model developed for California combined sociocultural variables (social rank, traditional household composition and family structure, unemployment, urbanisation and race/ethnicity), with two off-premises and five on-premises types of licence (representing 90% of all license types in force in California in 1977) to predict public drunk arrests, drunk driving arrests and the number of deaths from liver cirrhosis by jurisdiction for 1973 and 1977.¹⁰ The multiple regression models developed showed that outlet indicators of availability and selected sociodemographic variables explained significantly more of the variation in the arrest rates and cirrhosis mortality rates in different geographical areas than sociodemographic variables on their own. Outlet availability has been shown to influence public drunk arrests, drink driving offences, and deaths from liver cirrhosis.¹⁰

Other researchers in America and Norway and have confirmed the significant relationship between per capita outlet density and alcohol morbidity and mortality, drink driving offences and alcohol related violence.^{5, 11} Alcohol outlet density is a key factor in identifying “hot spots for violence” and geographical areas with many outlets have higher rates of alcohol related problems than areas with few outlets (driving offences, assault, robberies and rape) and alcohol morbidity and mortality even after accounting for the impact of unemployment, poverty and racial composition.^{5, 6} Some researchers have found that the relationship between outlet density and violence was stronger in socially disorganised areas.¹²

In the UK it is acknowledged that the very number of outlets can be expected to lead to overcapacity and generate fierce competition for customers.³ The degree to which the models of outlet density and sociocultural variables explained the occurrence of alcohol related problems ranged from 62% Martin SE⁶, and Livingston M¹³, to 77% Scribner RA.⁷ Both on-sales density and off-sales density were related to assault rates, however, total outlet density was most strongly related to the city specific rate of violent offences in America.^{6, 7} In Los Angeles County, after controlling for a number of factors a 1% increase in the density of outlets was associated with a 0.62% increase in the rate of violent offences. Gorman and colleagues conducted further studies and examined the relationship between sociodemographic characteristics, alcohol outlet densities and violent crime at the census tract and census block levels. At each level, alcohol outlet densities were significantly related to violent crime rate, and high outlet density seemed to be an indicator of social disorder and invite crime into the area.⁶ Cross-sectional studies have also demonstrated links between outlet density and pedestrian injury, child maltreatment, neighbourhood amenity problems and sexually transmitted disease.¹²

Time Series Analysis

Longitudinal analysis of ecological correlation allows the examination of changes in outlet density over time within a particular region, minimising the possibility that the effects attributed to changes in outlet density are related to other, unobserved, variables.^{5, 12} Two studies, one the United States one in Norway have used this technique to assess different aspects of this relationship in greater detail.

In the United States a Time Series Cross-Sectional study (TSCS) assessed the physical availability of alcohol and the influence of outlet density over an 18 year time period.¹¹ It also examined the sociological and economic influences on alcohol consumption and the potential endogenous relationship between measures of availability and alcohol consumption using statistical analysis appropriate for assessing time trends.¹¹ The study incorporated data from most area in the United States from 1969-87, alcohol tax rate, percentage of the population in religious and social groups whose beliefs influence consumption of alcohol, geographical measures of outlet density and distances between populations and retail outlets.

The main findings of the study were that:

1. Physical availability of alcohol (per capita outlet densities) was positively related to alcohol sales;
2. There was a positive relationship between the size of the population and outlet density and alcohol sales exerted an upward pressure on per capita outlet density;
3. Land area per adult (representative of distances separating consumers from alcohol outlets) was significantly inversely related to alcohol sales;
4. Personal income was positively and significantly related to alcohol sales in all models;
5. Alcohol beverages prices or taxes were negatively related to sales in all but one of the relevant analyses.¹¹

It concluded that regulation of the geographical and population distribution of alcohol outlets could be manipulated to reduce the rate of alcohol problems. Fewer outlets per square kilometre and or lower per capita outlets densities would result in reductions in both consumption and problems.¹¹

In the Norwegian time series analysis Auto Regressive Integrated Moving Average (ARIMA) was used to analyse data for the period 1960-95 to test whether changes over time in the number of bars tend to be associated with changes in violence. This technique prevents the uncertainty of the ecological correlation around the association between outlet density and violence due to drift of violence prone people to areas of higher outlet density. The researchers used the national crime statistics in Norway for the period 1960-1995 and national data on licensed premises. Their analysis indicated that an increase in outlet density was associated with an increase in recorded violence (in their model a 12% increase in outlet density was associated with a 6% increase in violent crimes, or 0.9 crimes per outlet on an annual basis).⁵ Based on evidence from the model an alcohol attributable fraction was calculated. An outlet density attributable fraction of 0.35 for violent crime for the whole study period was obtained. In other words 35% of violent crimes in Norway were attributed to premises selling alcohol during the period 1960 to 1995.⁴

Alcohol Outlet Density and Theory

This classic availability theory has identified three inter-related hypotheses to explain the relationship between alcohol availability and consumption:-

1. as the availability of alcohol in a community increases, the mean consumption of its population also increases
2. as the mean alcohol consumption in a population increases, so the number of heavy drinkers increases
3. as heavy drinking is associated with adverse health and social outcomes and as the number of heavy drinkers in a population increases, so to does the level of alcohol related health and social problems.¹²

However, availability theory on its own does not adequately explain the variable and complex relationships demonstrated by studies of outlet density and harm.

Refinement of the availability theory by Stockwell and Gruenewald result in a postulate-

- Greater availability of alcohol in a society will increase the average consumption of its population when such changes reduce the full price of alcohol, i.e. the real price of beverages at retail markets plus the convenience cost of obtaining them.

Also, alcohol related harms can also result from changes in availability than do not necessarily alter overall consumption levels. Thus

- Greater availability of alcohol in a society will directly affect alcohol related harm when such changes affect the distribution of “routine drinking activities”- the behaviours drinkers engage in when consuming alcohol (e.g. drinking at bars Vs Drinking at home, socially Vs alone).¹²

“Routine activity” is derived from and is used in criminology theory to explain the occurrence of crime resulting when potential offenders and victims come into contact during their day to day activities. Alcohol outlet density is linked to violence by the congregation of uninhibited young males, both motivated offenders and potential victims. Additionally, Social Disorganisation Theory postulates that violence is more likely to take place in communities lacking collective efficacy or informal social control. Alcohol outlets have been suggested as a marker for social disorganisation, as well organised communities may be better equipped than poorly organised ones to resist the addition of outlets to their community through legal and political means.¹²

Livingstone et al suggest that the effects of alcohol outlet density can be separated conceptually into

1. A proximity effect – how easily one can access alcohol
2. An amenity effect- how outlets influence the quality and characteristics of surroundings within the local community.¹¹

These two effects can be used to link availability theory with outlet density. The proximity effect focuses on the impact of outlet density on the convenience costs in Stockwell and Gruenewald first postulate. The amenity effect links outlet density and specific types of routine drinking activity in Stockwell and Gruenewald’s second theory.¹²

Support for the proximity effect was provided by Norstrom who showed the effect of cheaper alcohol in Denmark on Sweden. In Sweden, drinking diminished with the square of the distance from the main gateway between the two countries.¹² Where there are already large numbers of outlets in the community adding an extra outlet has little effect in terms of proximity, if it is assumed that the extra outlet reduces only convenience cost without the possibility of price reductions from increased competition.¹²

The amenity effect concerns the effect that outlets have on their environment. If each additional outlet attracts the same amount of additional problems a straightforward linear relationship is plausible, until such time as the number of outlets reaches the maximum the market can support. When the density of outlets in an area lead to it being regarded as an entertainment district, it starts attracting larger crowds than would be attracted by the same number of outlets on their own resulting in large numbers of people circulating from outlet to outlet and creating the potential for additional alcohol related problems. The amenity effect of outlet density on alcohol related problems therefore has a critical point, where an area is seen as an entertainment district, after which alcohol related trouble increases more sharply with additional outlets.¹²

Studies exploring volume of alcohol consumed should be looking for a proximity effect of outlet density, while studies focusing on alcohol related disorder and violence should be looking for an amenity effect.¹²

Factors to note in regard to the “amenity effect” are an increasingly competitive alcohol market place, may decrease alcohol prices resulting in increased alcohol consumption levels. In this case alcohol consumption levels would be expected to increase. Studies have suggested that socially marginalised drinkers are more likely to be influenced by these changes, increasing their alcohol consumption and developing long term health problems, without a noticeable rise in overall population consumption levels. Outlet density is therefore more likely to have an effect on rates of binge drinking, alcohol related injuries and violence and other short term consequences related to concentrated drinking during discrete occasions resulting in neighbourhood noise and disturbances, disruptive behaviour, litter and vandalism while the night time economy is flourishing.¹² A bar can have a negative impact in a neighbourhood, and, more bars further reduce neighbourhood amenity, increase competition in the alcohol market, make server interventions more difficult, encourage disruptive strolling from pub to pub and increase the likelihood of violence.

The advantage of having a designated entertainment district is that it makes targeted provision of some measures aimed at reducing alcohol related harm such as policing and public transport more straight forward. Given the consistent links between outlet density and violence rates across a range of settings, study designs and data sources, a liquor licensing regime serving the interests of public health and law and order should incorporate consideration of outlet density into licensing decisions.¹²

Criminal behaviour and law enforcement

Many British city centres have witnessed large increases in night time street violence as thousands of people frequent premises selling alcohol. Throughout the country, police forces struggle to control crime and disorder and are uneasy at having to ignore behaviour that would be dealt with during less busy periods of the day.⁶ However, vigorous law enforcement would reduce alcohol consumption and curtail the profitability of the night time economy.⁴ Alcohol consumption patterns, crime rates, and the extent to which drinking is associated with aggressive or criminal behaviour all differ widely across cultures as well as among subcultures within them.⁶

Two factors contribute to a higher rate of alcohol related aggression:

1. Defining a drinking occasion as “time out” period in which controls are loosened from usual behaviour;
2. A willingness to hold a person less responsible for their actions when drinking than when sober by attributing the blame to alcohol (deviance disavowal).

Key elements in both “time out” and deviance disavowal are the belief that alcohol is a cause of violent behaviour and that an individual who is violent when intoxicated is less deviant and thus less responsible for his actions. These views influence behaviour of drinkers. When intoxication is taken into consideration in sentencing, the result may be “a discount for drunkenness”.⁶ Multiple factors thus combine to produce the criminal behaviour associated with alcohol. These factors include:

- The effects of alcohol;
- The characteristics of the person drinking;
- The cultural, social and environmental factors of the drinking situation;
- The cultural framing of both drinking and deviant behaviours.⁶

Recommendations to reduce violence

Prevention must aim simultaneously at the environment, the drinking situation and the individual at risk of offending.⁶ Policies targeting the total drinking population have the potential to influence the social structures, norms and other aspects of the environment which result in risky drinking practices by everyone, particularly those who drink the most.⁶ Glasgow is participating in a community alcohol harm reduction project part funded by the Alcohol Education and Research Council (AERC) in parallel with Cardiff and Birmingham as part of the UK Community Alcohol Prevention Programme. They are using a systems based approach advocated by Holder (2002, 2004) that influences community structures (the environment) in which alcohol consumption occurs. It is not dependent on the identification of “at risk” individuals or groups, nor their active co-operation but uses local alcohol policy to alter the community’s social, economic or physical structures to reduce alcohol problems.² All cities are using a partnership based approach and evaluation will assess how well the Holder approach is applied, the processes required, and the effects of these in the localities.^{2, 14}

The Glasgow model is a joint approach aimed at reducing alcohol related injury, disorder and violence in Glasgow city centre by several different initiatives. The effectiveness of the Glasgow community project will be assessed through the collection of data at the start of the approach (2004), at points throughout the 5 year period of the project and beyond.² Early evaluation has indicated success in reducing the harm associated with alcohol misuse, and has identified a number of factors integral to the success of the project as well as factors limiting its impact.¹⁴

Measures to decrease alcohol related problems could also review licence types increasing the number of low risk licenses (restaurants and private clubs) and simultaneously reduce the number of high risk license types e.g. night clubs.⁸ Private clubs (restricted to members and guests only), reduce overcrowding and restaurants where the primary requirement is to provide a meal both lower the risk of alcohol related problems.⁸ High risk license types should also be made priorities for the introduction of responsible server training, community policing and stricter enforcement of liquor licensing legislation especially in relation to serving intoxicated persons.⁸

The night time economy in its present form is focused almost entirely upon youth and alcohol. Developing cultural attractions catering for a wider section of the population could further reduce alcohol associated harm, but requires central and local government to cease to collude with market forces and introduce regulatory regimes that would challenge the current business model.⁴

Current work

The aim of this work was to develop an ecological model of the relationship between licensed premises and alcohol related crime across the entire geographical area of NHS GGC. Ecological modelling is a technique which uses averages across areas and populations within those areas to enable the technique to identify and predict the influence that variation of those averages will have on the variable of interest. Suitable geographical areas are therefore required to allow the comparison of locality characteristics and allow the development of a stable but geographically useful model for local use. Licensing data, recorded crimes and relevant health board data were used to develop the local model that could be used to predict the effect that a change in the density of premises would have on alcohol related crimes in geographical areas within NHS GGC.

Strathclyde police provided a data set of crime committed between from 1st April 2005 to 31st December 2008. As it was not possible to identify, particularly with respect to violent incidents, which crime was associated with alcohol, the crimes used for this analysis were restricted to violent offences committed between 8.00pm and 6.00am on Friday, Saturday and Sunday, together with breaches of licensing legislation, drink driving offences and offences in relation to public drunkenness. A count of crimes committed on Fridays, Saturdays and Sundays revealed that for each day the levels of offences were proportionately different from the numbers of offences committed on Mondays to Thursdays. This was combined with a complete set of licensed premises for the health board area, the percentage of the population in deprivation quintiles 1 and 2, and the proportion of the population of young people age 16-24 years.

The unit of analysis was the intermediate zone, which was the smallest geographical area, which could provide both statistical stability and locality detail below the level of CH(C)P. The populations of intermediate zones range from 2500 to 6000 depending on the geographical location of the intermediate zone in an urban or rural area. The technique used was multiple regression.

The independent variables used were:

- Percentage of population in deprivation quintiles 1 and 2 in each intermediate zone (population 2500-6000);
- The population of young people aged 16-24 years in intermediate zones;
- Number of licensed premises.

The dependent variable i.e. the one which we wish to predict from the existing data was the number of crimes.

Multiple regression should be used when the distribution of the variables is approximately normal. As the premises and the crime variables were highly skewed, the square root of these variables was used. In this model ten intermediate zones were identified as being significantly different from other areas and were excluded, leaving 250 intermediate zones in the analysis. The deprivation and age group variables were left untransformed. Using this

technique a significant model was identified in which there was a strong positive relationship between the transformed premises rate, the proportion of young people aged 16-24 years and the occurrence of crime. Deprivation was not found to be significant in this model. The model explained 55% of the variation in transformed crimes by intermediate zone. The equation for the model was:-

$$\sqrt{\text{crime rate}} = -17.6 + 2.07 * \sqrt{\text{number of premises}} + 75.5 * \sqrt{(\text{population 16-24 years})}$$

Since in any given intermediate zone the proportion of the young people aged 16-24 years is constant, the equation can be reduced to:-

$$\sqrt{\text{crime rate}} = \text{a constant} + (2.07 * \sqrt{\text{premises rate}})$$

An example of the use of the multiple regression model to predict the effect of variation in premises rate on crimes is shown for Scotstoun South and West intermediate zone.

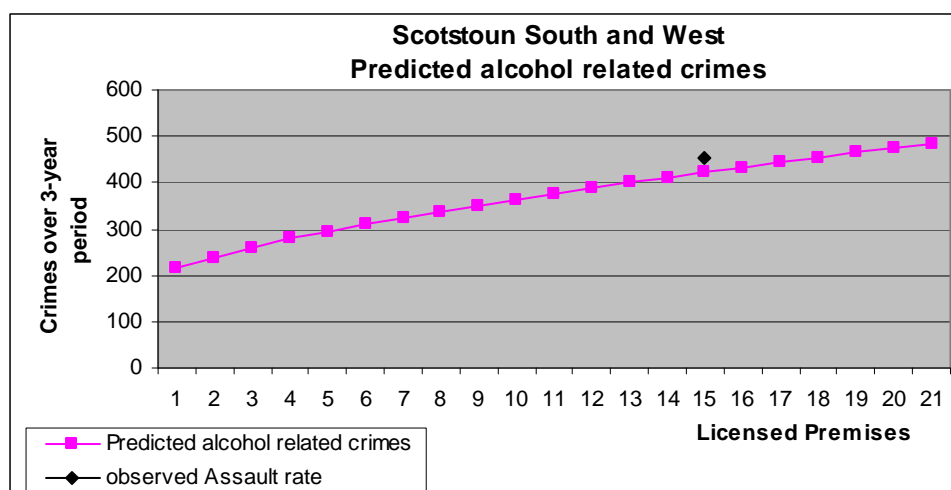
$$\sqrt{(\text{crime rate})} = -17.6 + 2.07 * \sqrt{(\text{number of premises})} + 75.5 * \sqrt{(\text{population aged 16-24 years})}$$

$$\sqrt{(\text{crime rate})} = -17.6 + 75.5 * 0.4 + 2.07 * \sqrt{(\text{number of premises})} \text{ or}$$

$$\sqrt{(\text{crime rate})} = 12.6 * \sqrt{(\text{premises rate})}$$

A copy of the graph for this area is shown in figure 1.

Figure 1 Scotstoun South and West: Premises rate and crimes



The \blacklozenge represents the current position showing the number of premises in Scotstoun South and West and the number of alcohol related crimes during the time period April 2005 to March 2008. The pink line shows the number of crimes that would be predicted for a given number of licensed premises. As the model only predicts 55% of the variation in crimes in a given area, there will be degree of residual variation around this estimate. However, it provides a best estimate of the effect of outlet density on alcohol related crimes in a geographical area and may be used in conjunction with the other criteria which should be considered when making licensing decisions in line with the Licensing (Scotland) Act 2005.

The relationship between the crime rate and the premises density is not linear because of the square root transformation used in the creation of the model. This explains the fact that the line shown in the figure appears to deviate sharply at low values of premises. At higher values of premises the relationship approximates to linearity.

Recommendations

City centre areas with extremely high levels of outlet density and alcohol related crime should be designated as entertainment zones and eligible for intensive policing, stewarding and transportation arrangements in order to prevent alcohol related crime from having a further detrimental impact on the neighbourhood.

Policing and servicing entertainment zones are costly. Where crime, social and health problems reach unacceptable levels it is strongly recommended that there is a curtailment of licenses within these areas, and consideration of earlier closure for late licenses due to the strong association of binge drinking with late licenses.

In residential areas, future applications for new licenses or extensions for licenses must take into account the density of premises and levels of crime in the locality. In areas where levels of crime are excessive applications for further license should be refused.

Licensing boards must ensure that the concerns of local communities about the numbers of licensed premises in their area, or the public nuisance, crime and disorder associated with them are given due consideration in line with the Licensing Scotland Act 2005.

Long terms effects of alcohol misuse result in chronic health problems. Licences should also be restricted in areas with high levels of poor health due to alcohol misuse as indicated by health board data.

Efforts should be made to introduce low risk licensed premises in areas where alcohol related crimes are beginning to become an issue. Restaurants and licensed premises within private clubs have lower rates alcohol related crimes should be encouraged in preference to night clubs and pubs.

Alternative cultural activities not focused around consumption of alcohol such as sports clubs, theatre, concerts and arts and craft classes should be encouraged in areas where licenses are restricted.

Enforcement of the licensing regulations in relation to sales of alcohol to those under age or already drunk should be rigorously pursued. Licensees found guilty should have their licenses suspended by the board.

All high risk premises should be targeted to ensure that staff are adequately trained, are aware of the licensing legislation, and have training on how to refuse sales and manage situations which may escalate to violent incidents.

Best practice guidance for the management of high risk premises during the last opening hour should include advice on refusing further entry to premises, curtailing sales of alcohol, and facilitating customers who wish to make arrangement for travelling home.

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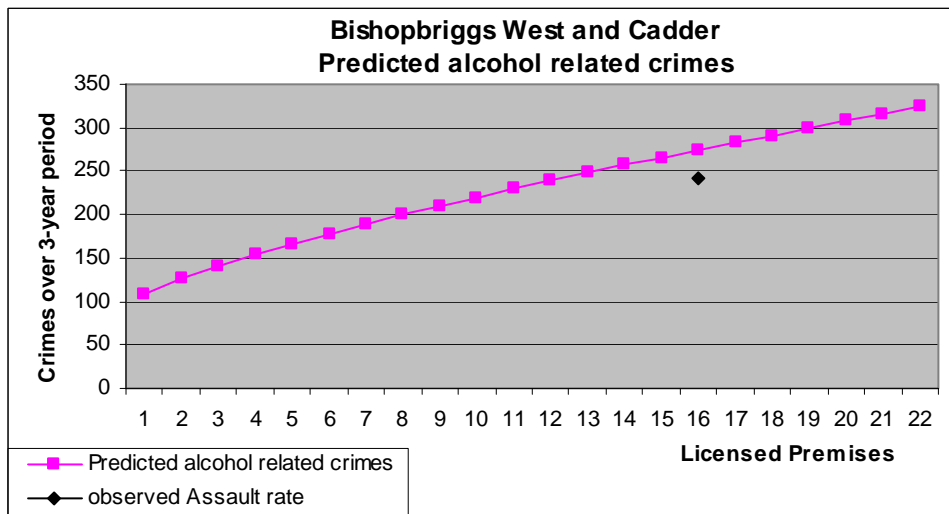
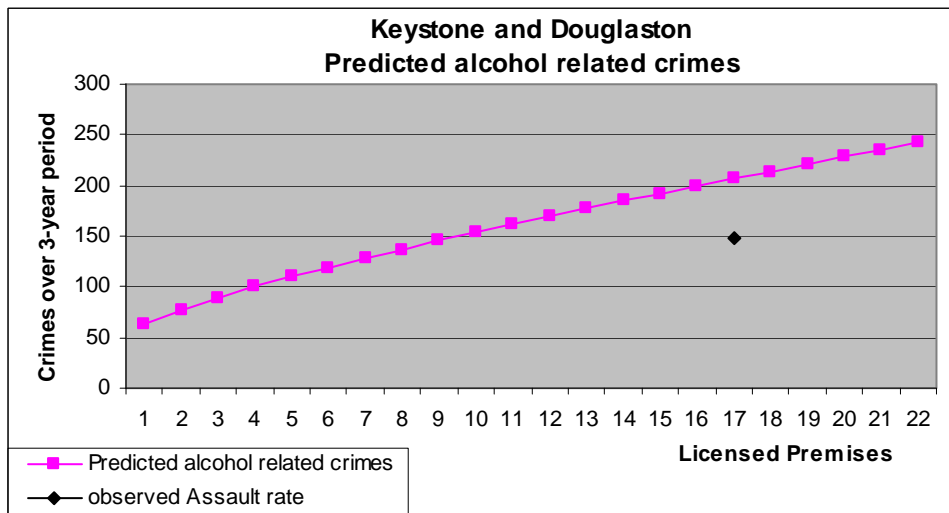
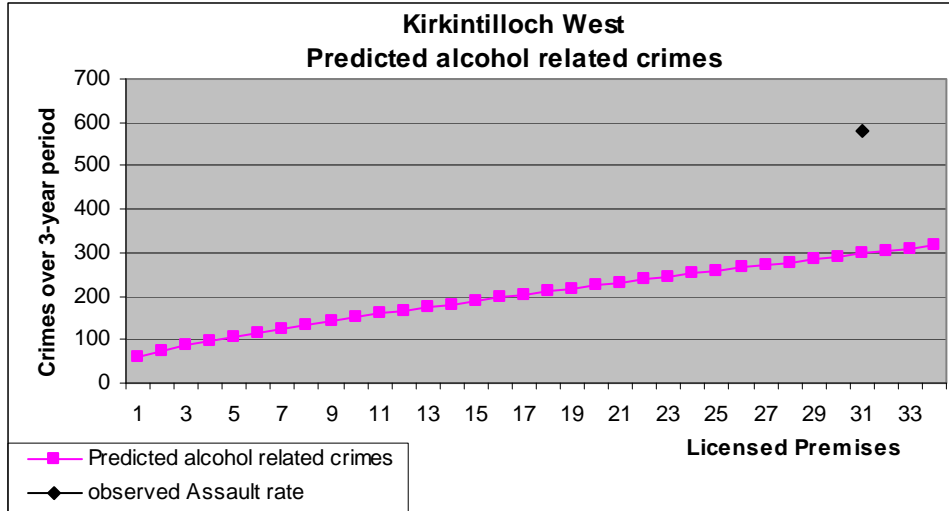
Appendix 1

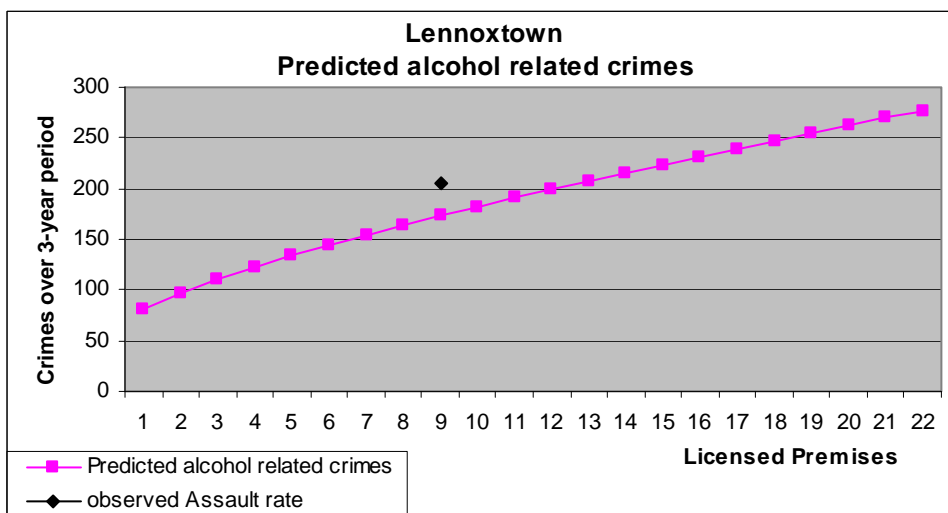
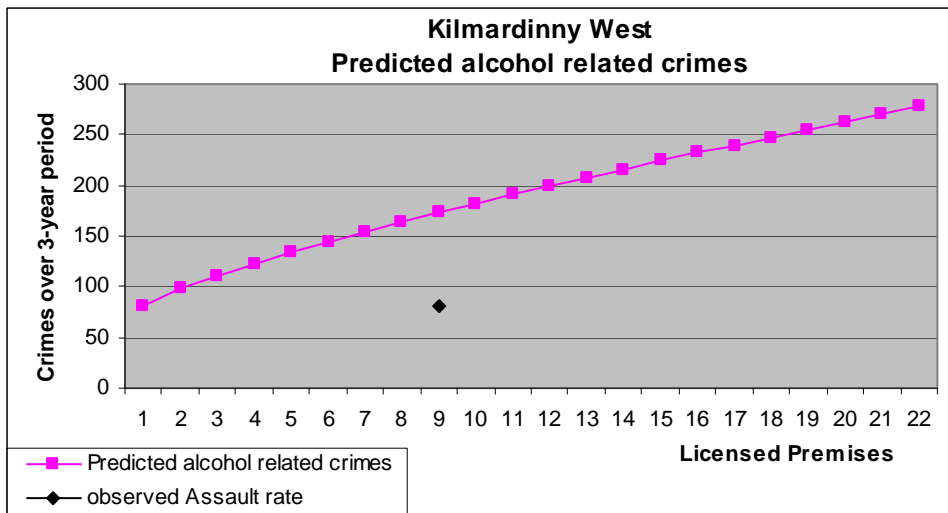
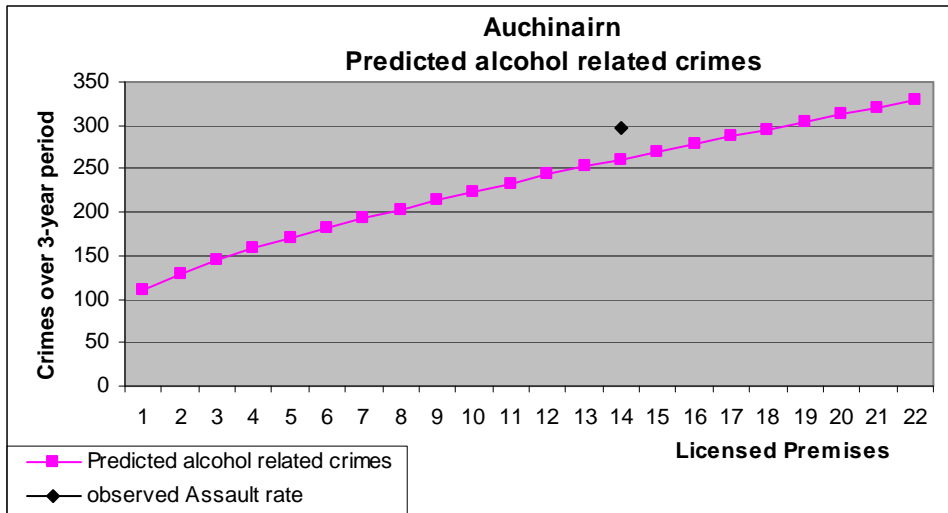
Intermediate Zones Excluded from Modelling

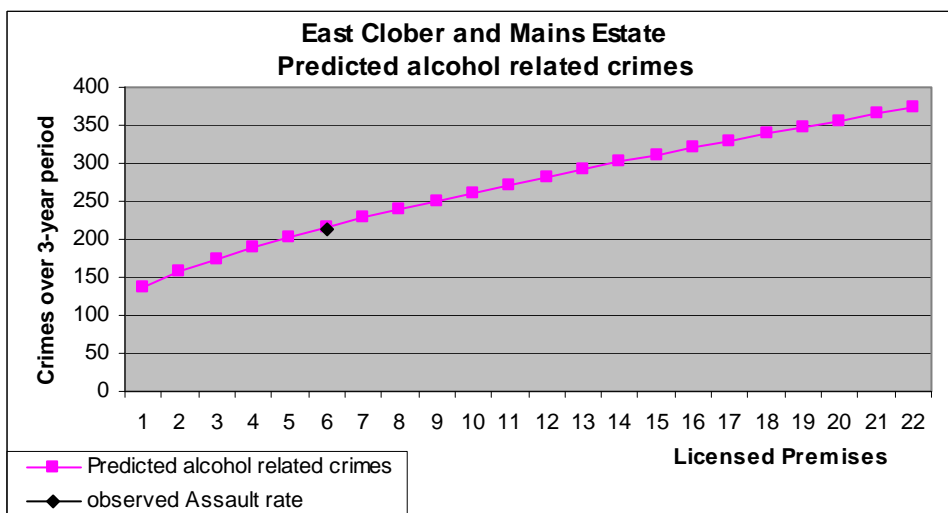
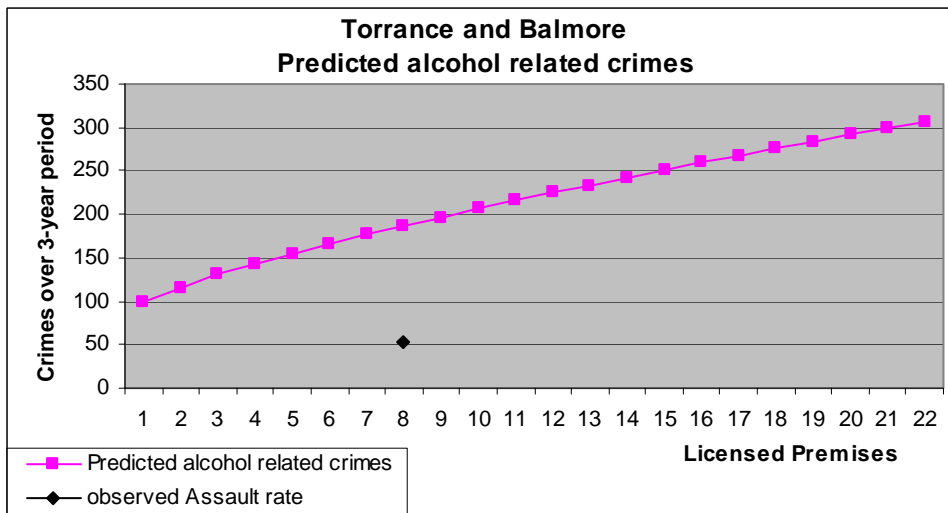
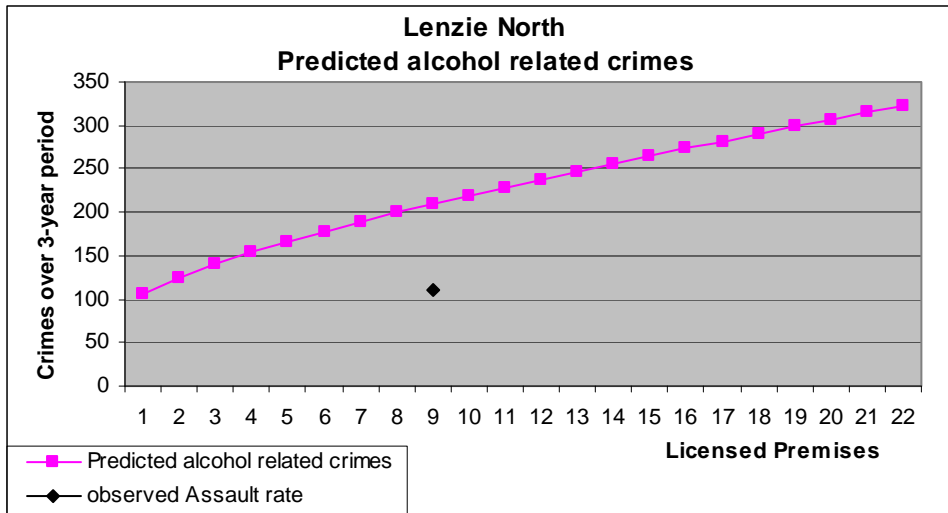
CHCP	Intermediate Zone	Number of Premises	Number of Crimes
West Glasgow	City Centre West	397	7065
West Glasgow	Finnieston and Kelvinhaugh	561	63
West Glasgow	Hillhead	53	486
West Glasgow	Kelvingrove and the University	49	357
West Glasgow	Woodlands	43	303
North Glasgow	Ruchill	17	424
South West	Laurieston and Tradeston	34	298
Renfrewshire	Paisley Central	86	1456
Inverclyde	Greenock Town Centre	48	424

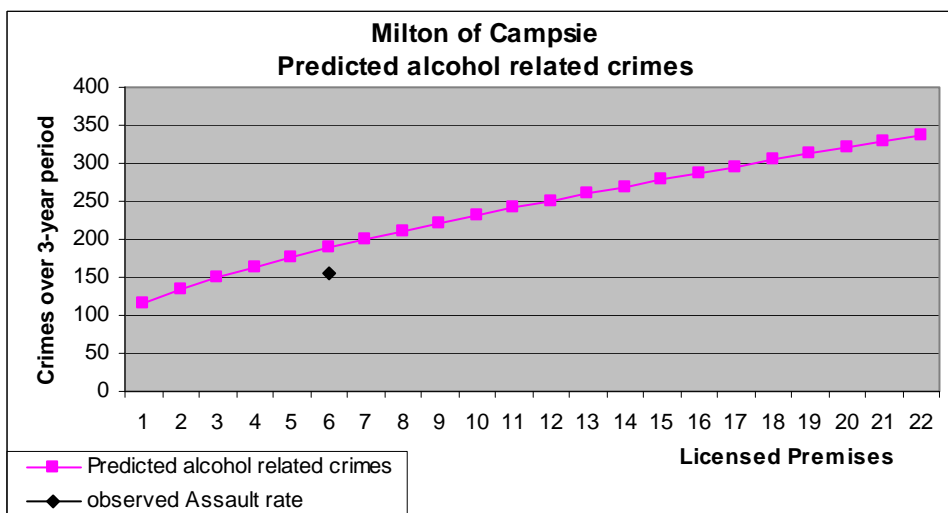
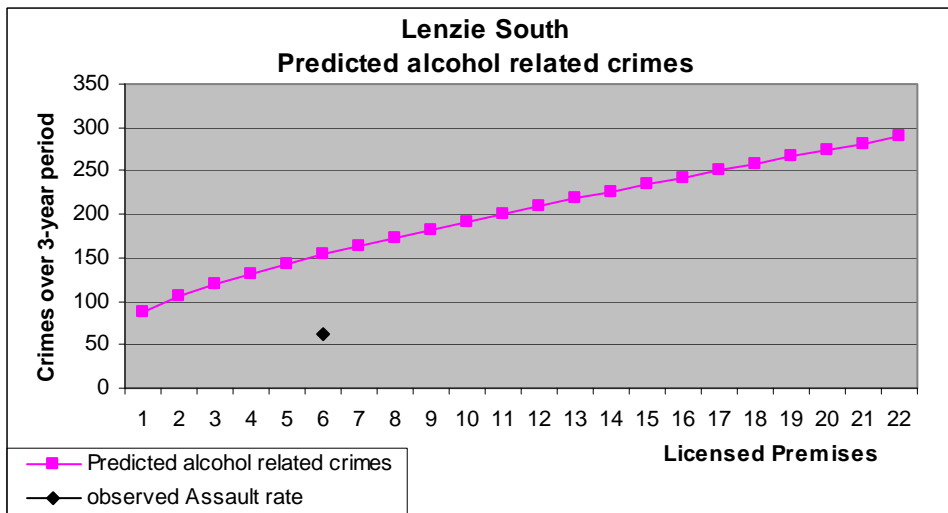
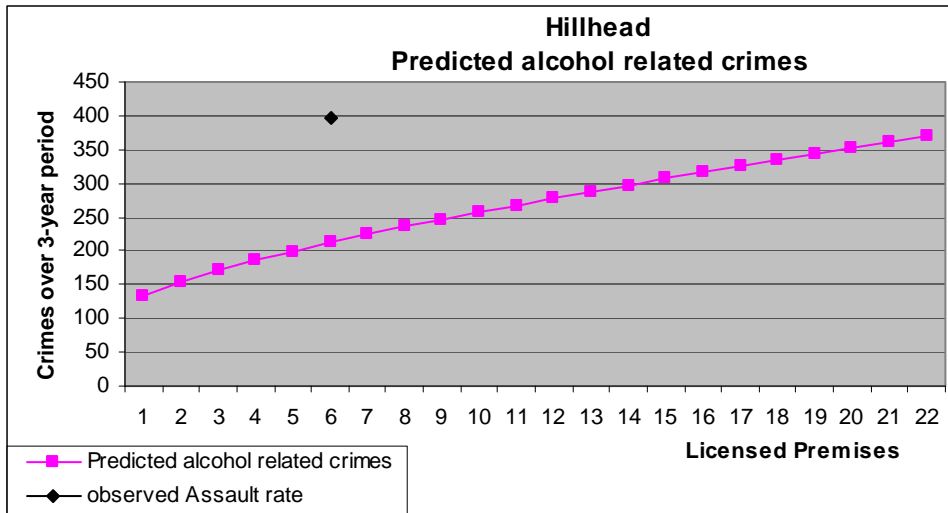
Appendix 2 Graphs of CH(C)Ps Modelling Crime and Outlet

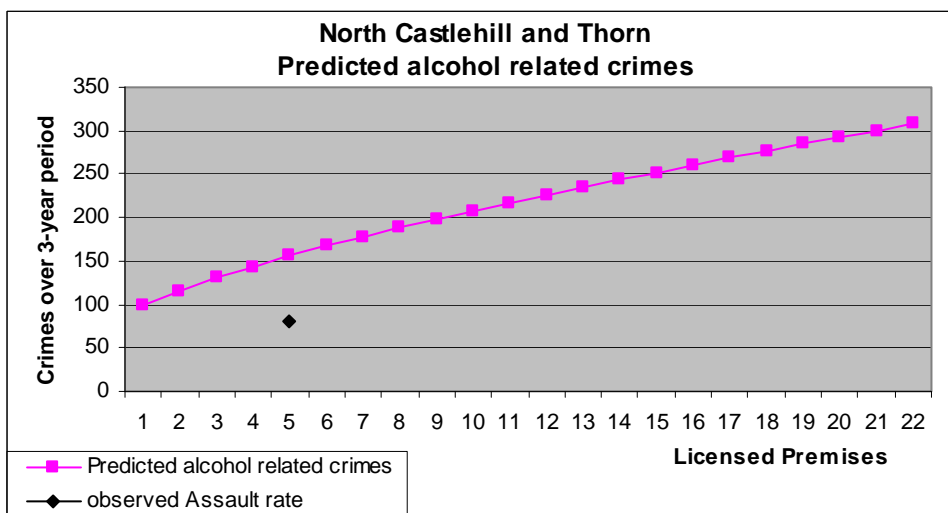
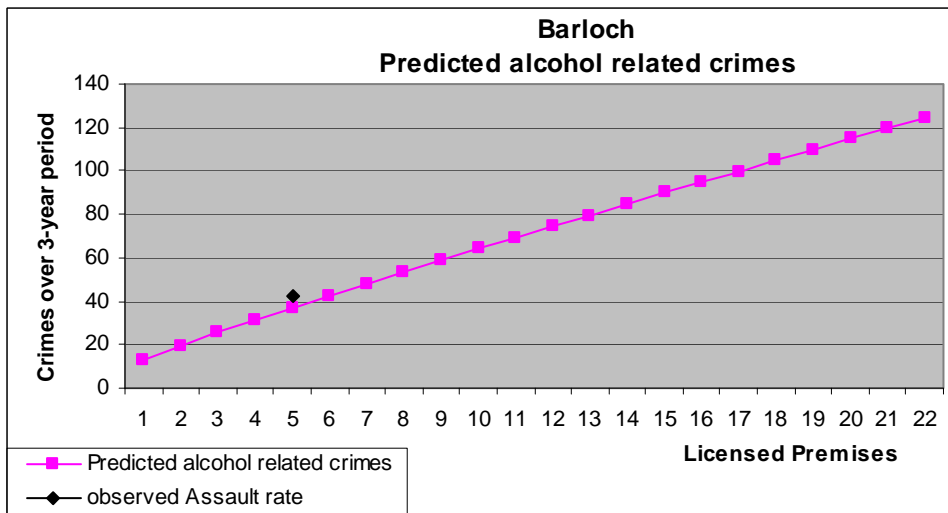
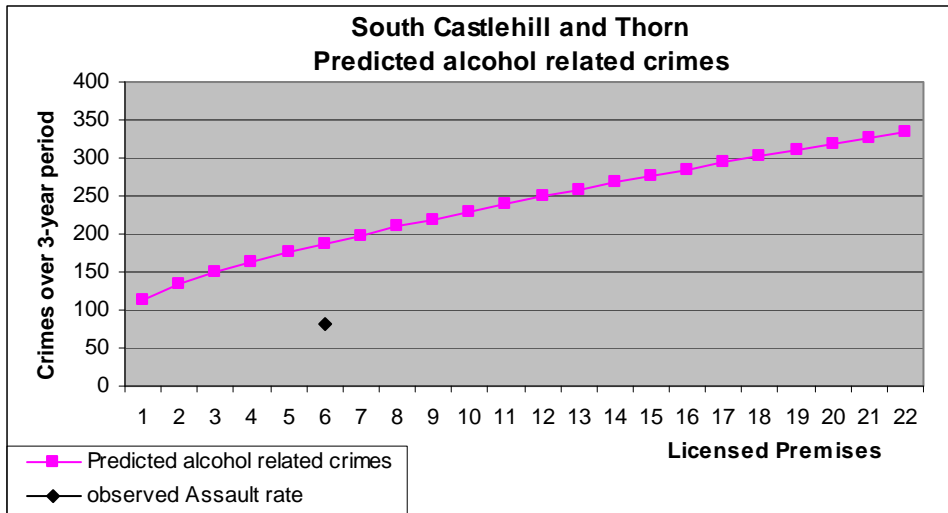
East Dunbartonshire CHP

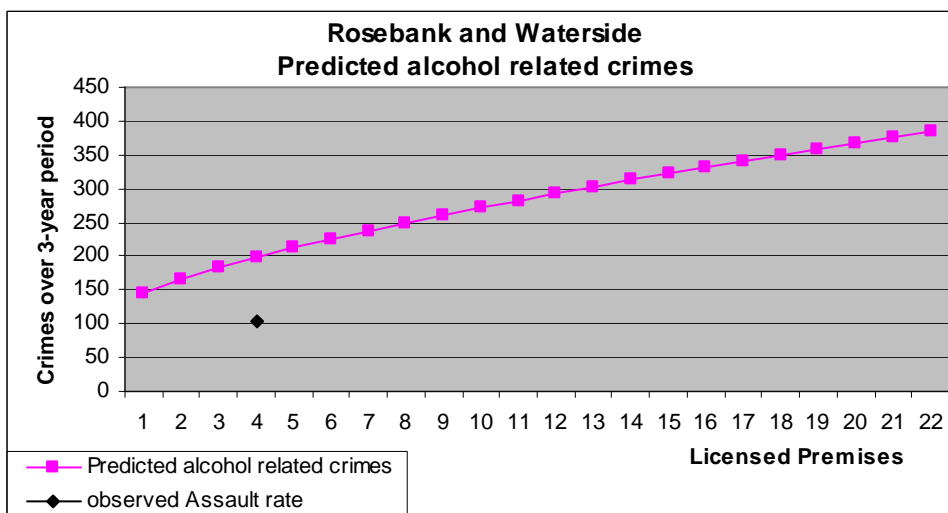
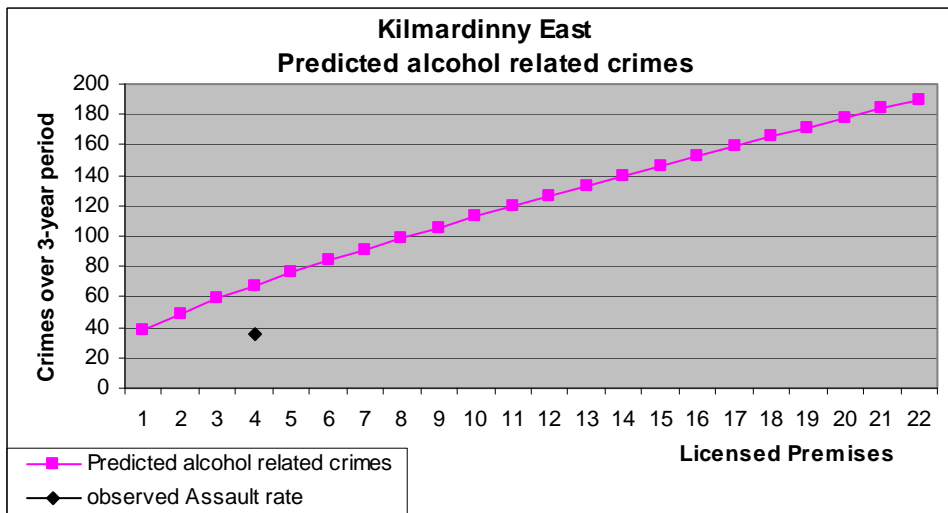
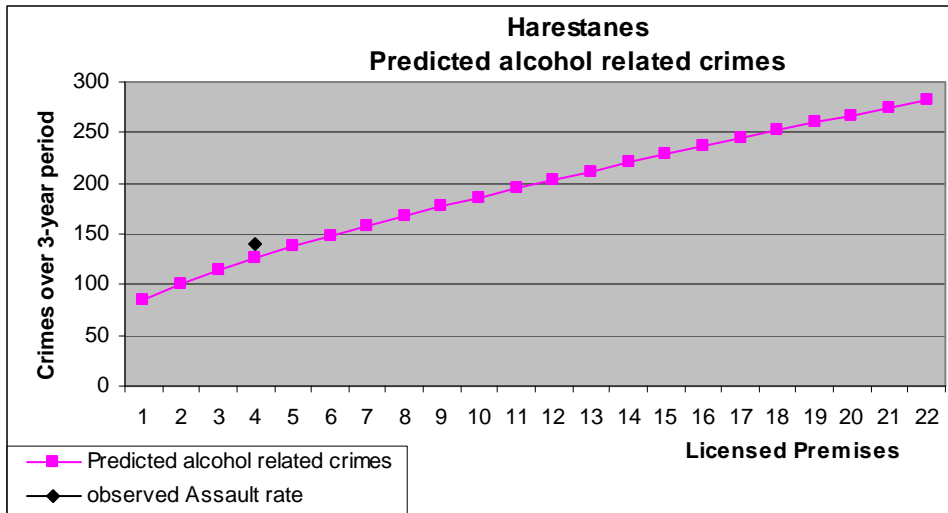


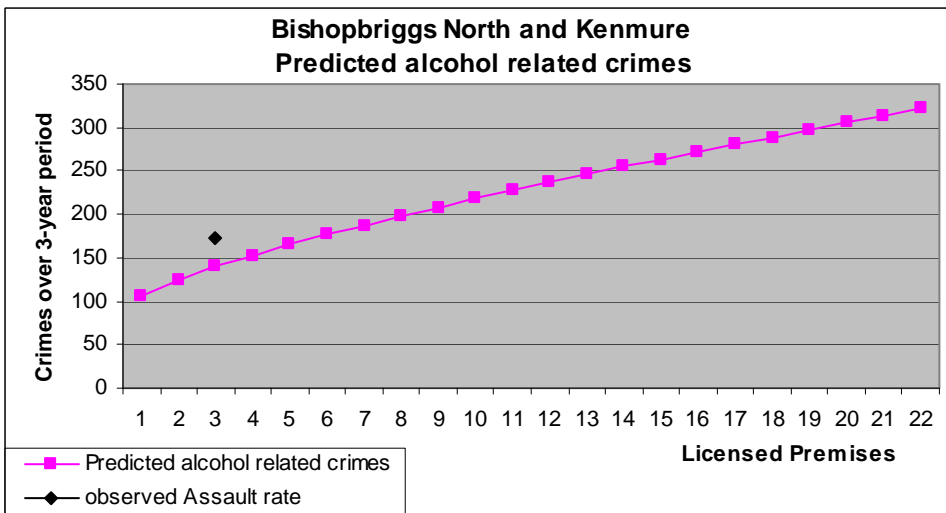
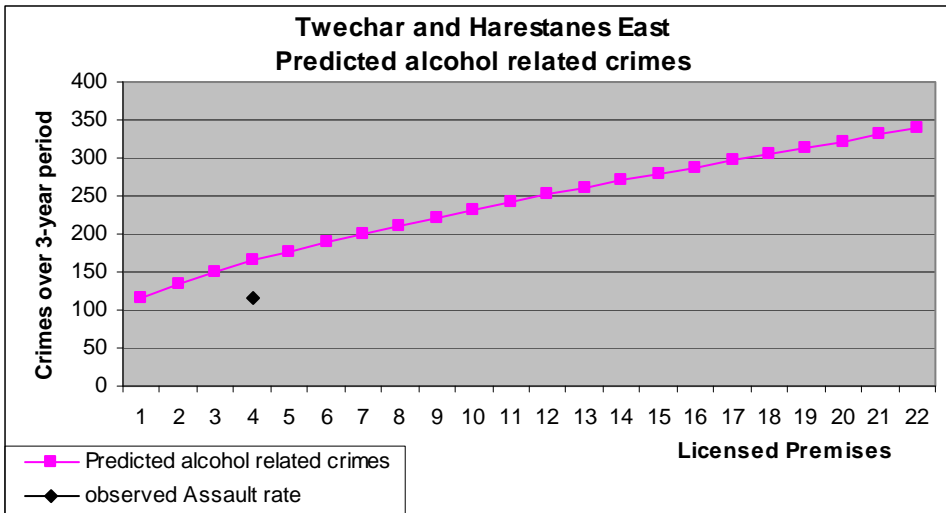


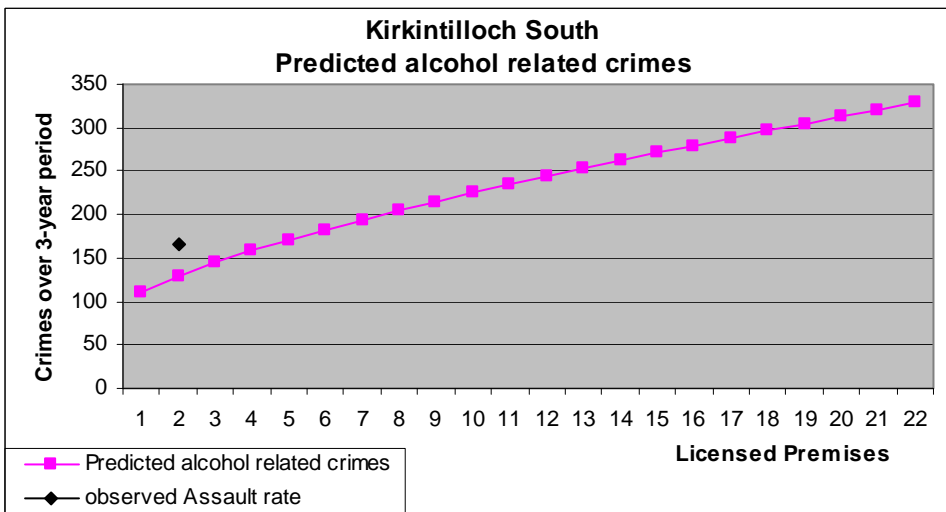
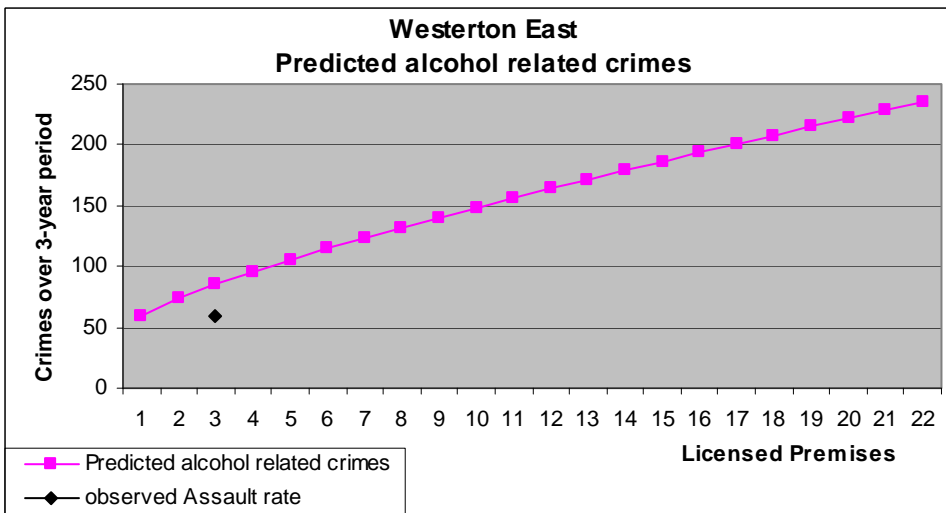
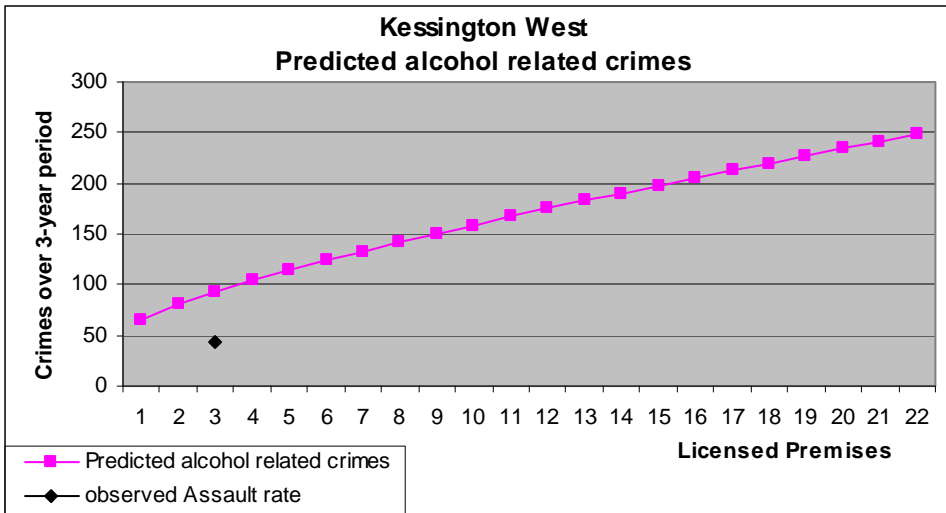


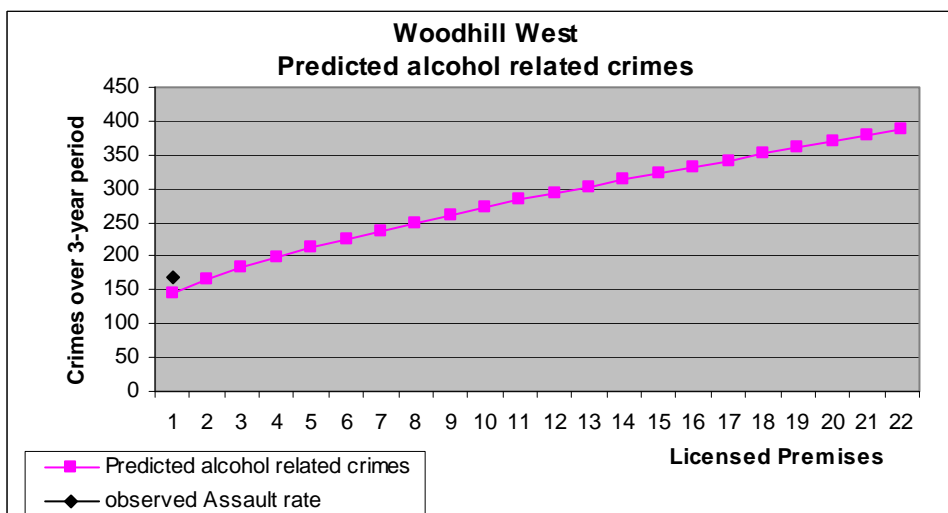
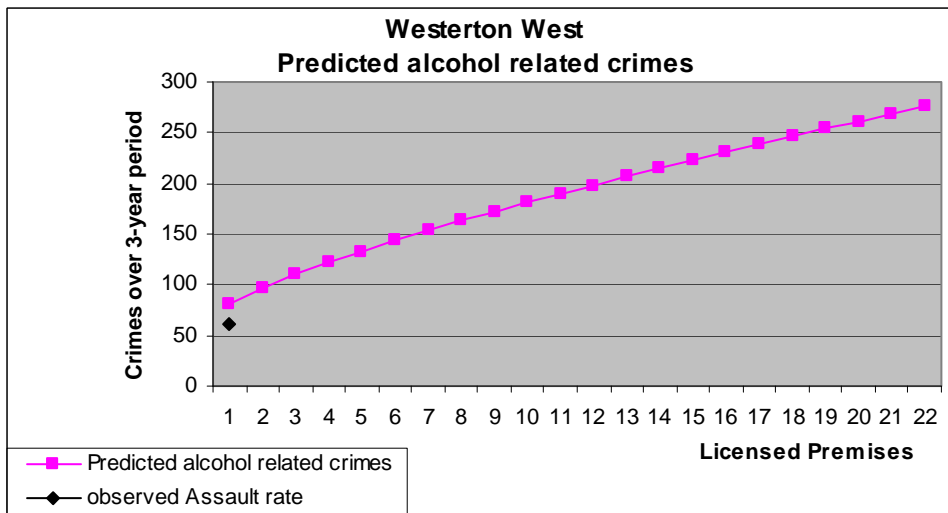
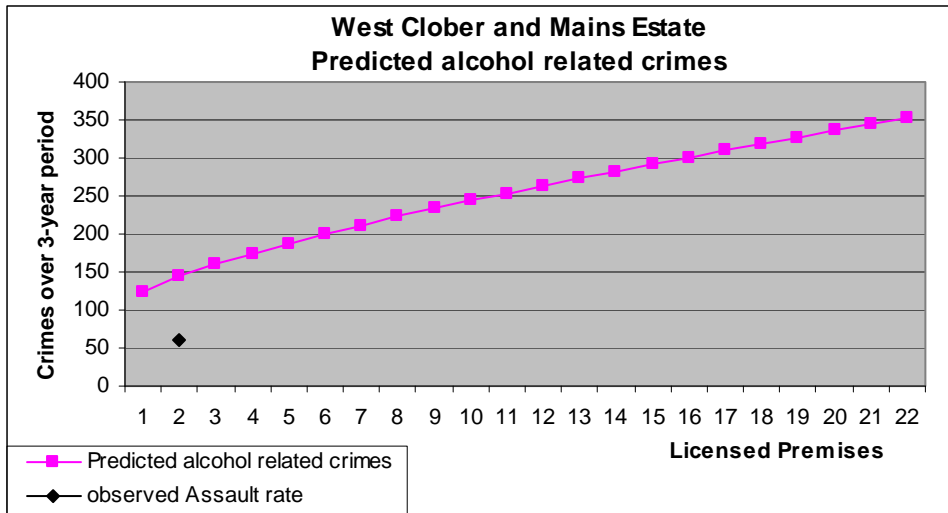


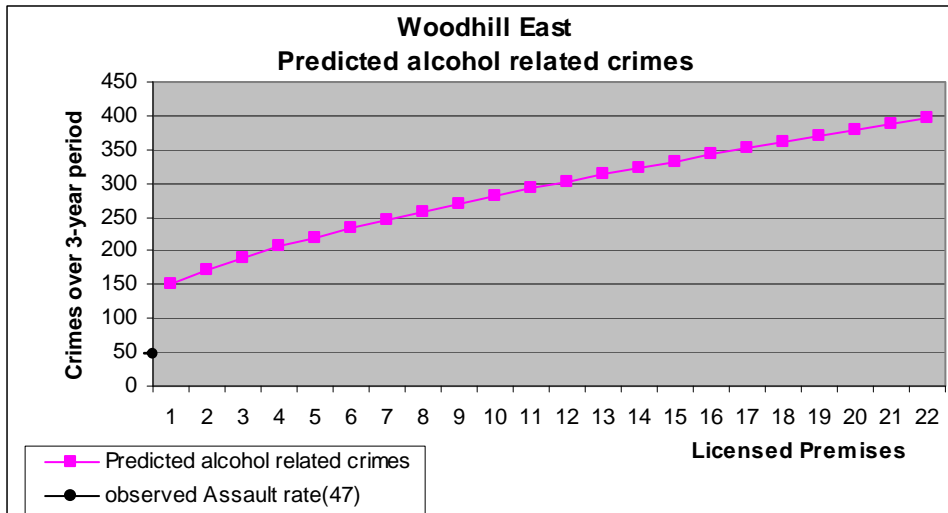




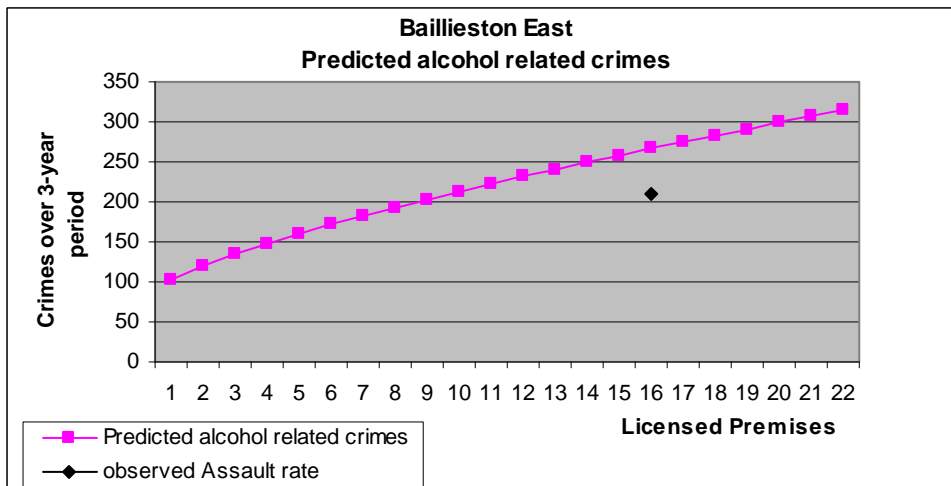
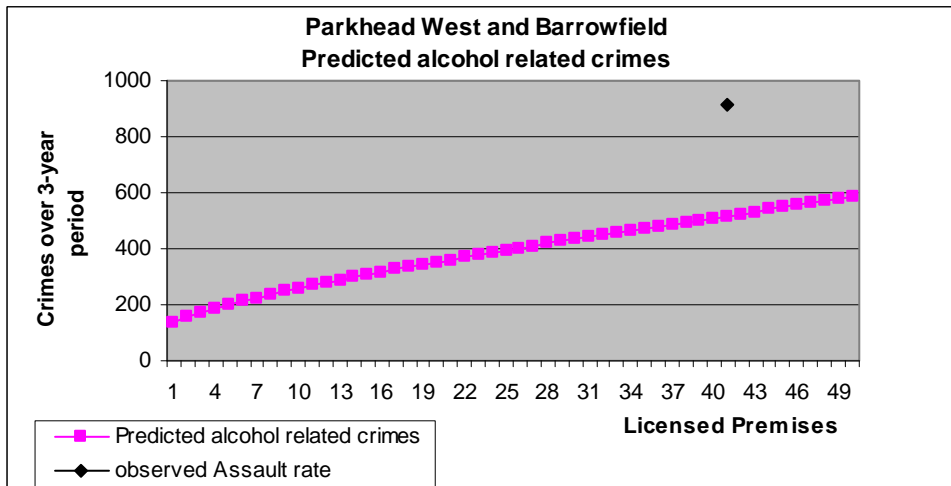
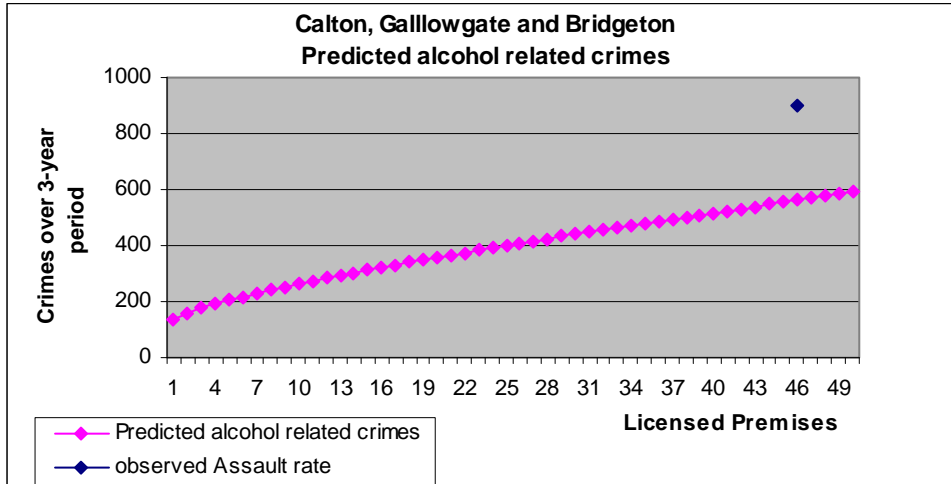


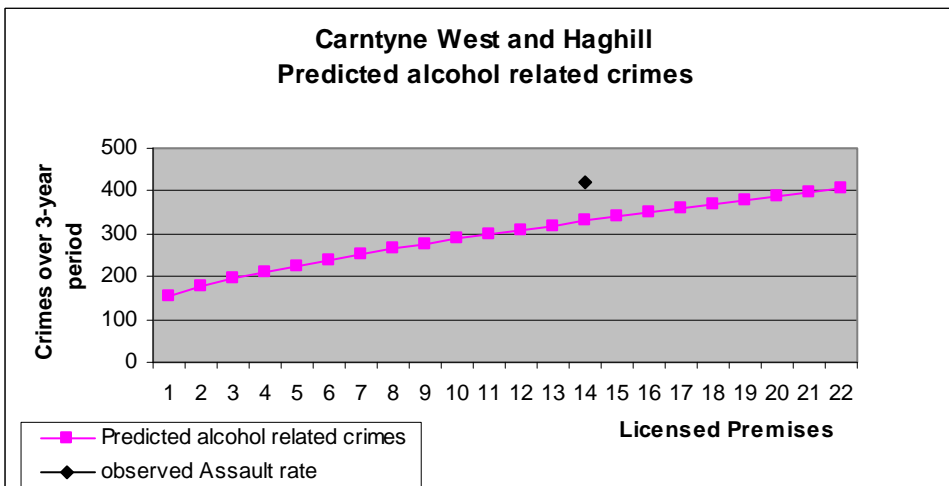
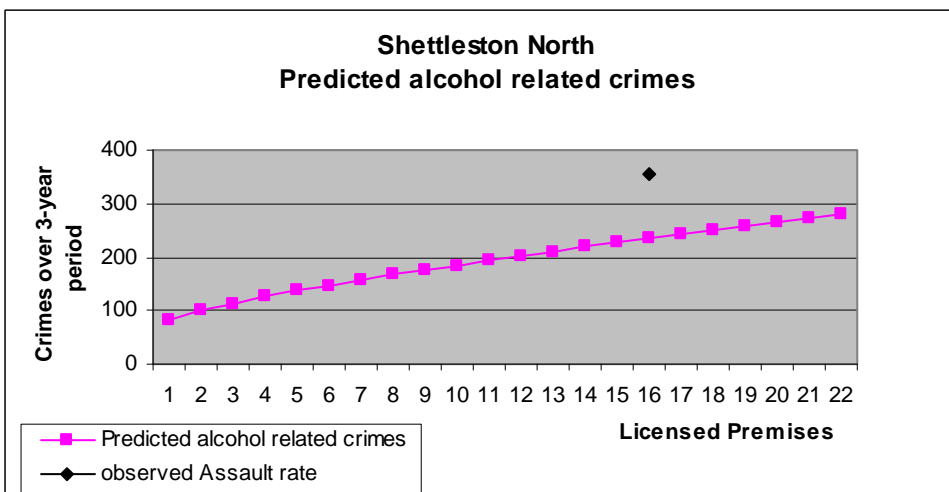
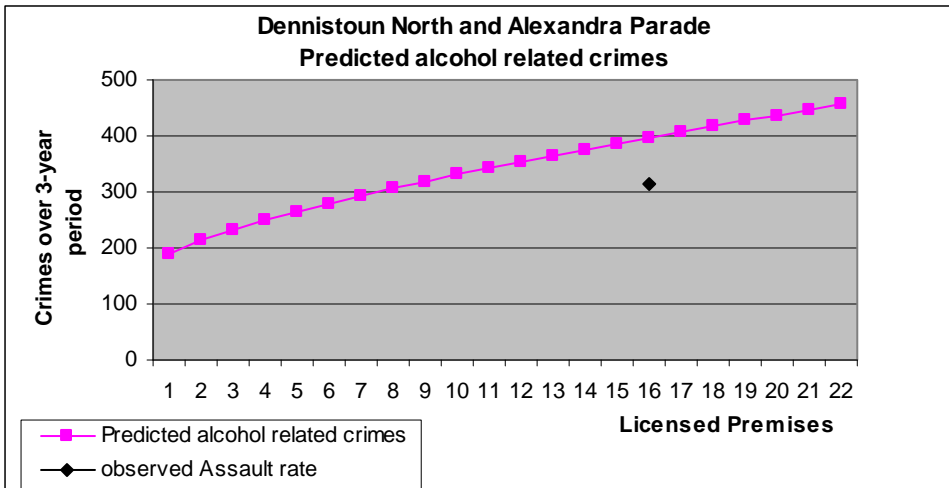


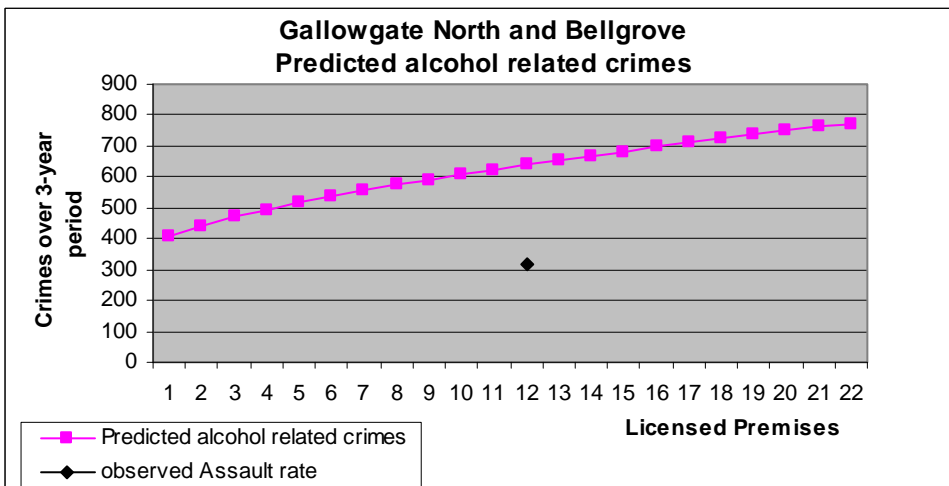
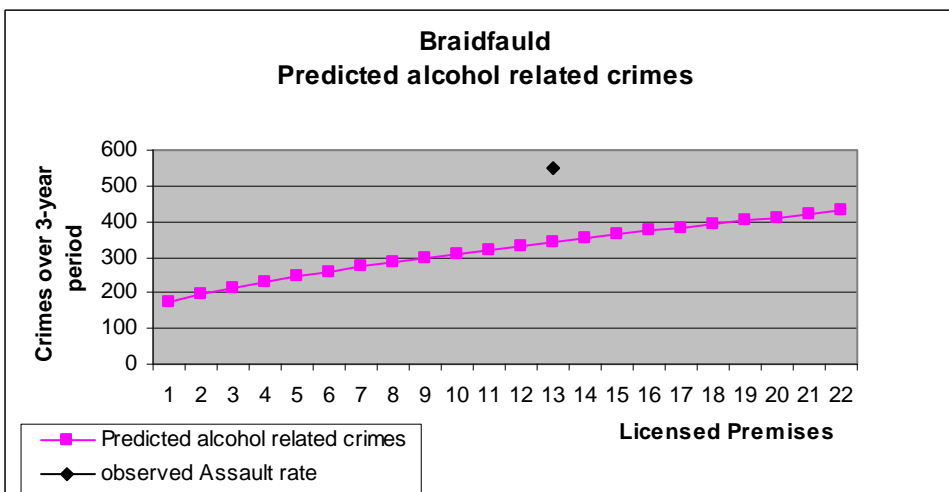
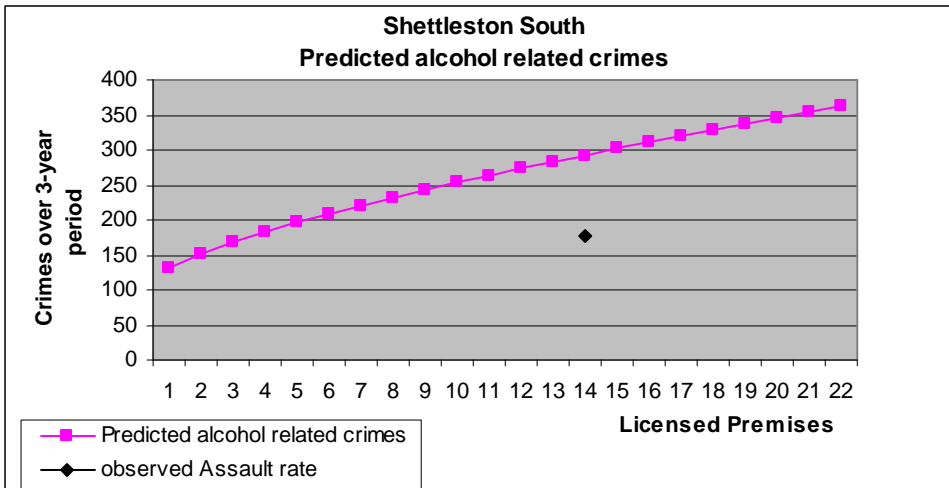


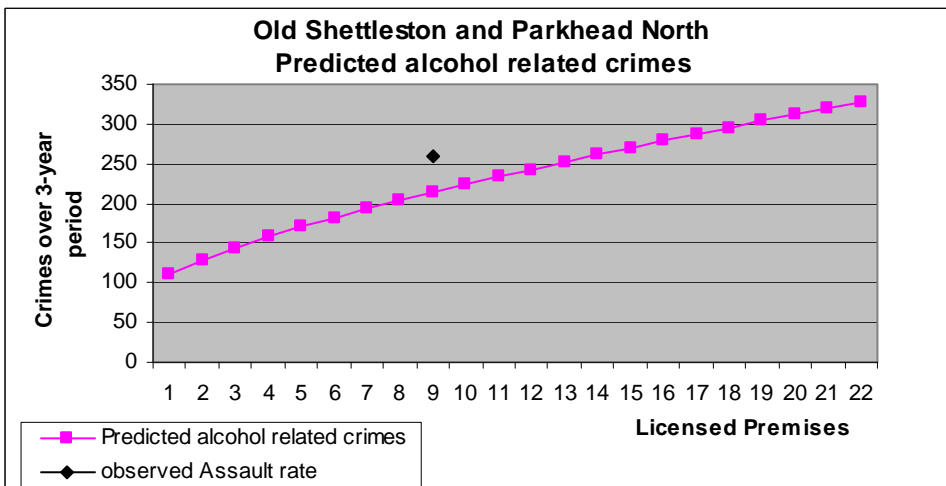
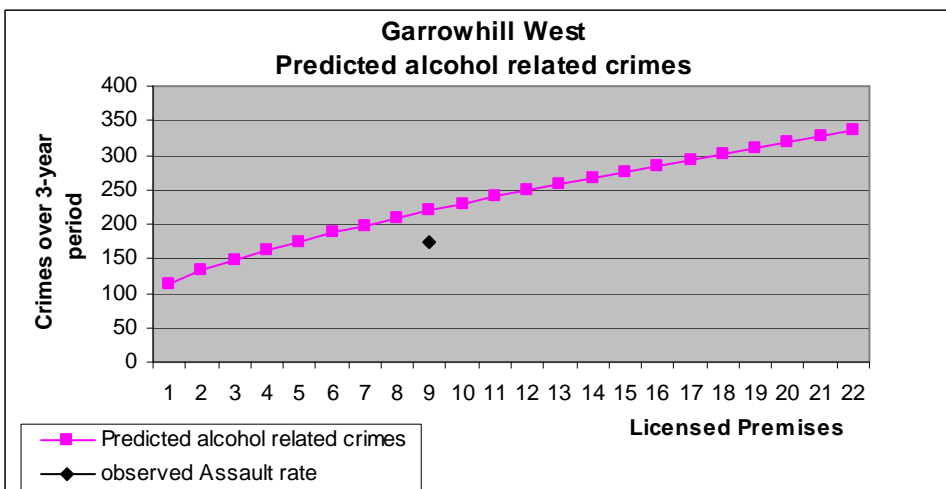
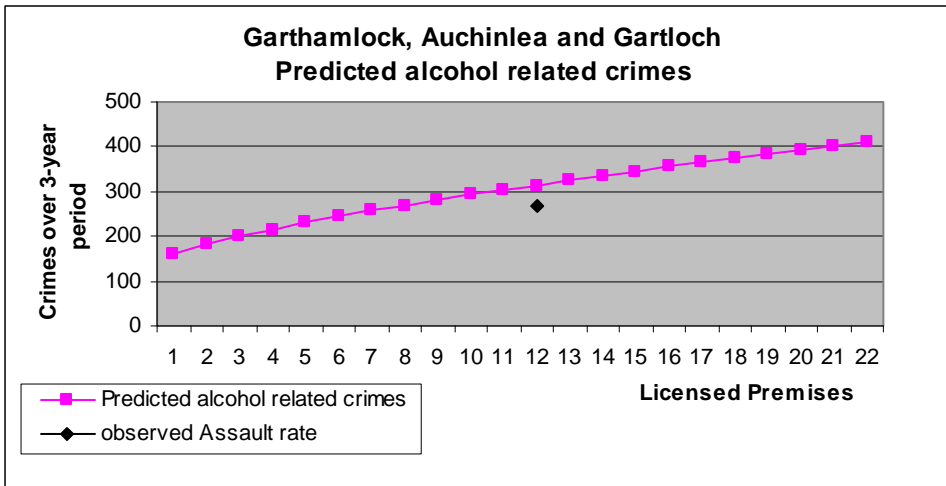


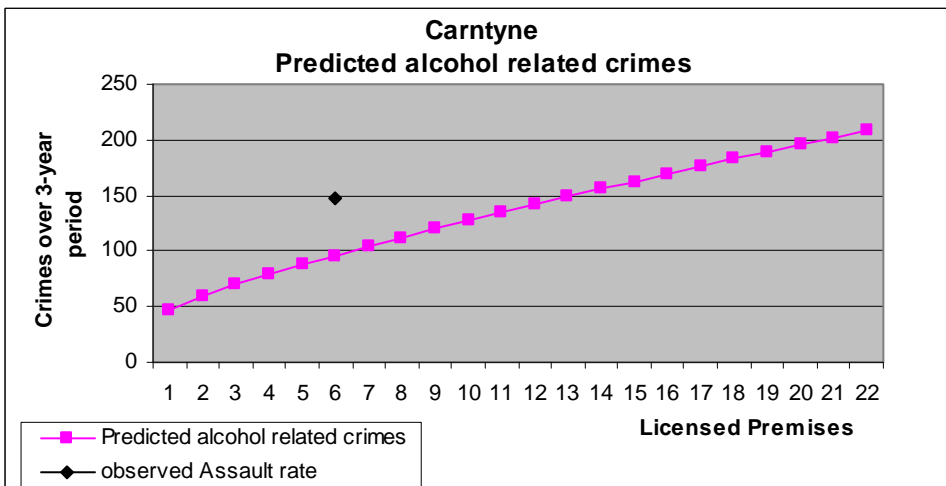
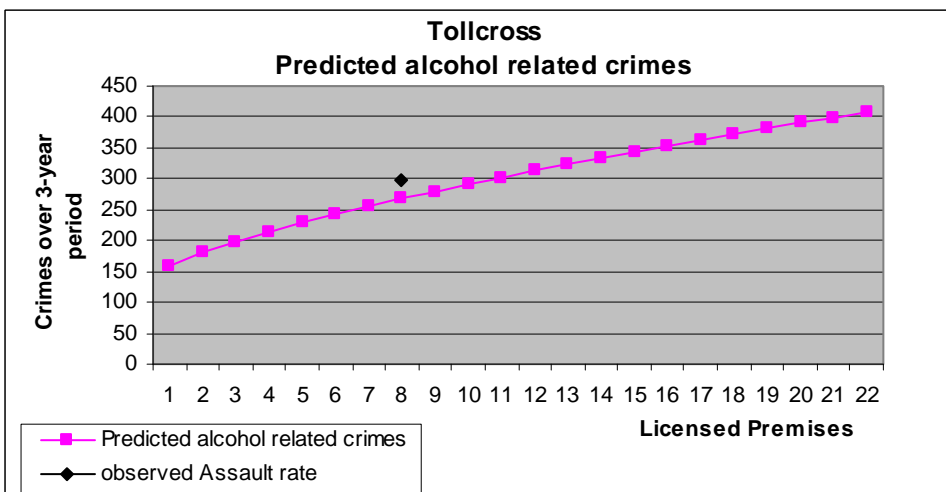
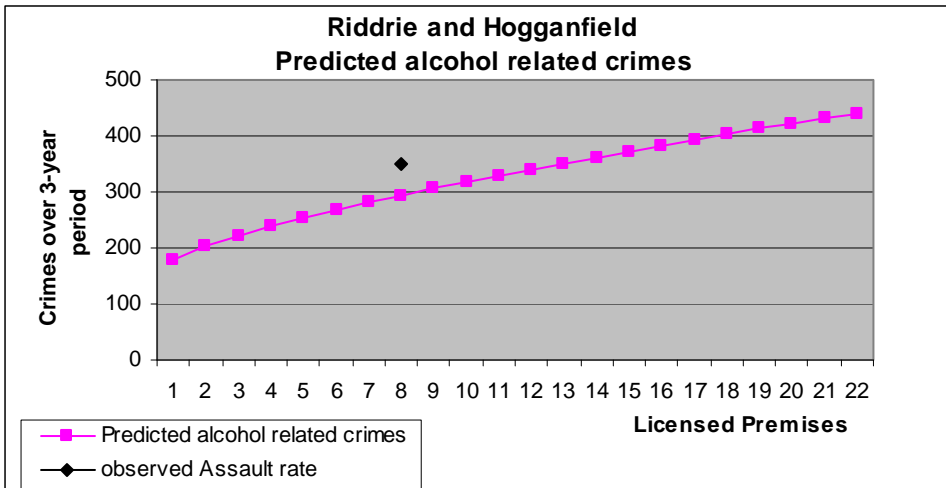
East Glasgow CHCP

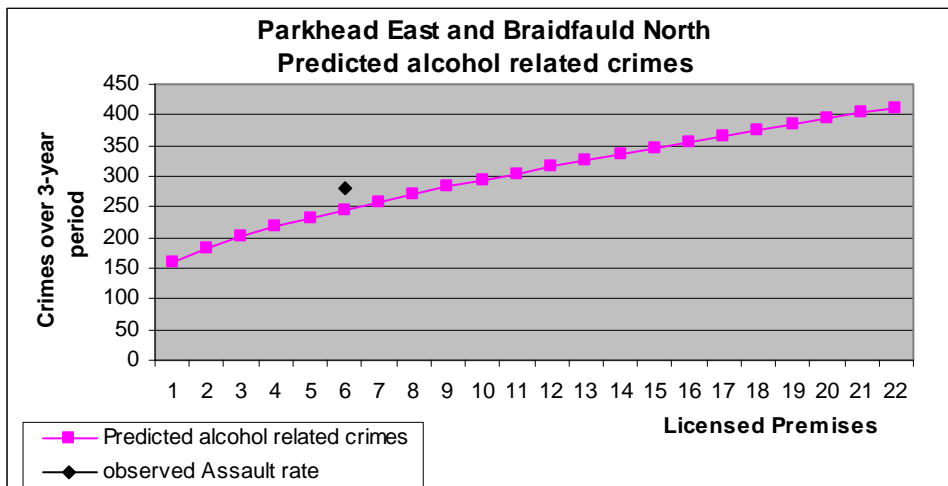
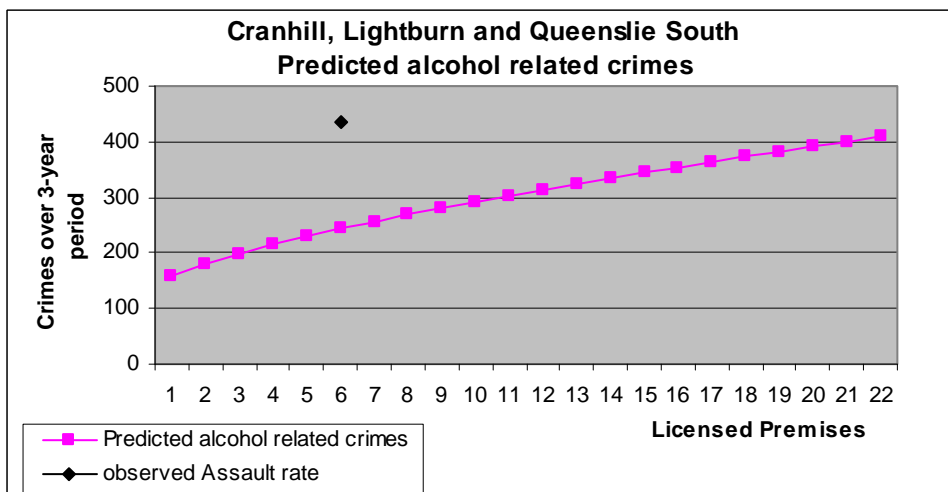
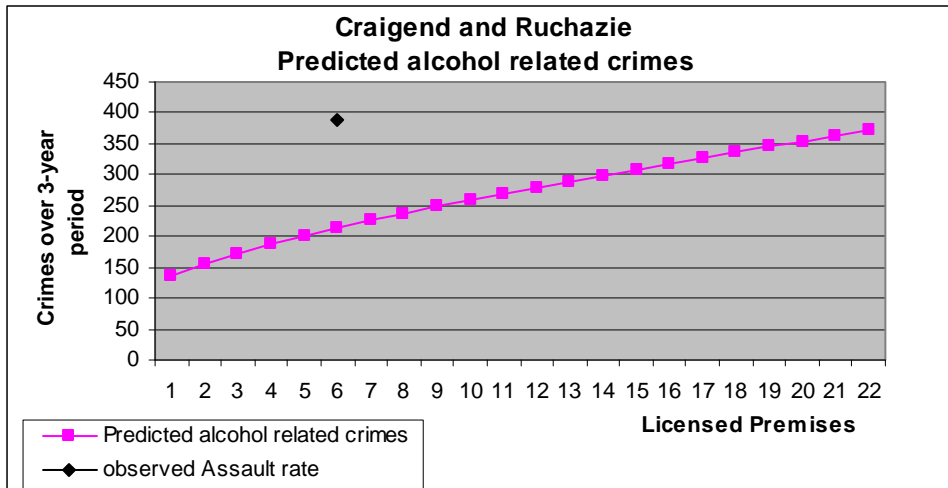


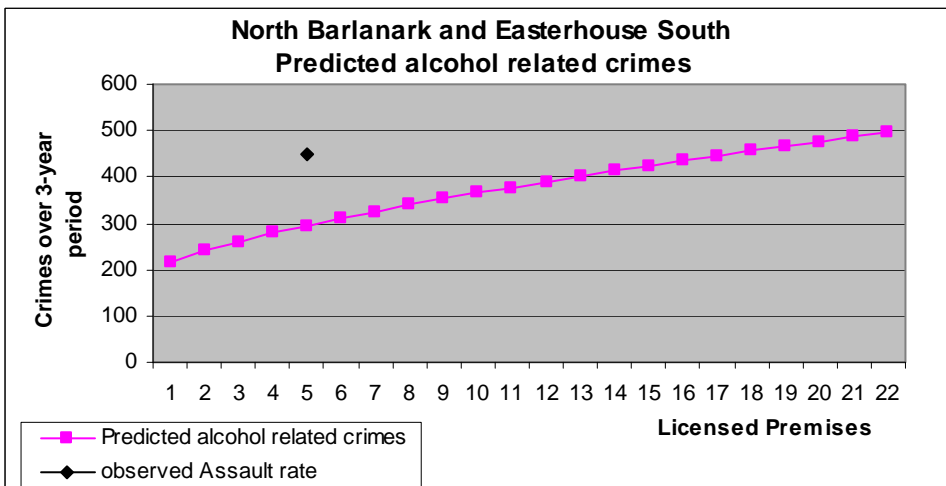
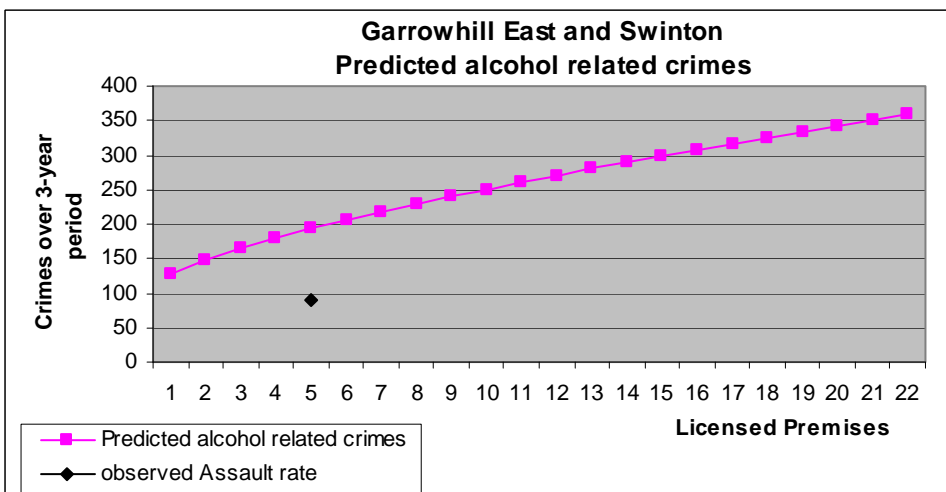
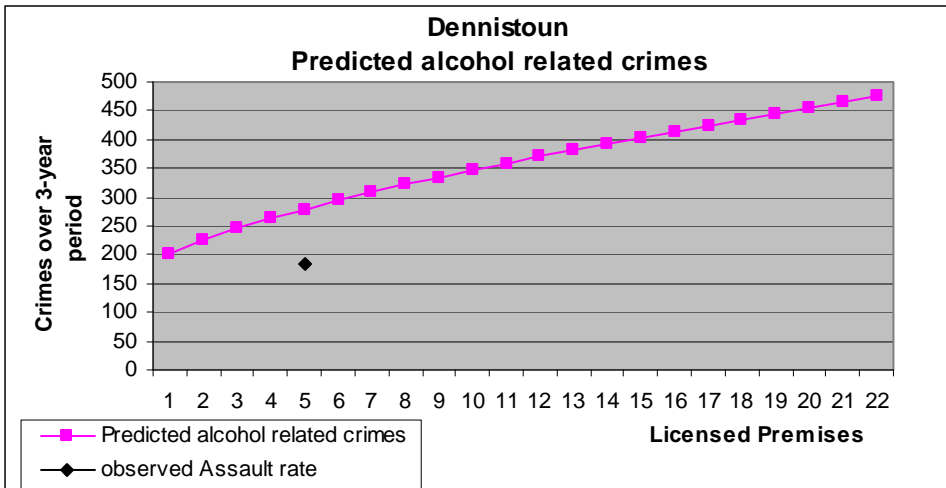


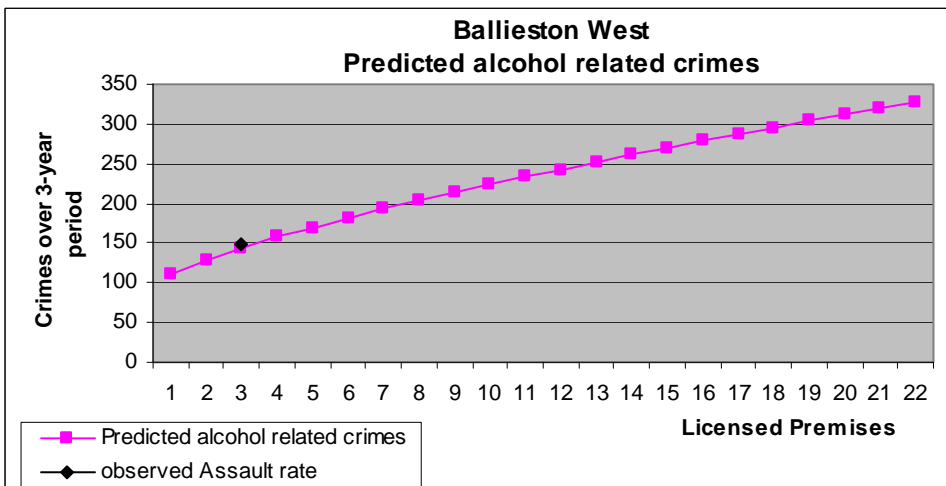
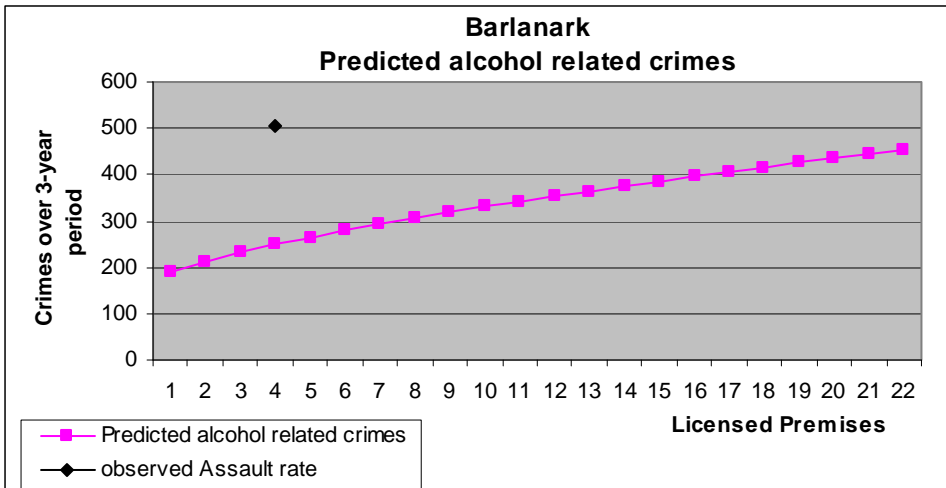


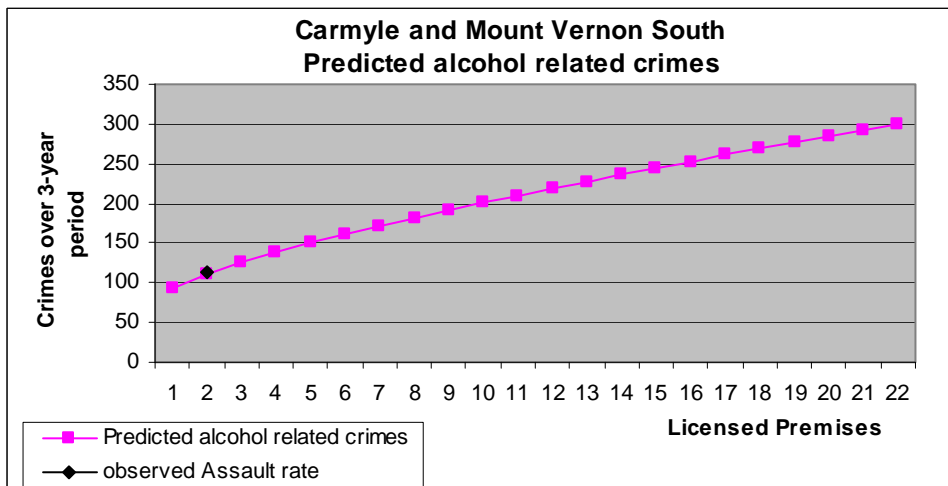
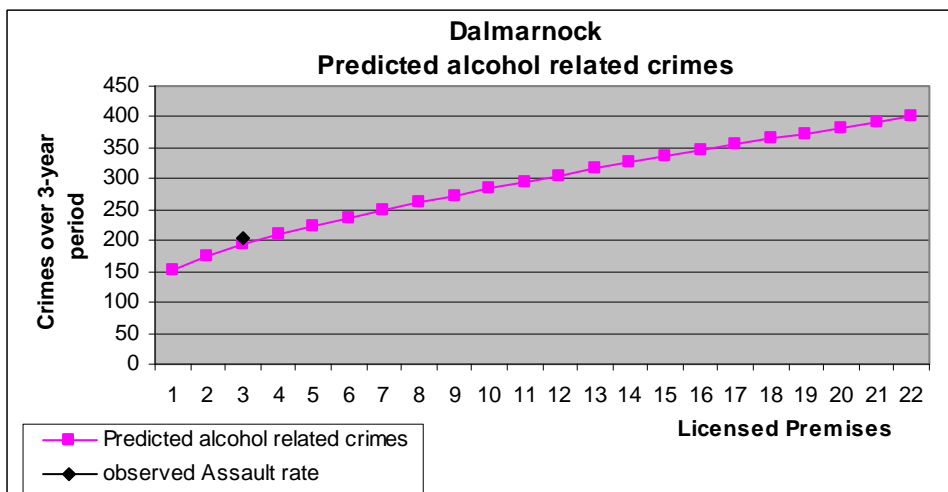
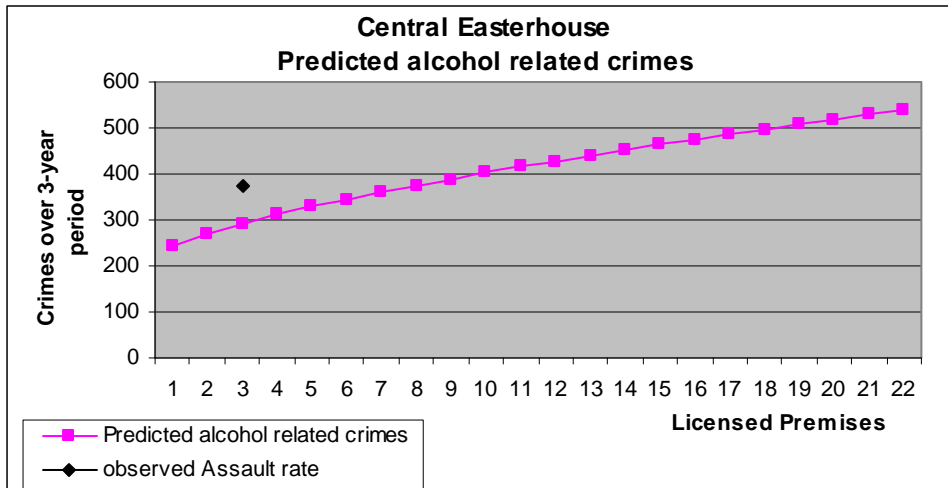


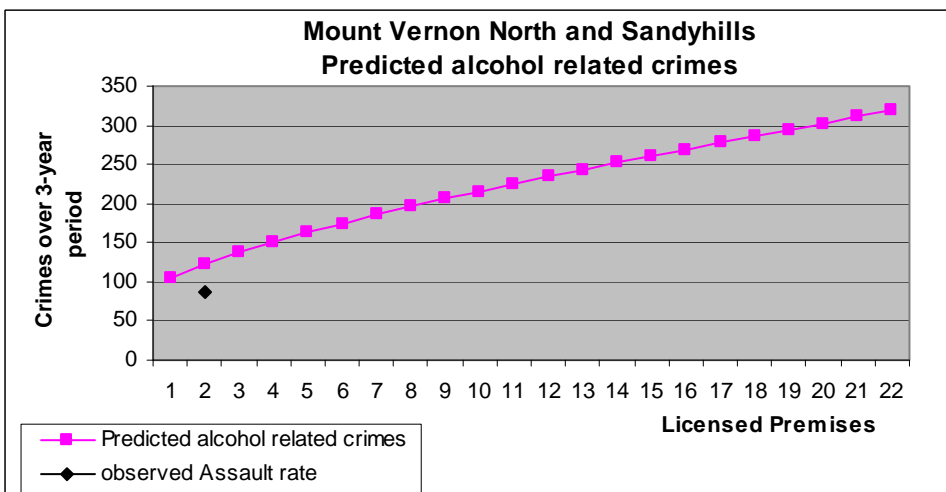
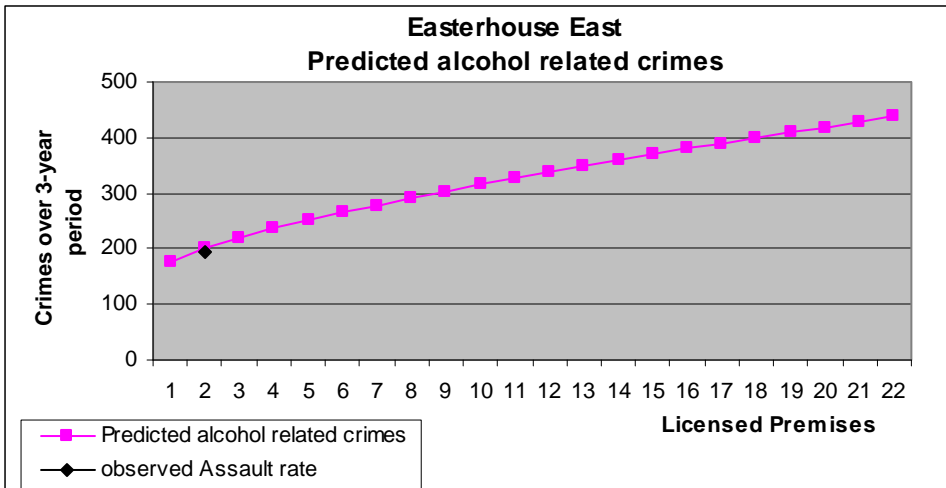




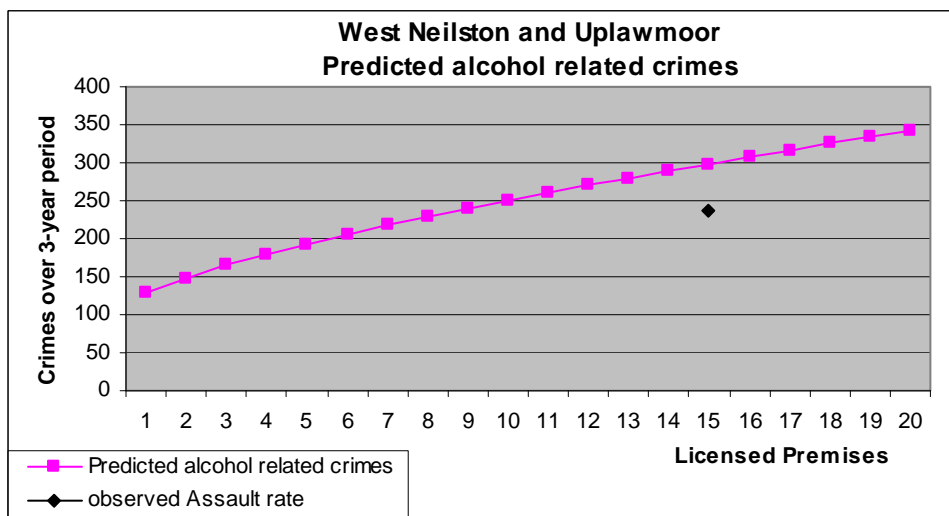
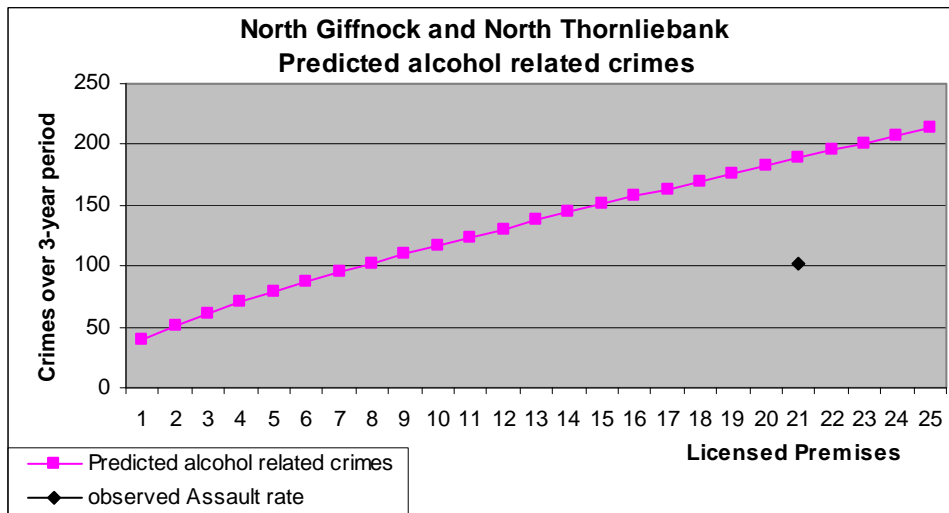
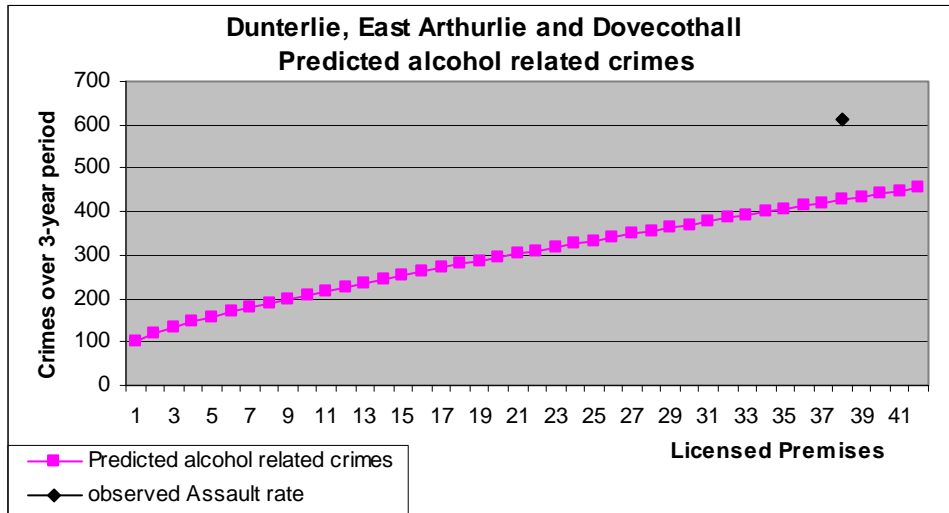


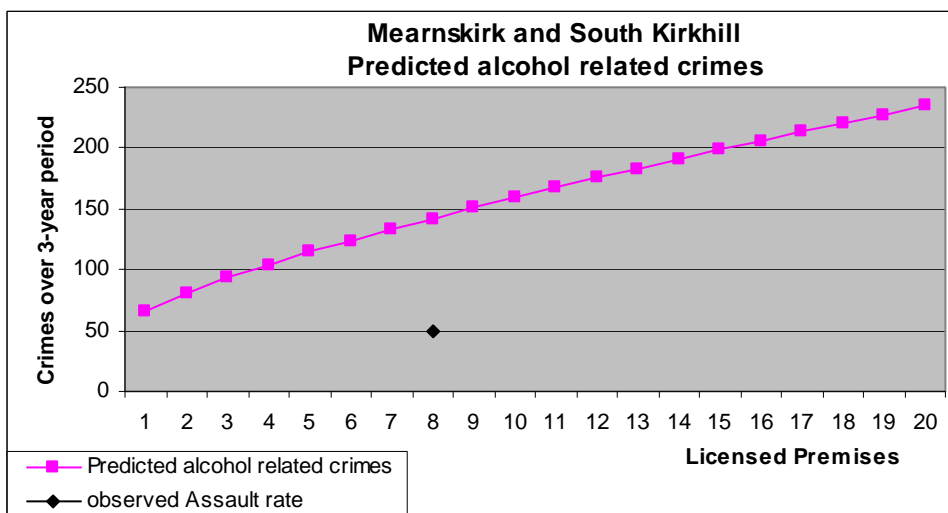
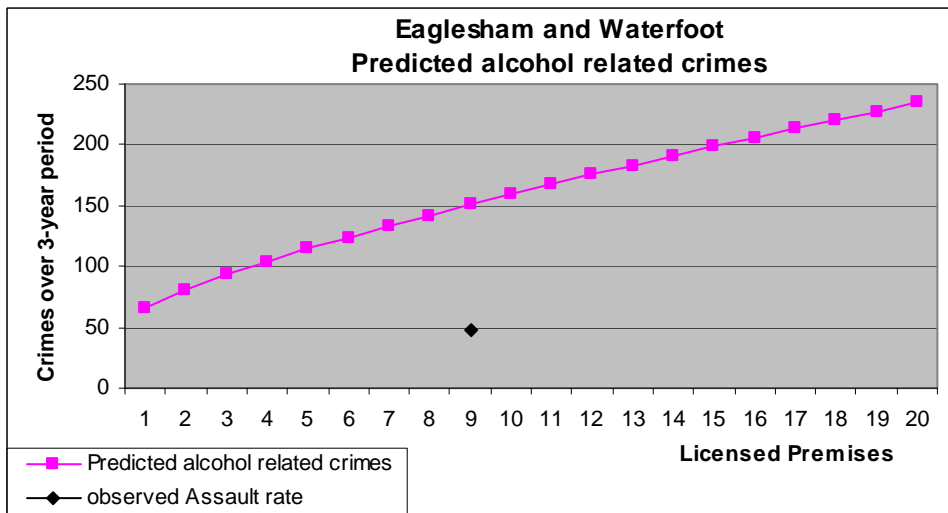
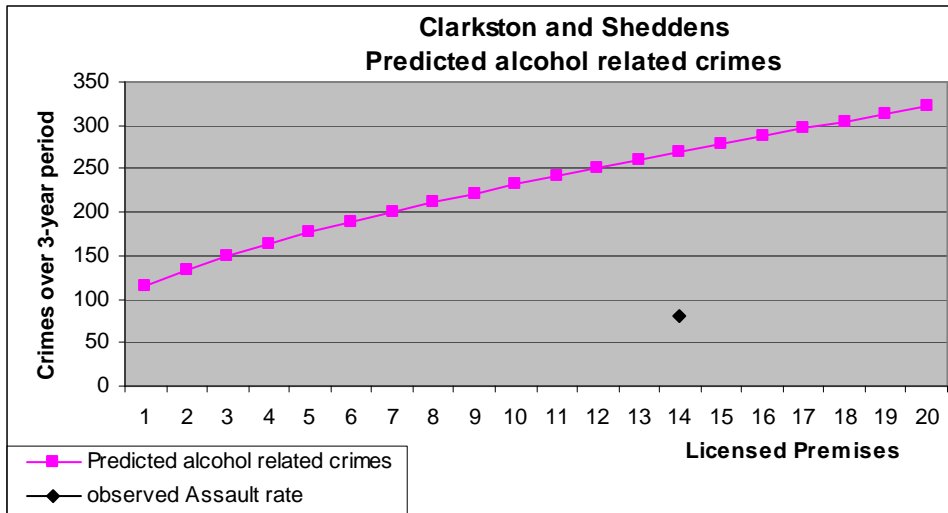


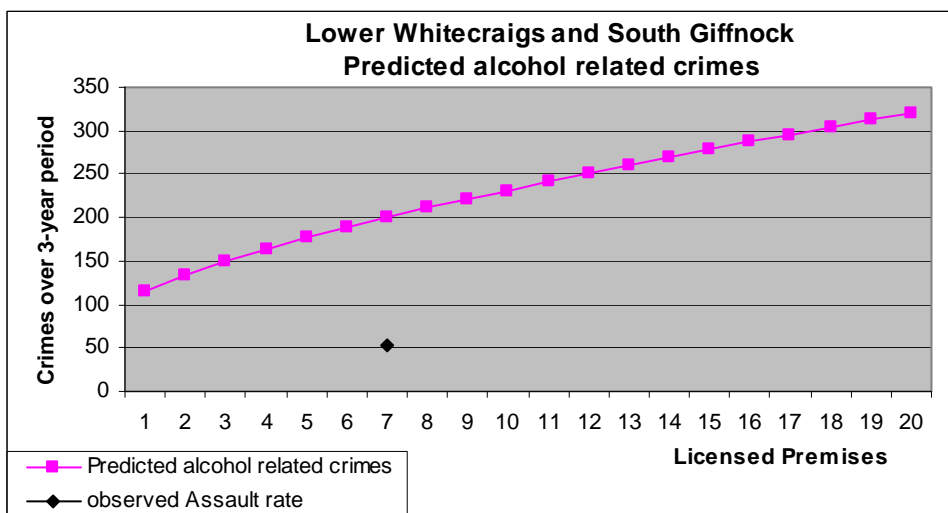
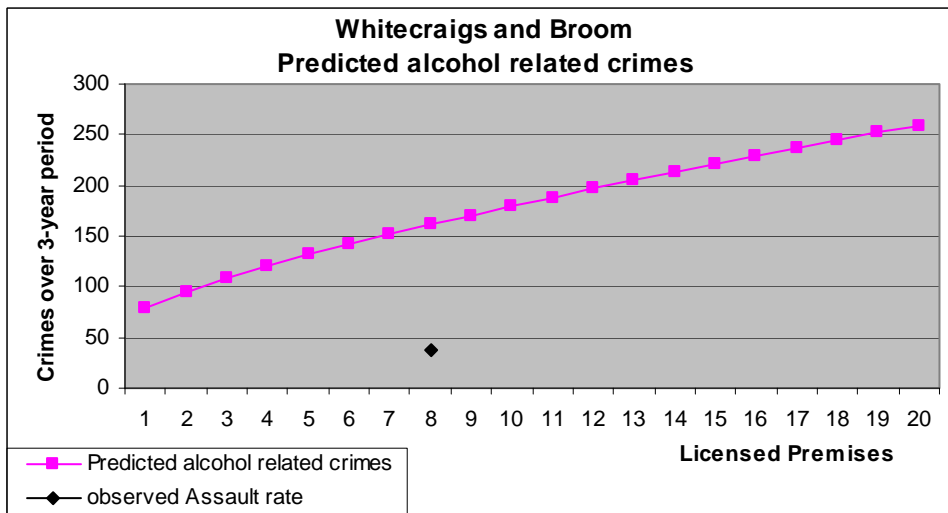
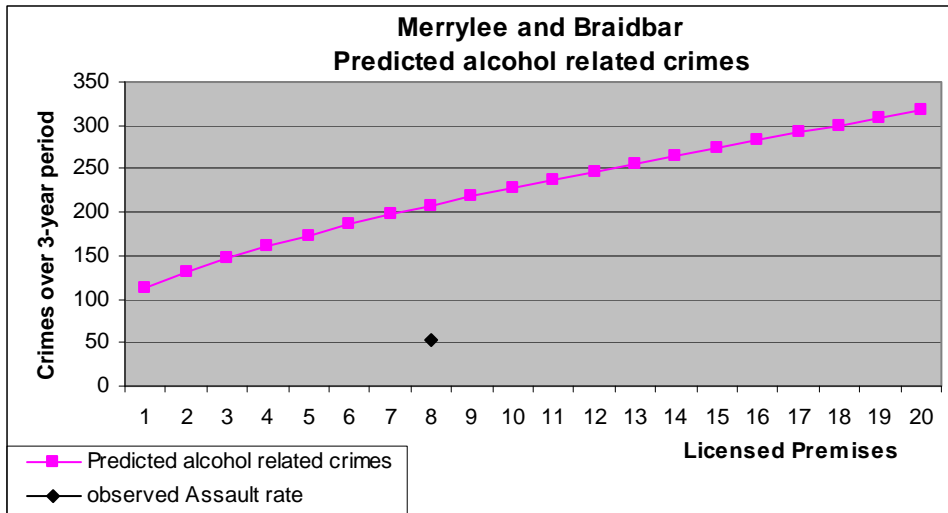


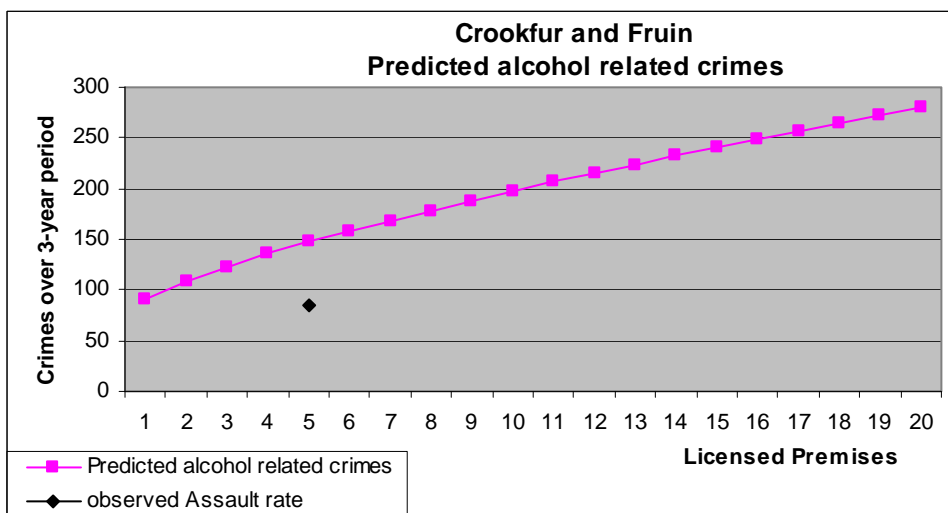
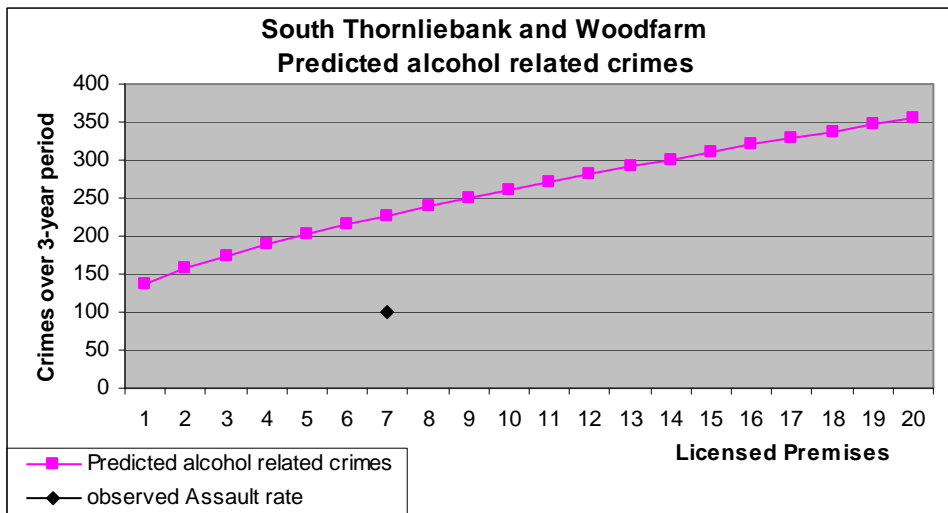
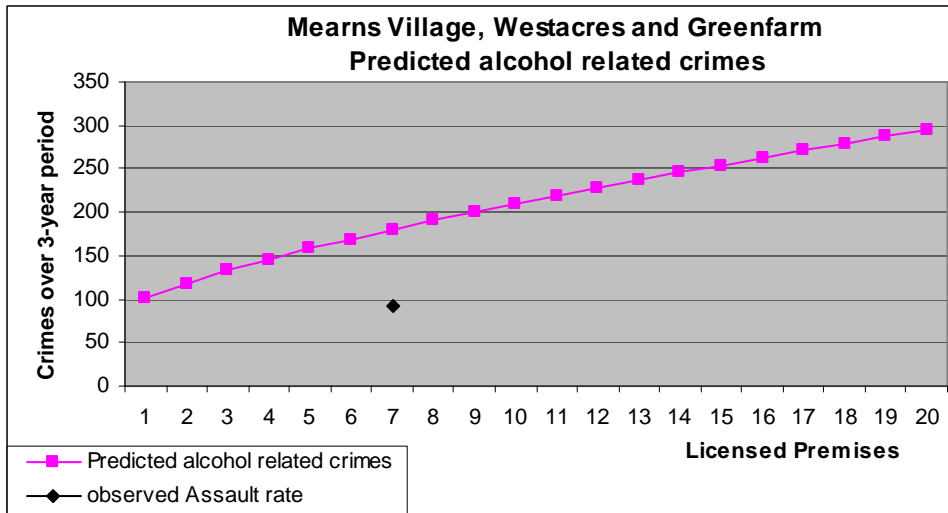


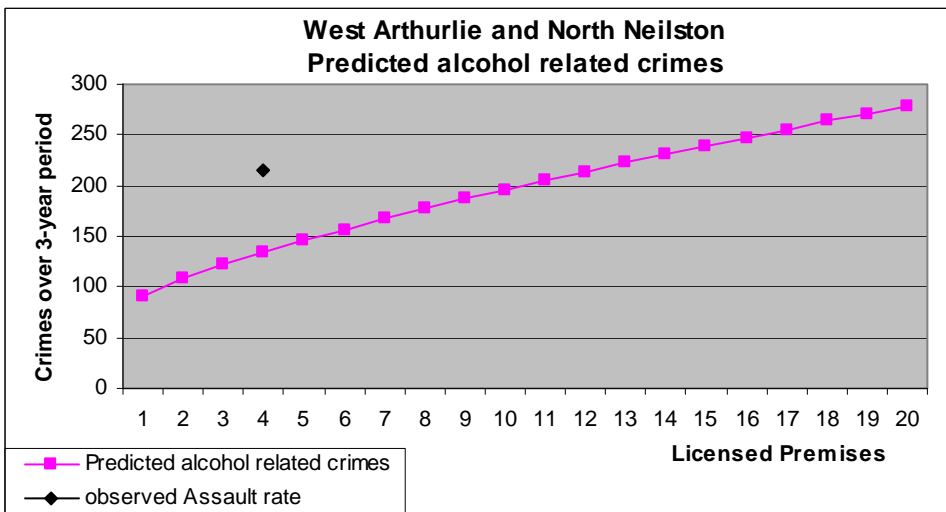
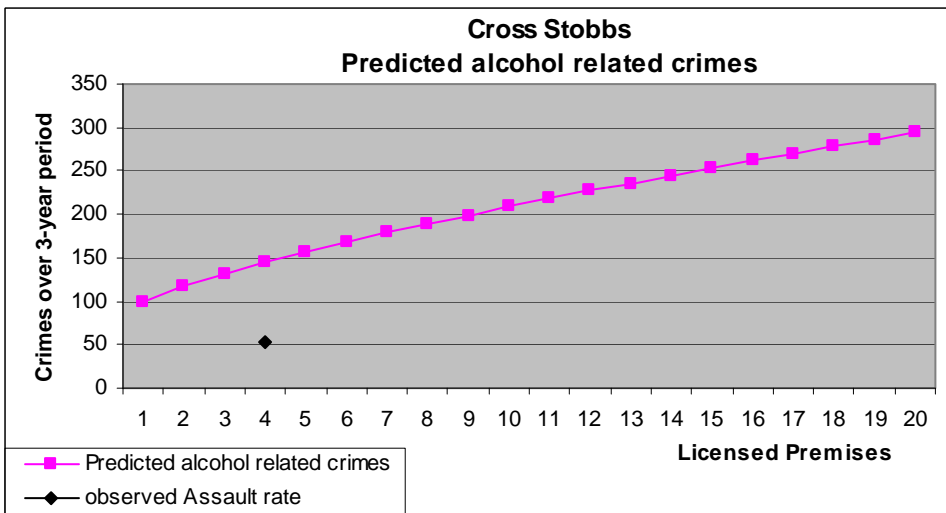
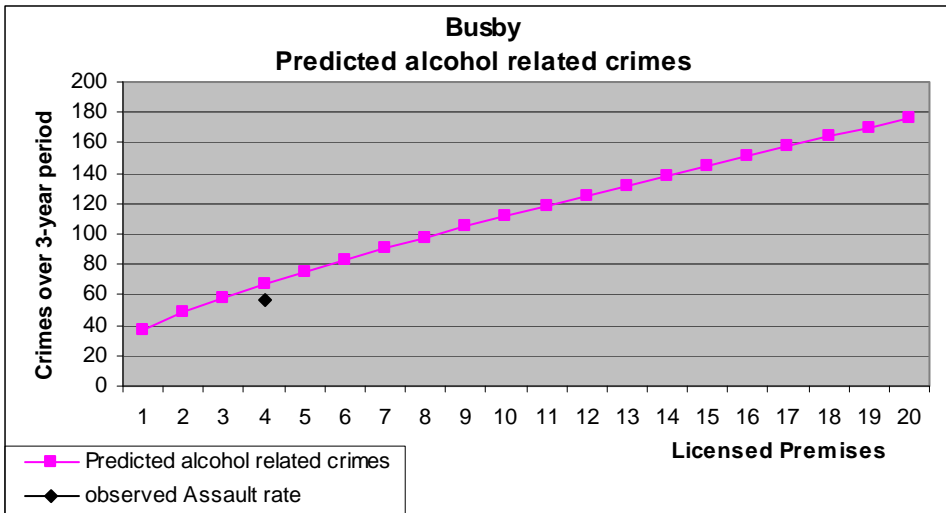
East Renfrewshire CHCP

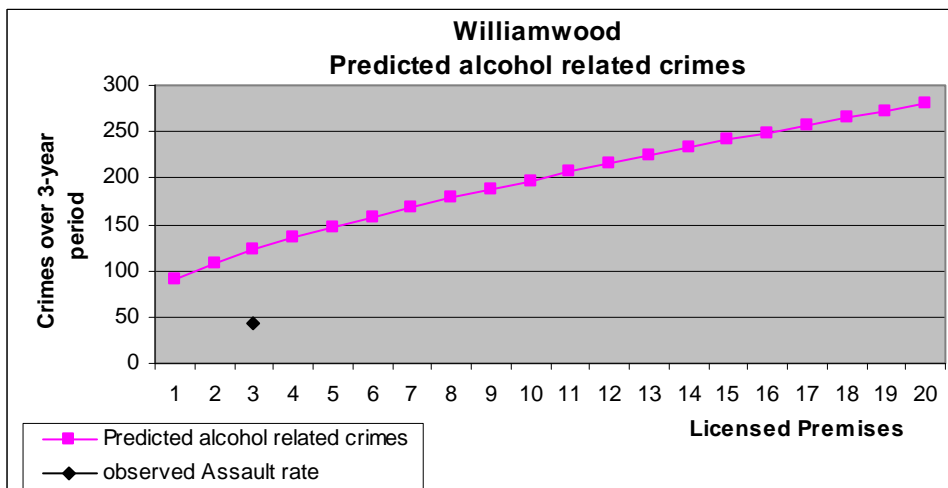
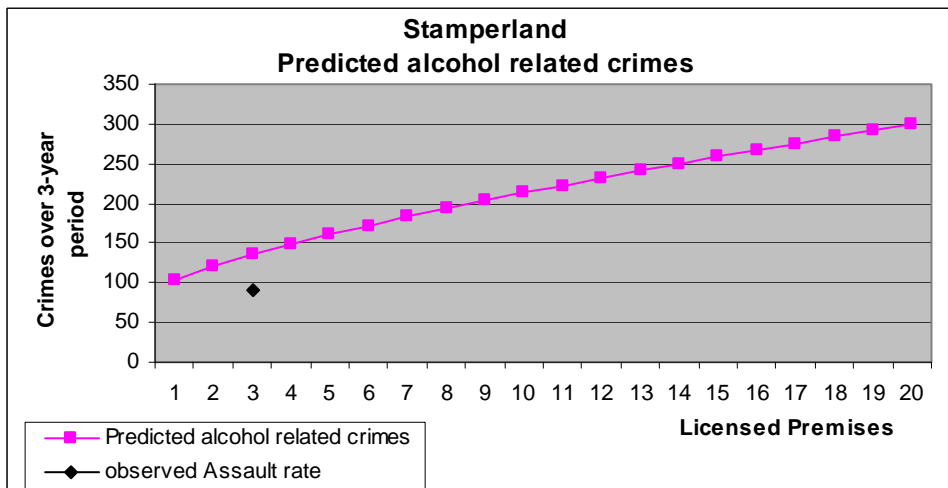
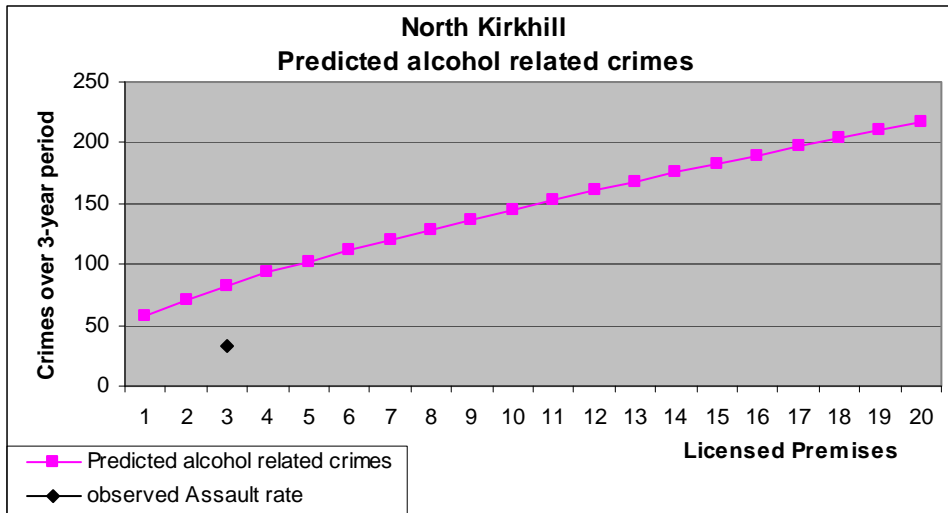


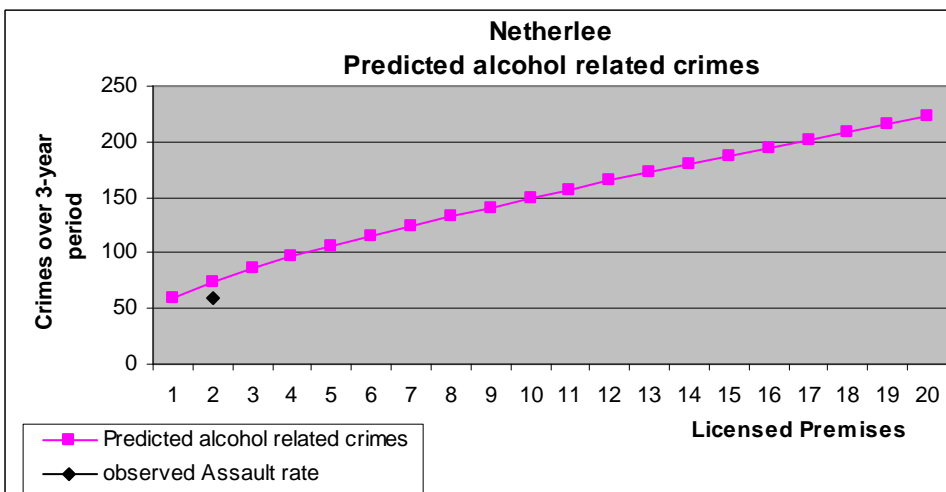
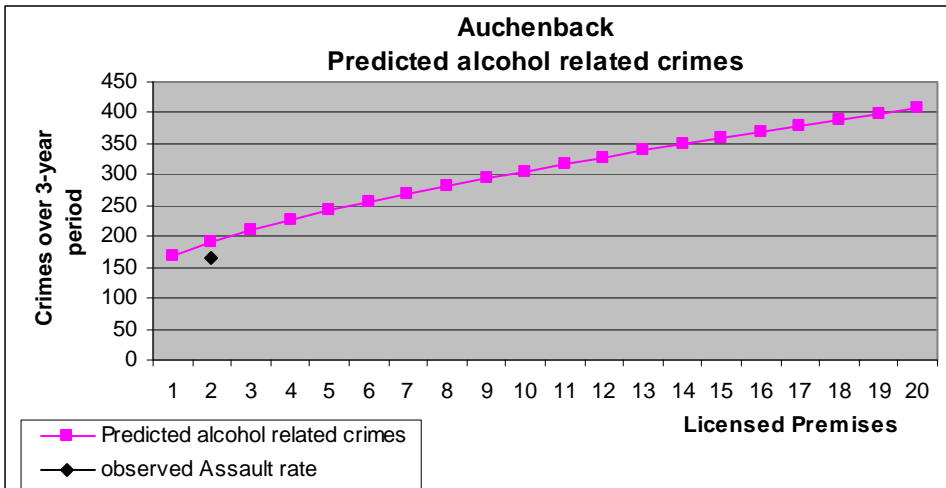




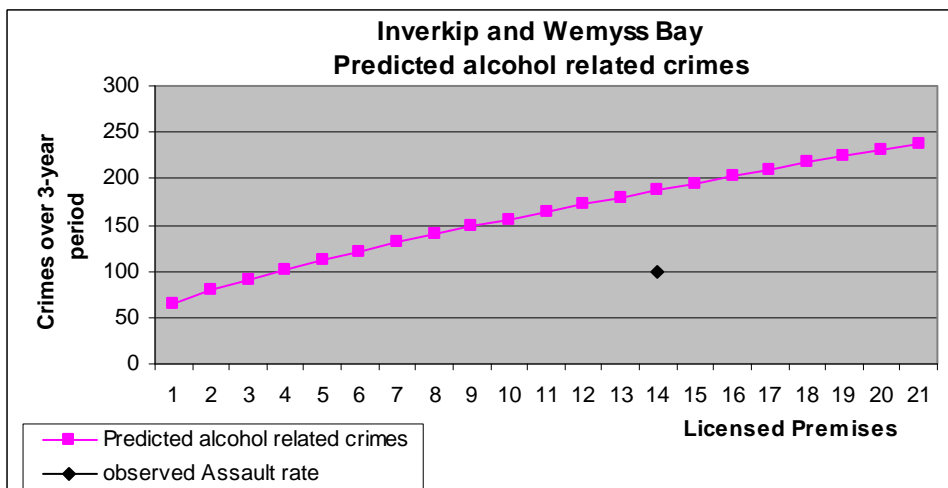
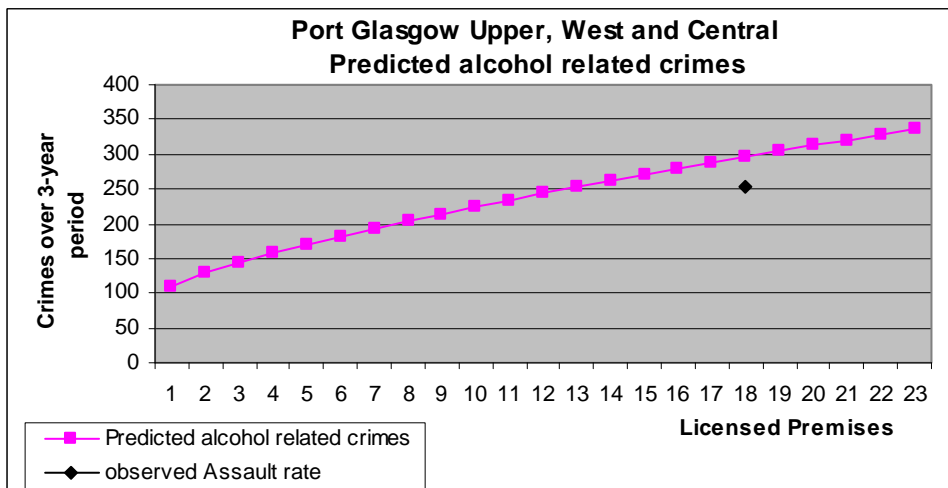
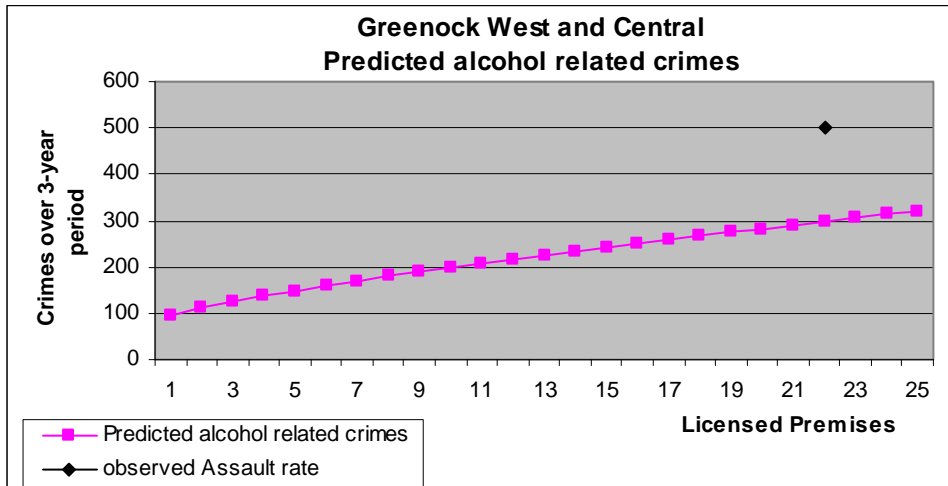


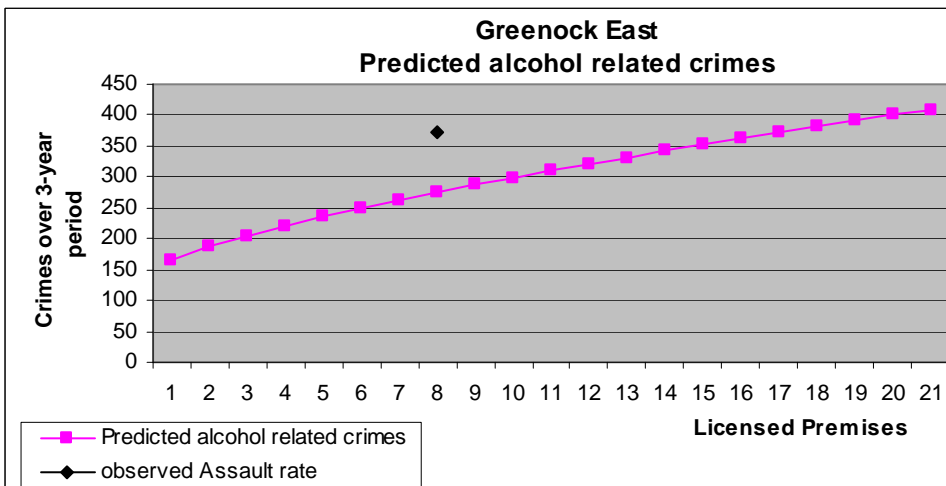
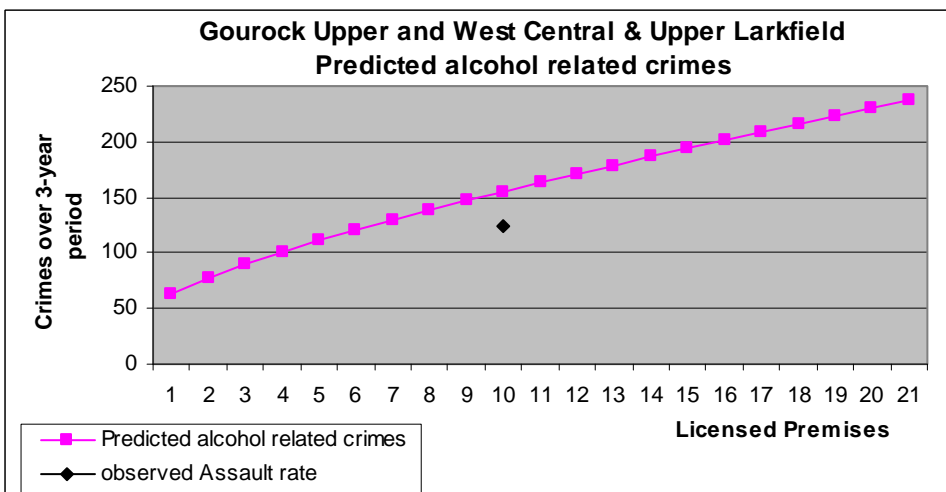
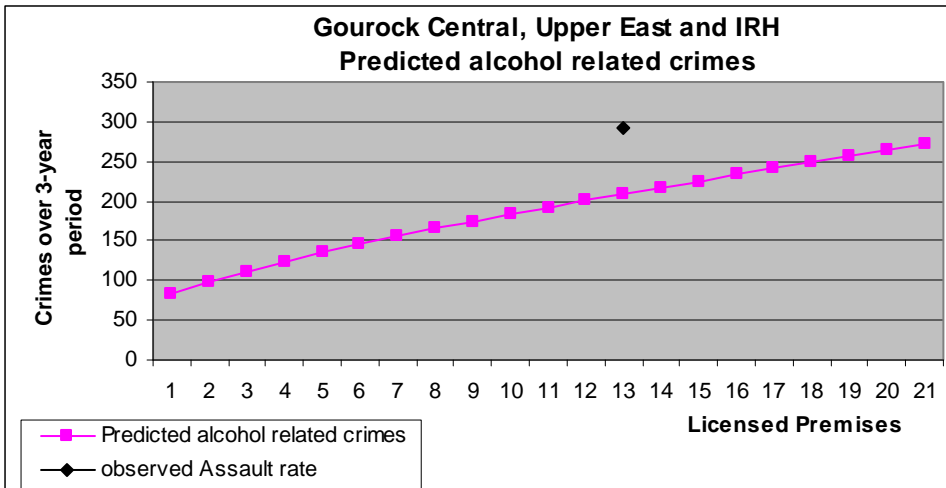


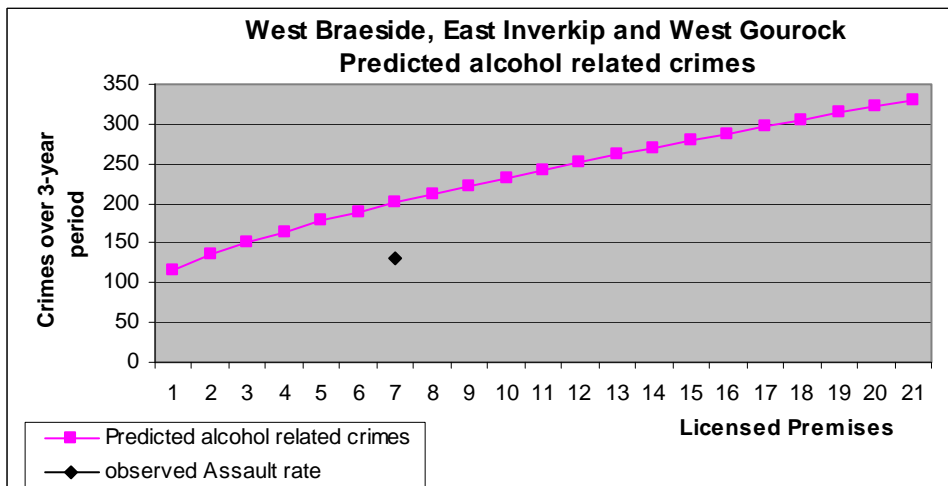
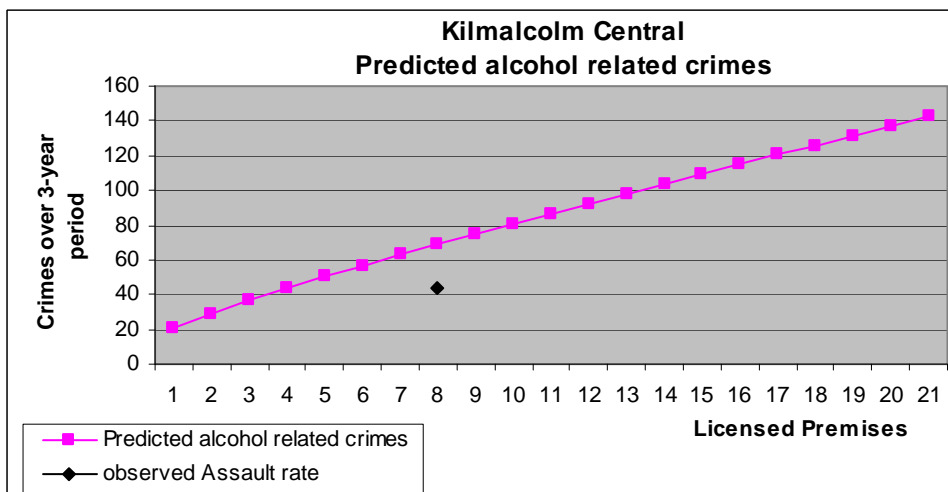
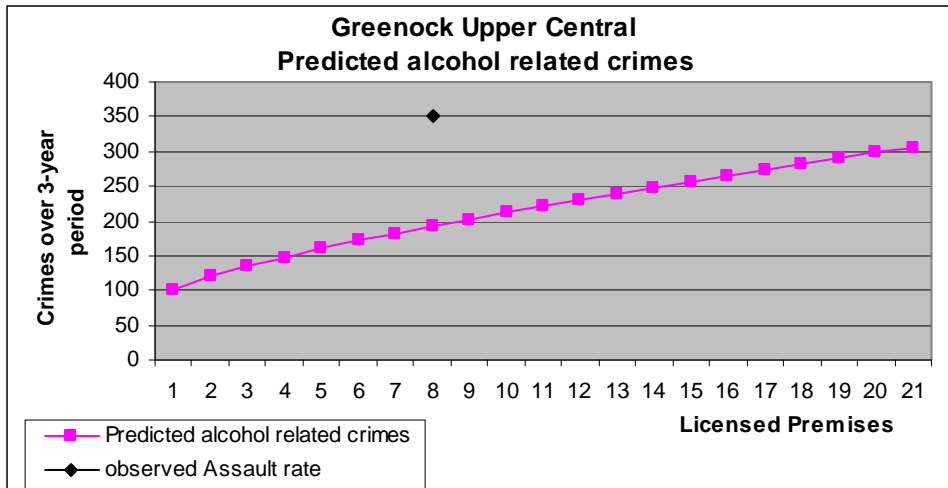


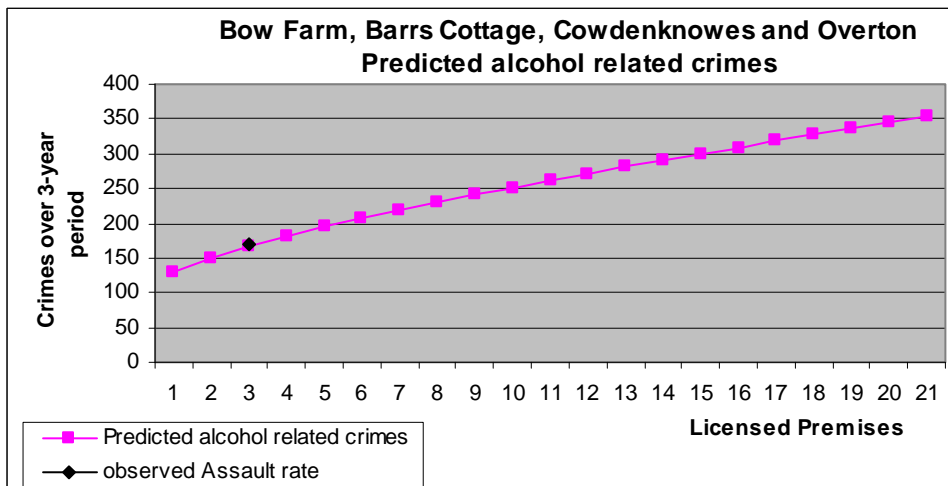
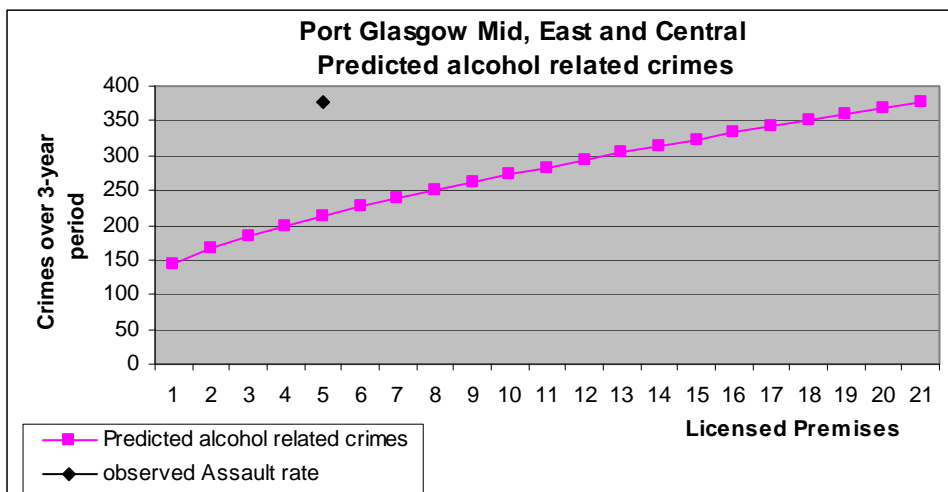
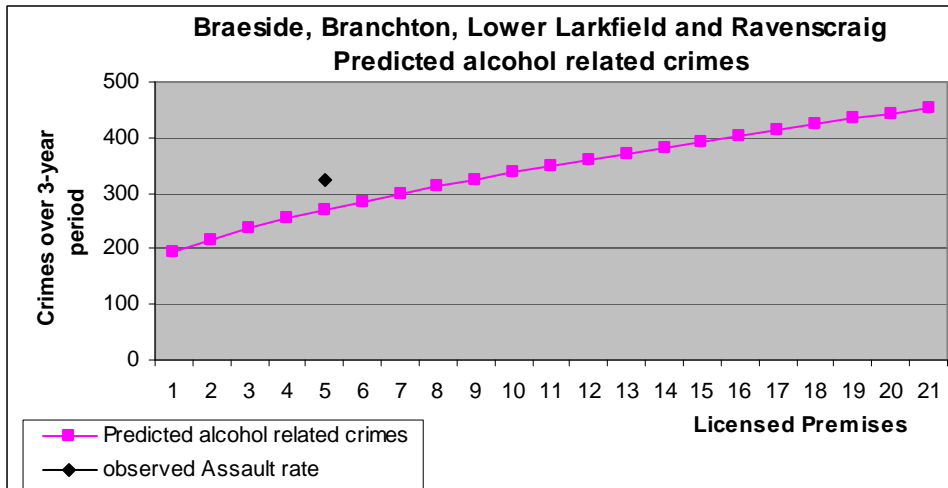


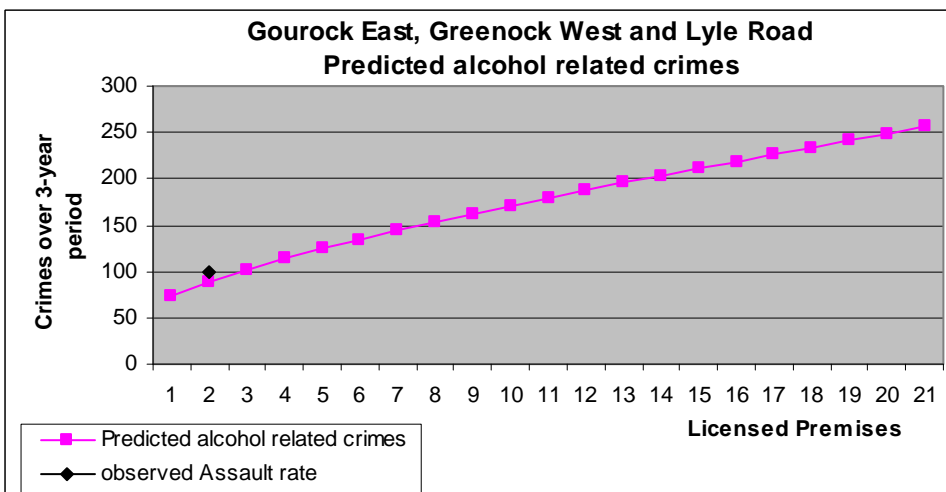
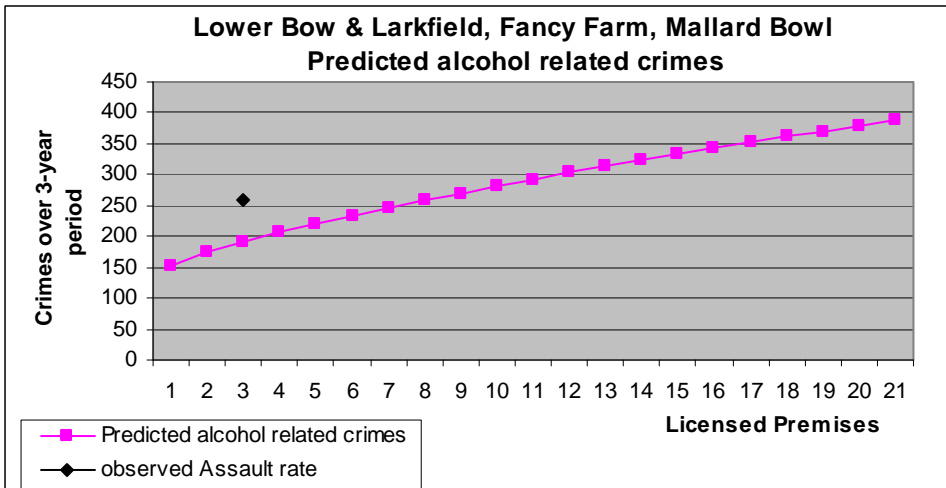
Inverclyde CHP

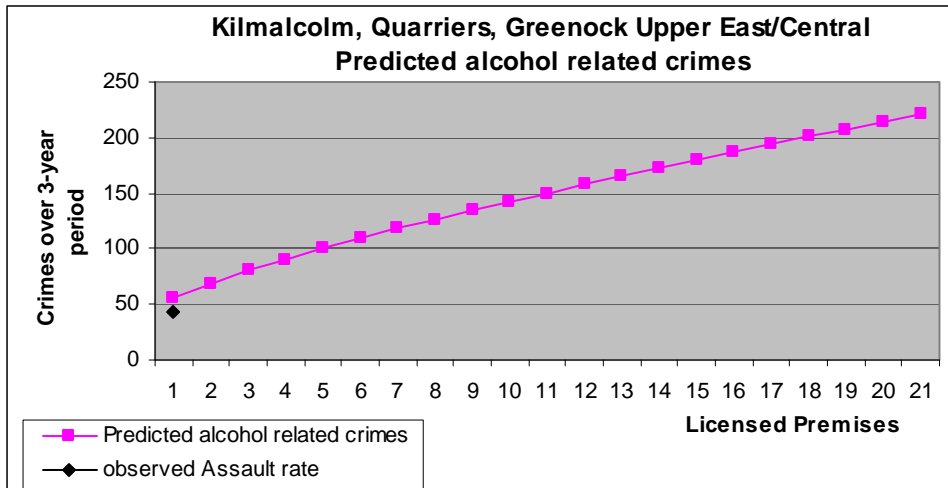




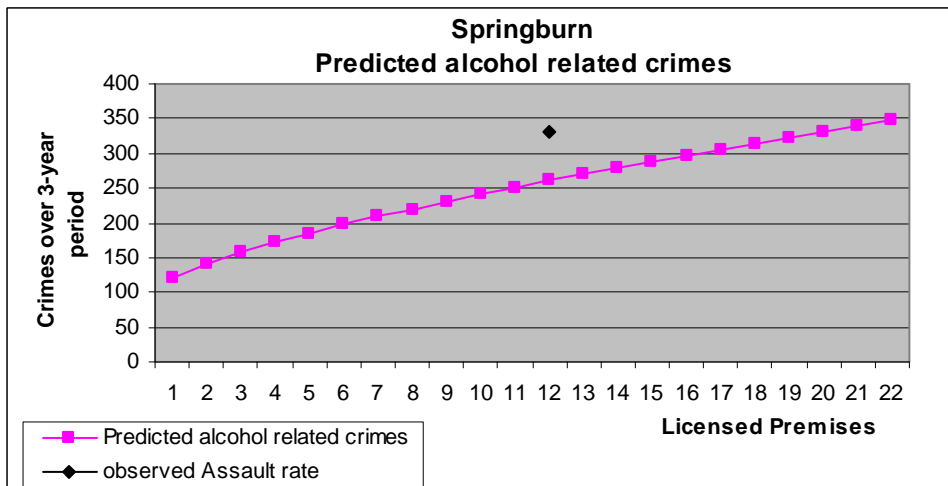
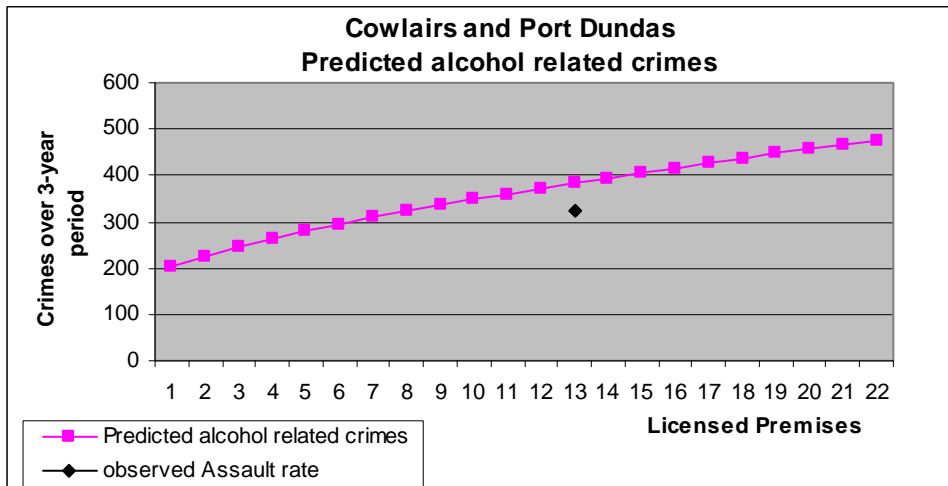
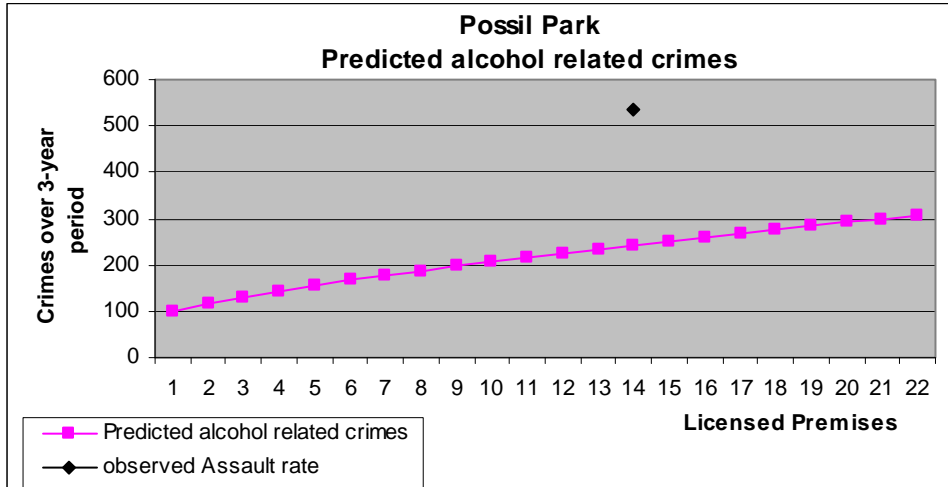


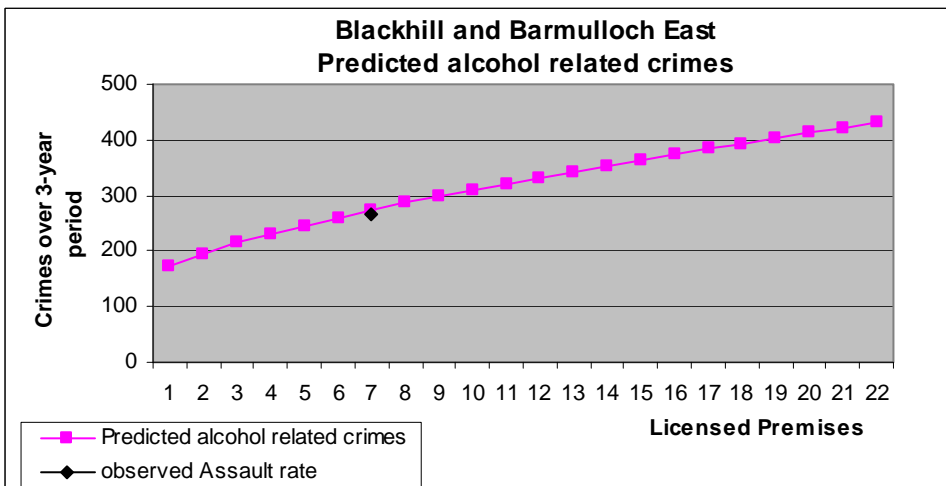
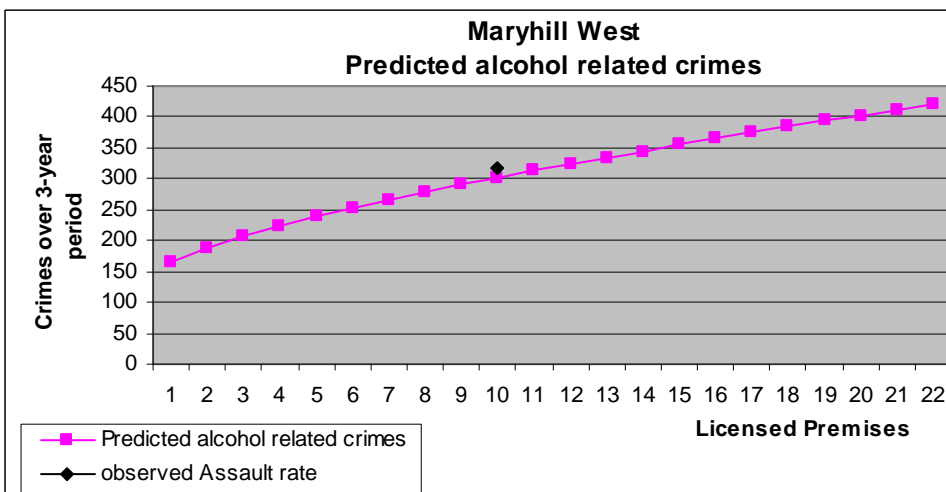
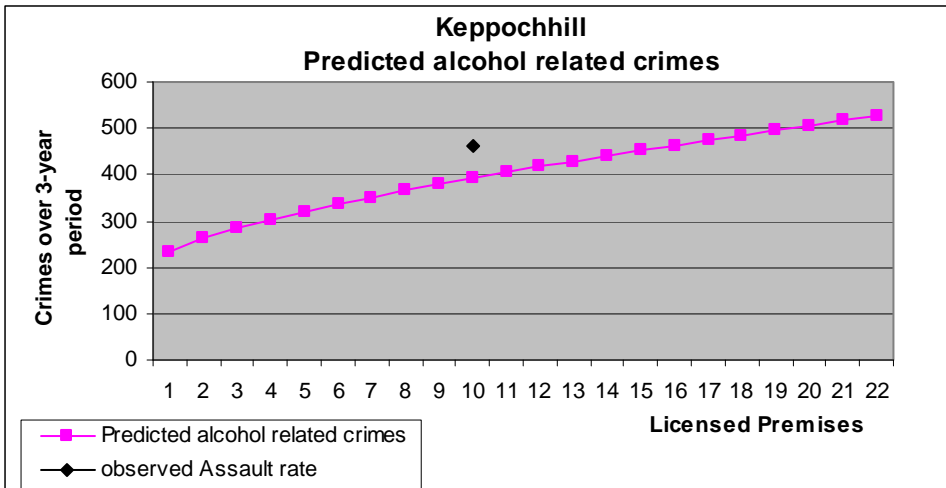


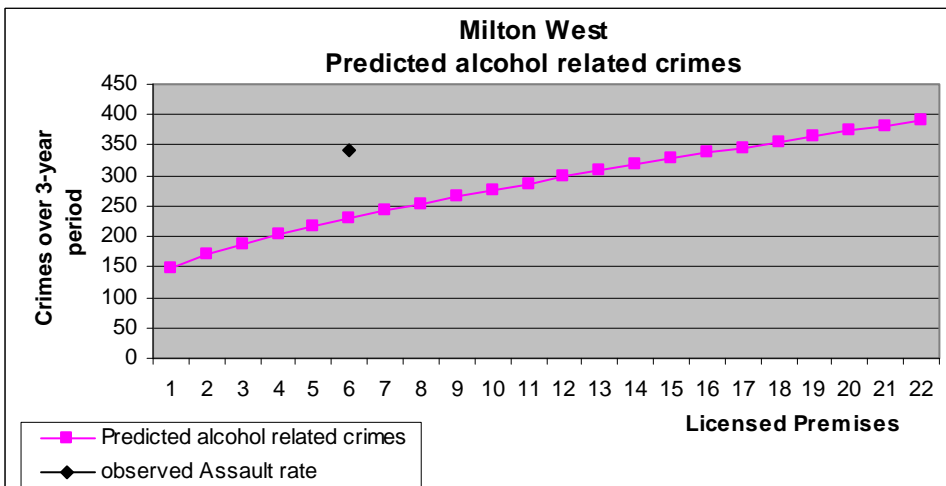
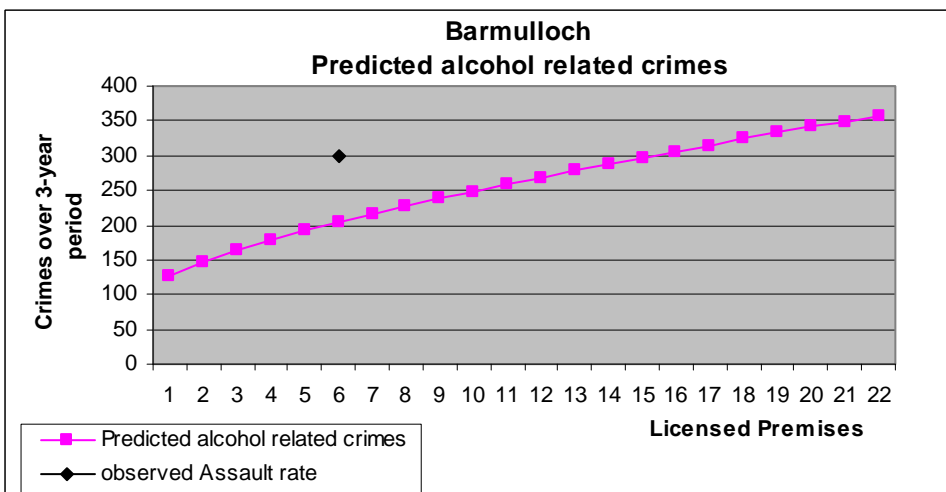
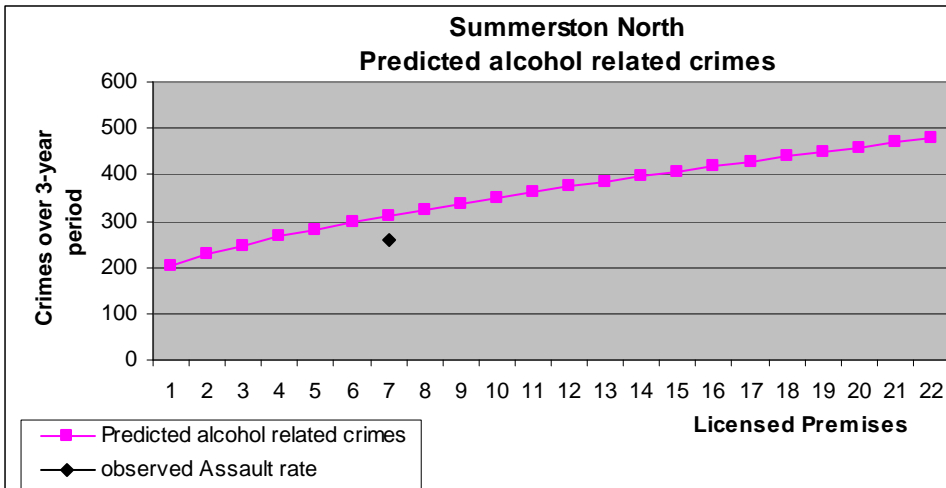


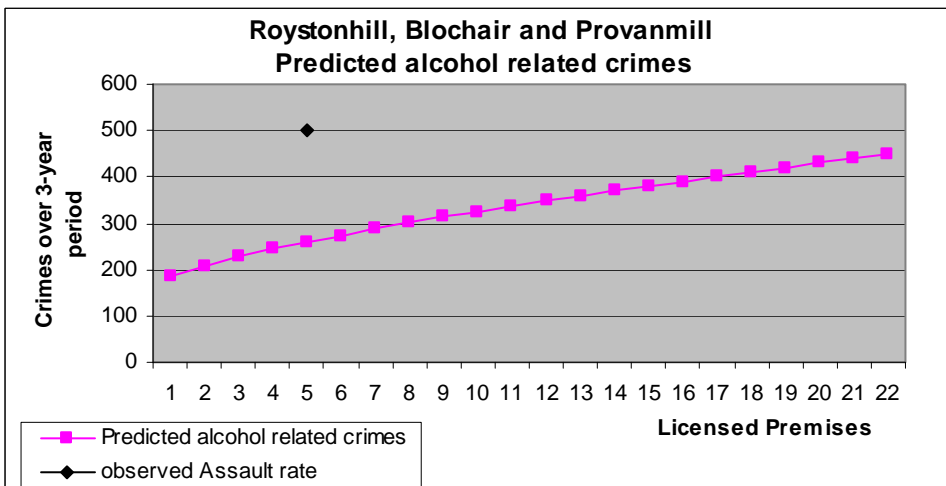
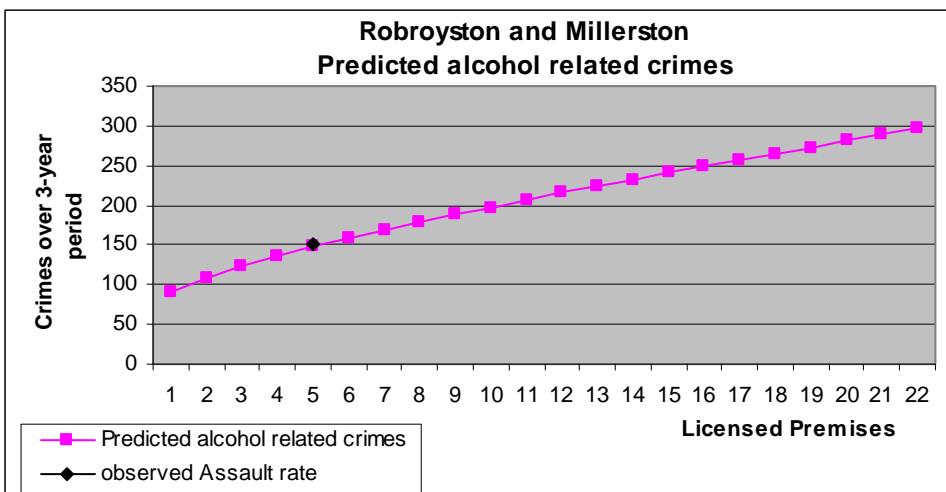
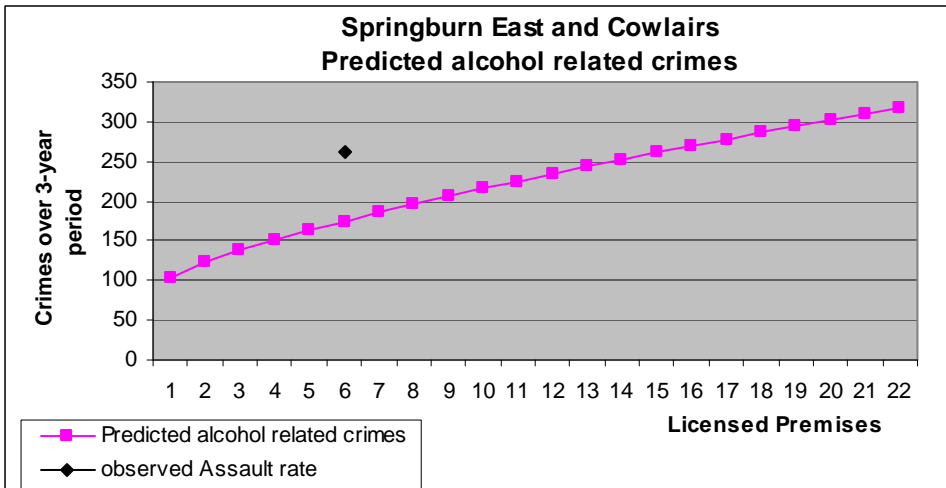


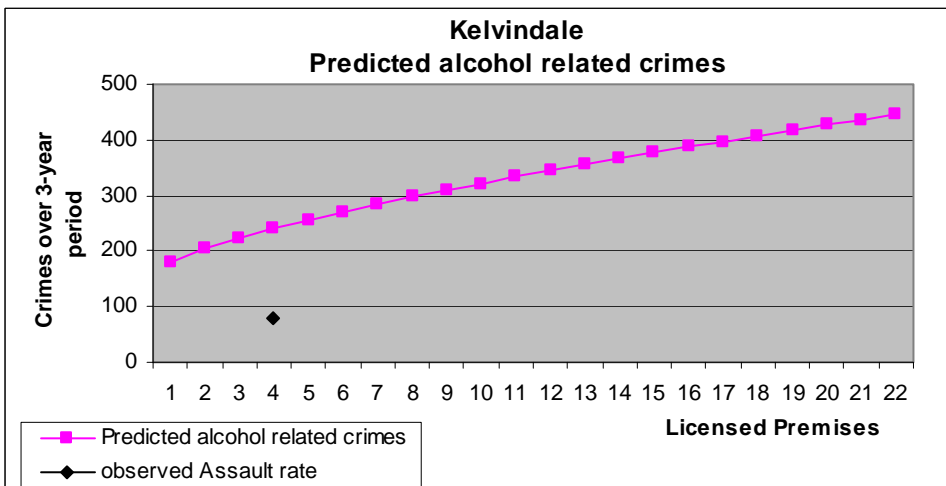
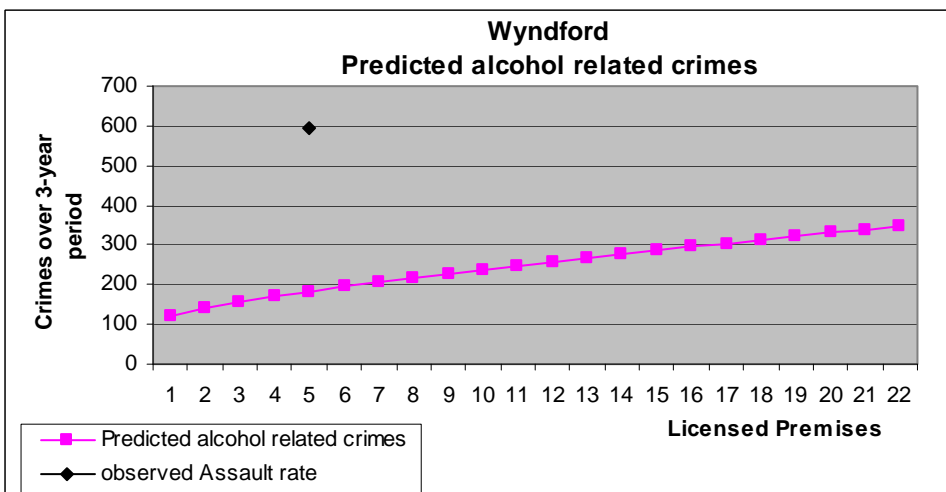
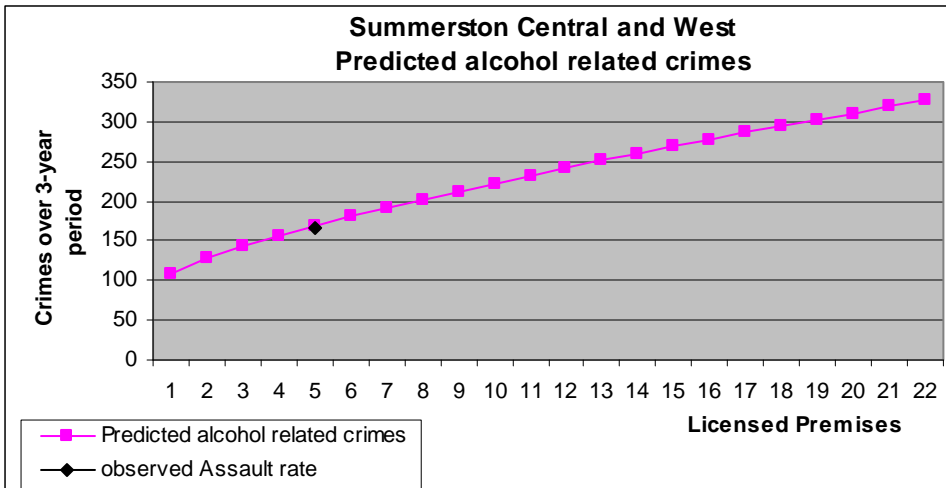
North Glasgow CHCP

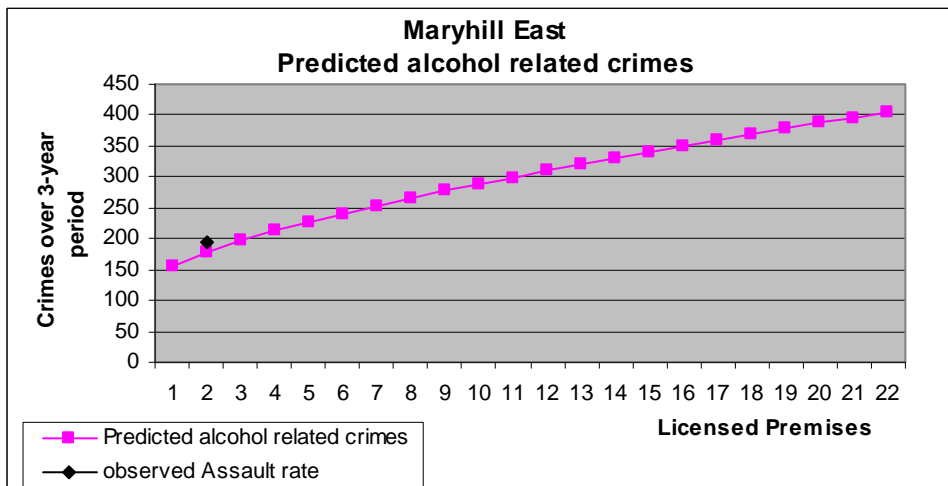
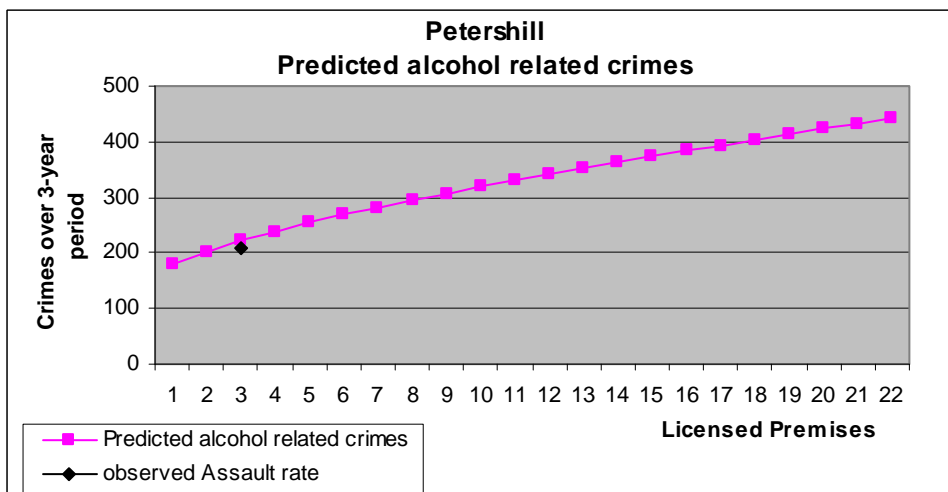
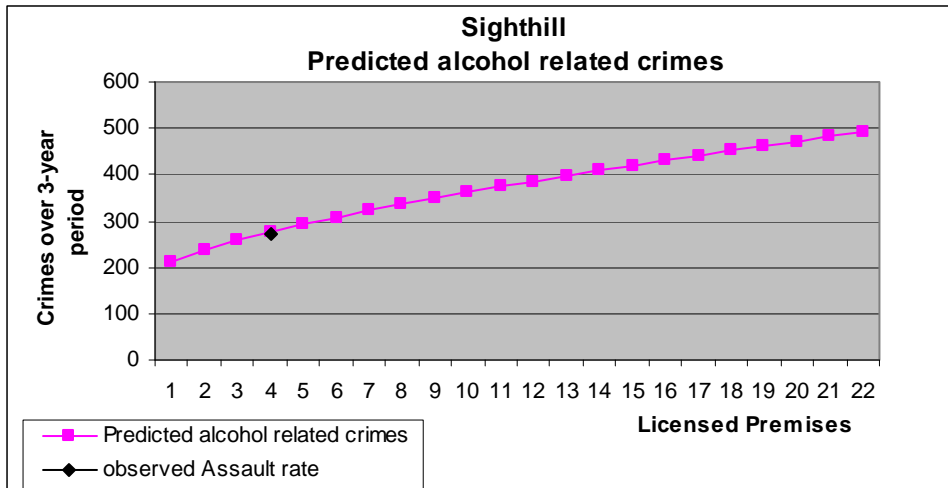


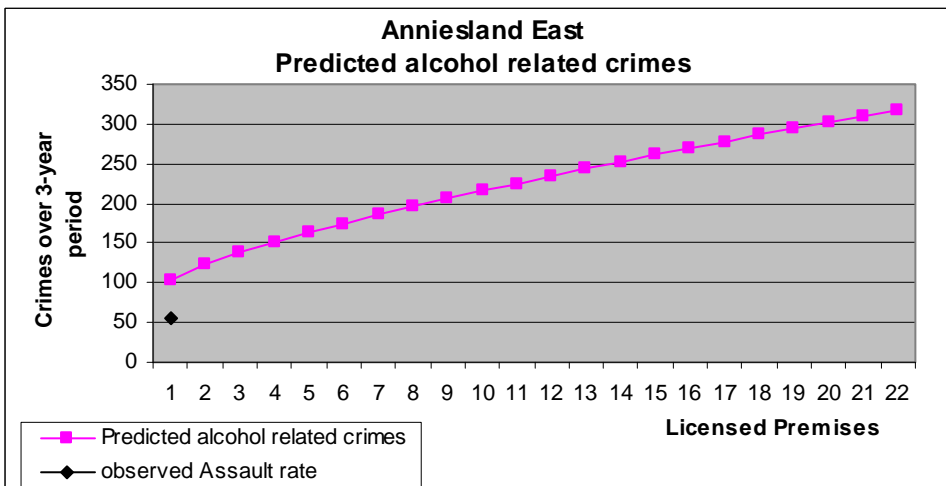
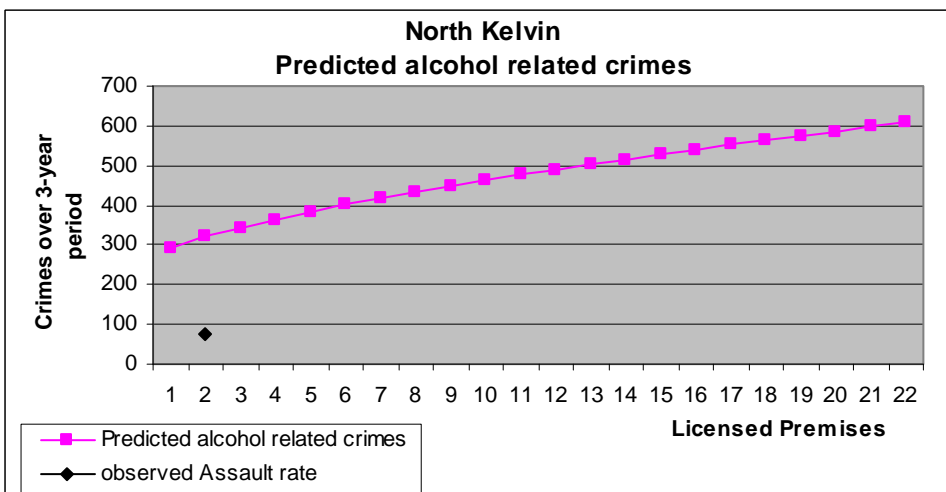
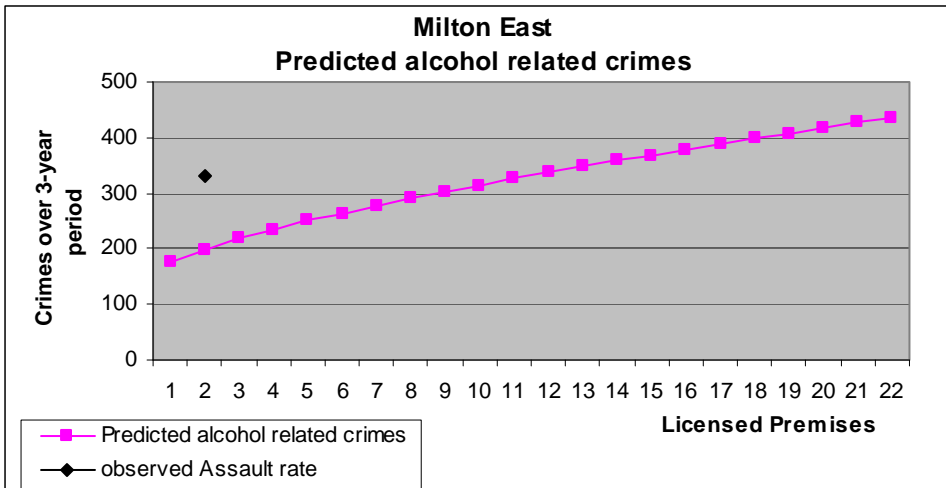


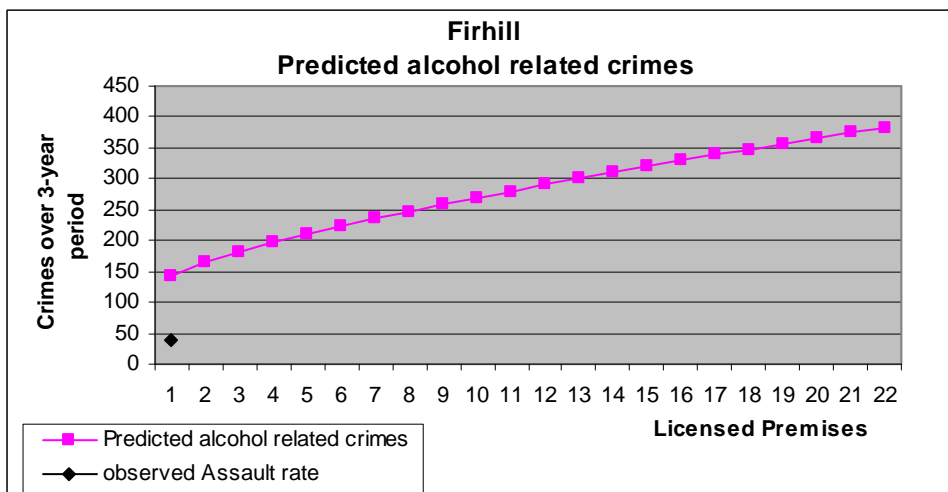
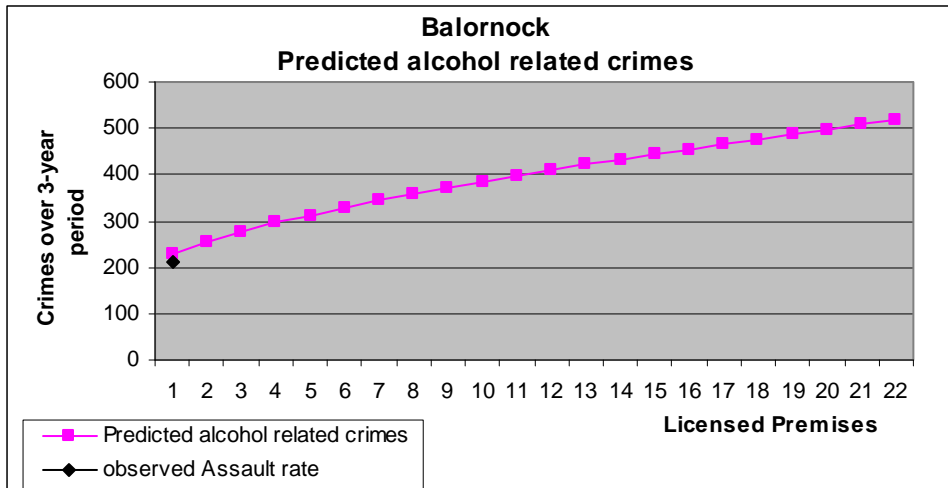




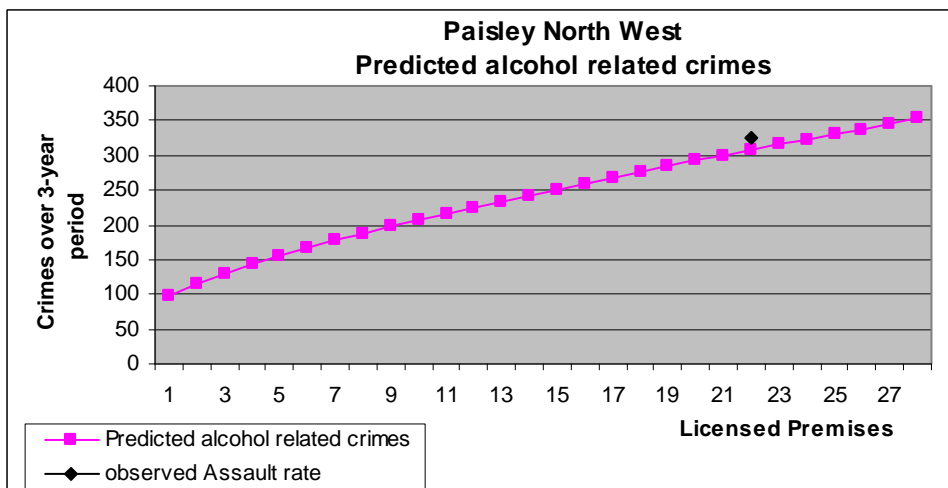
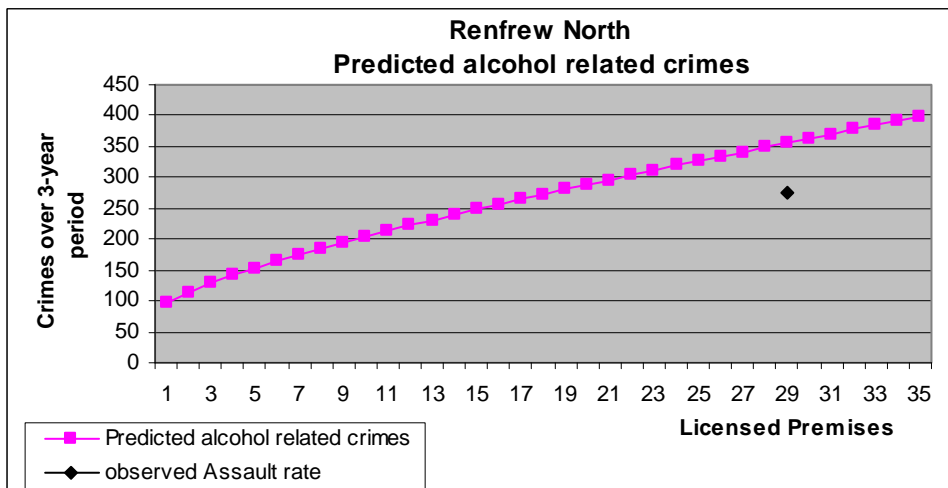
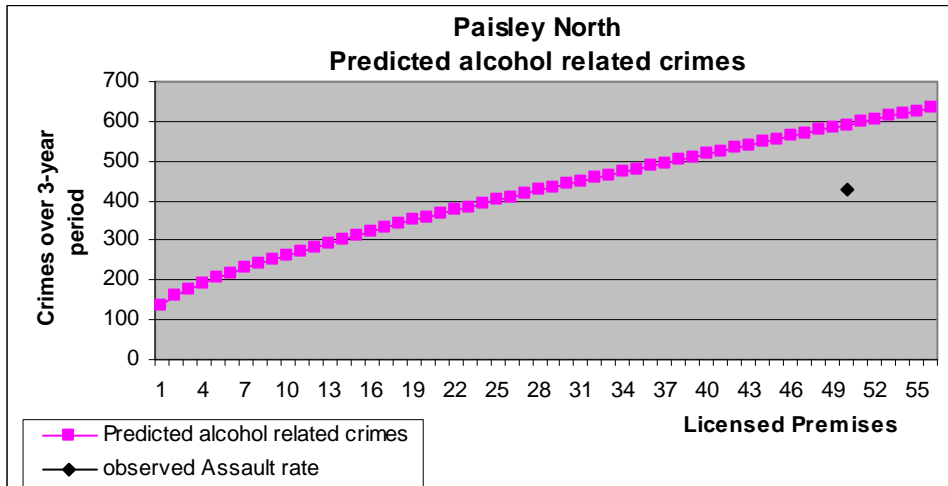


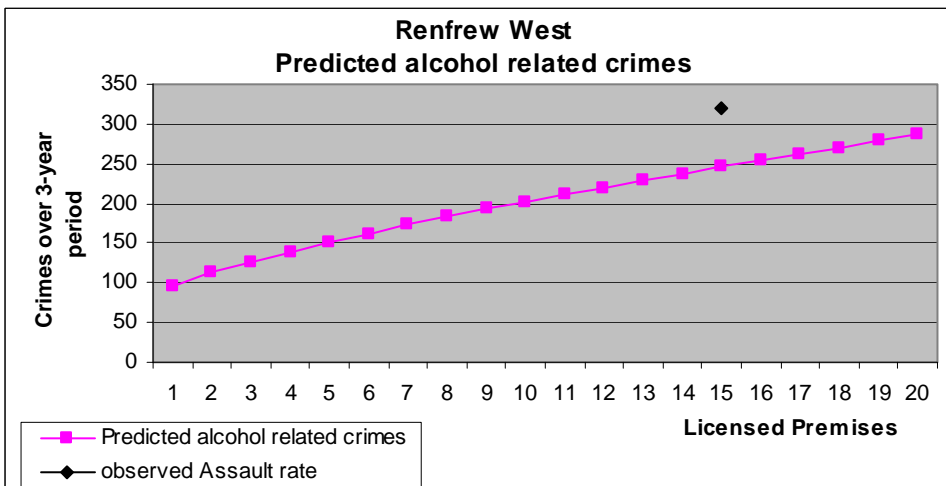
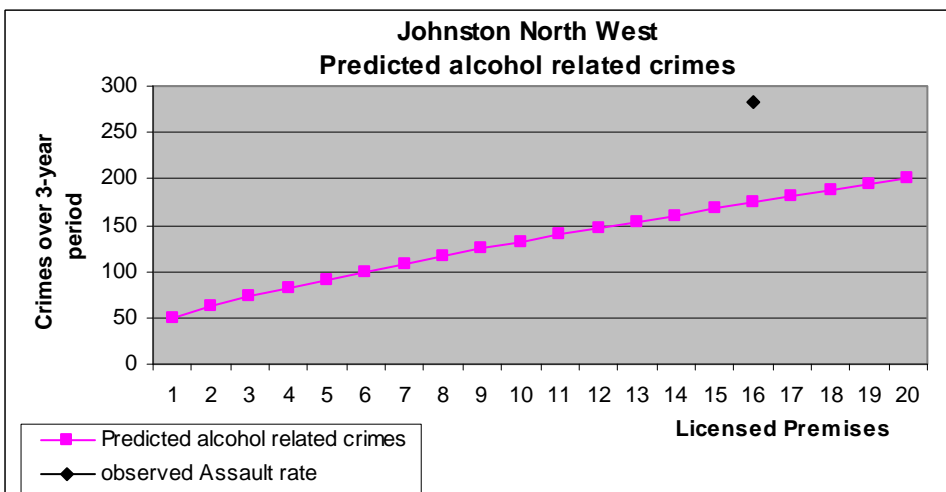
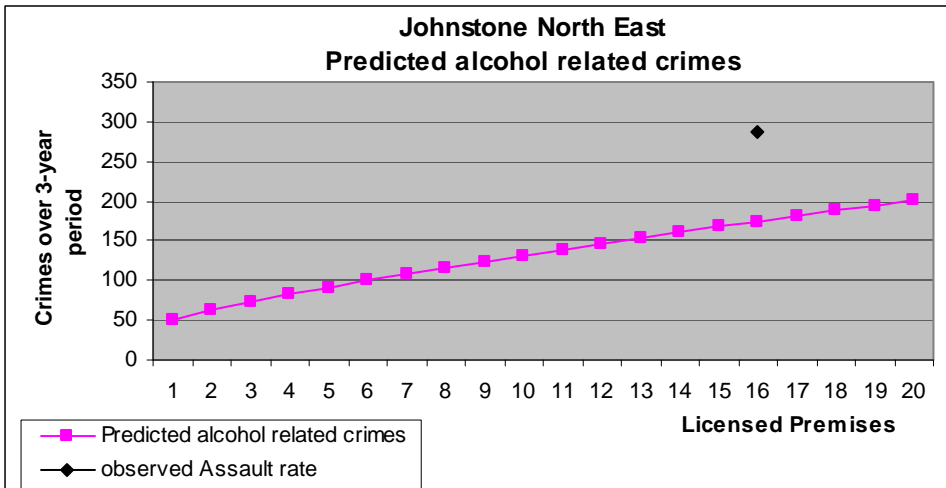


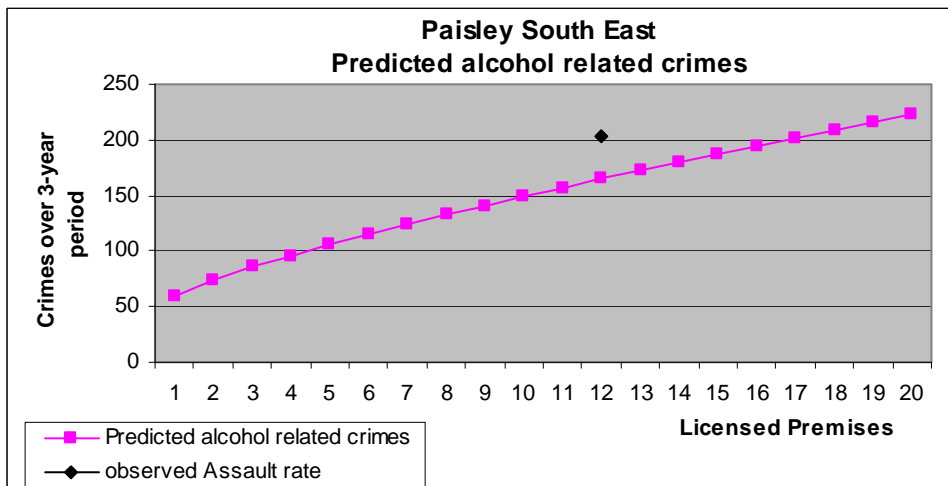
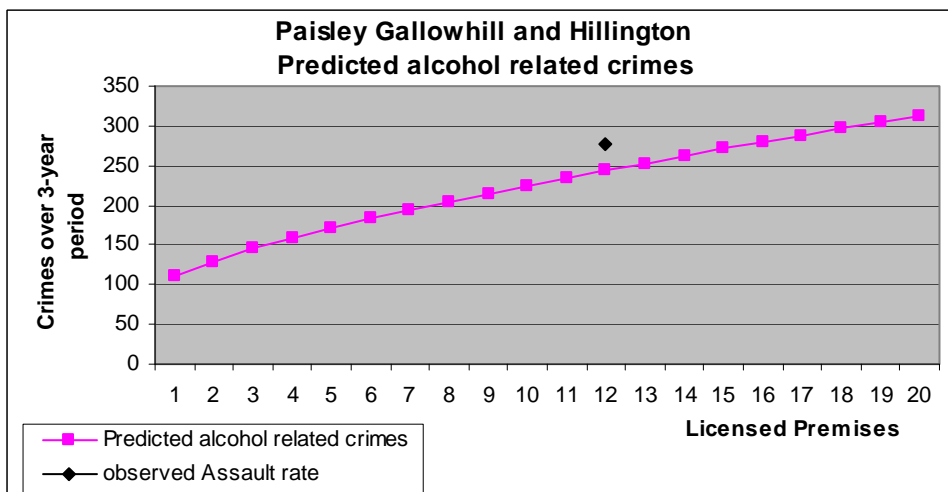
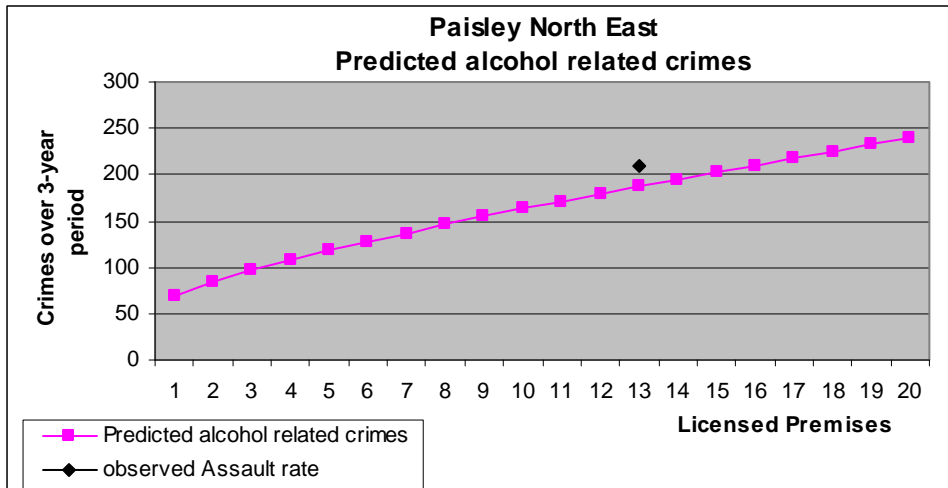


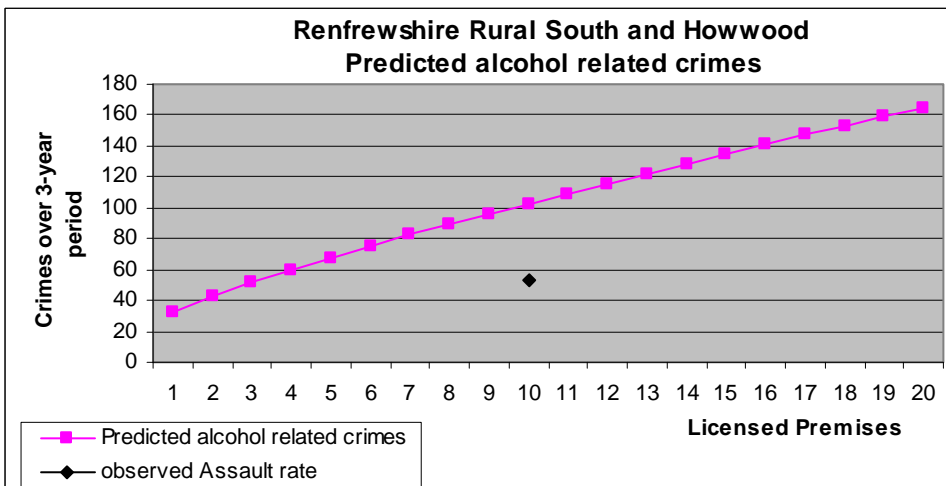
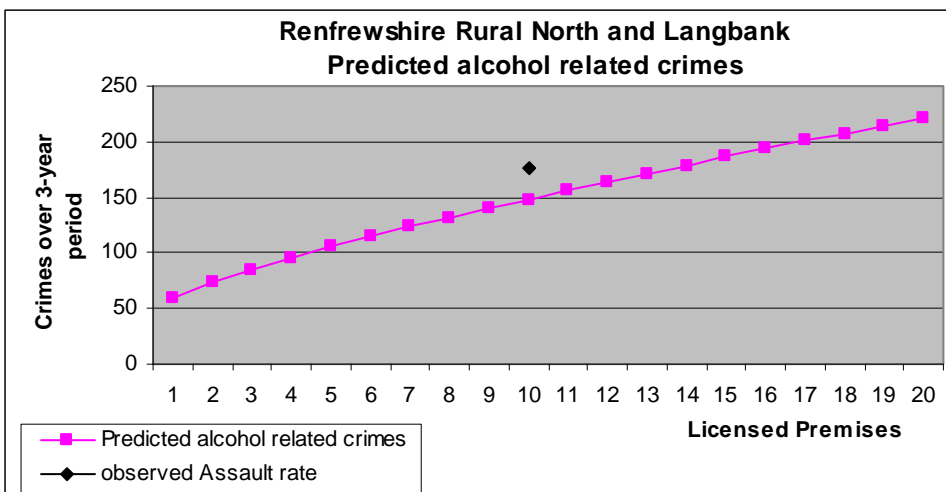
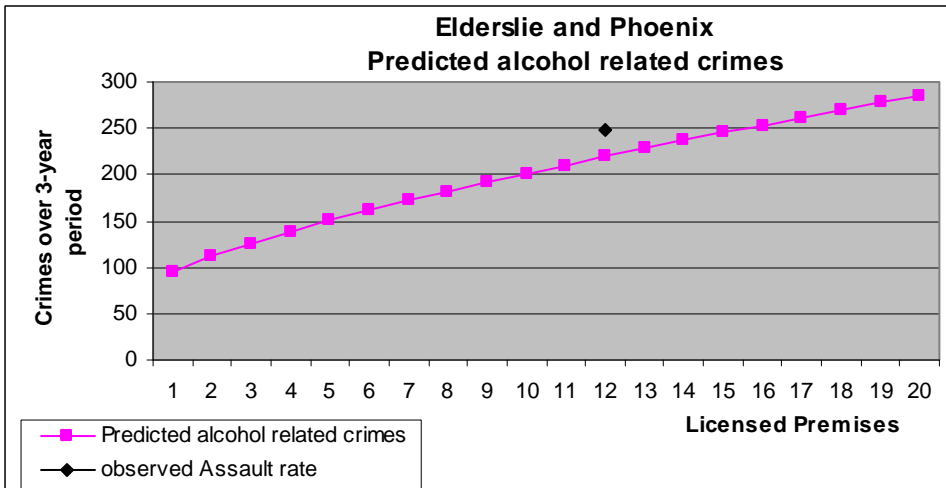


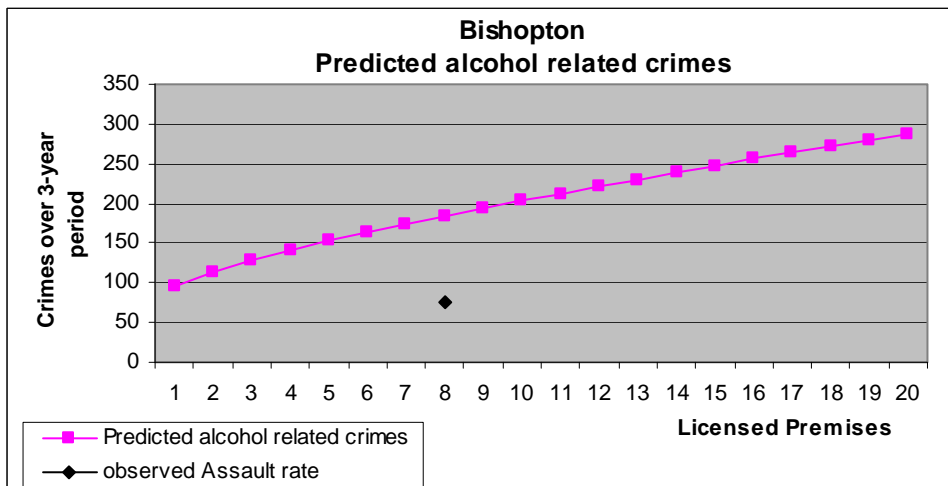
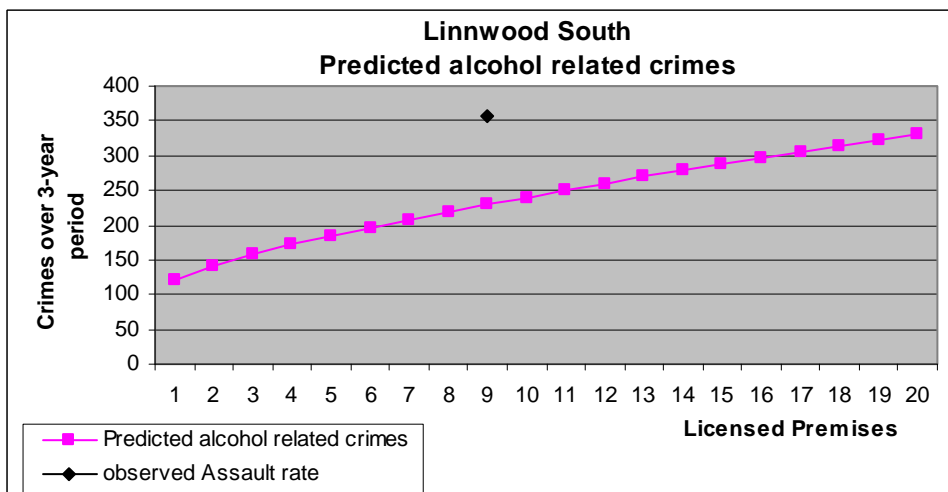
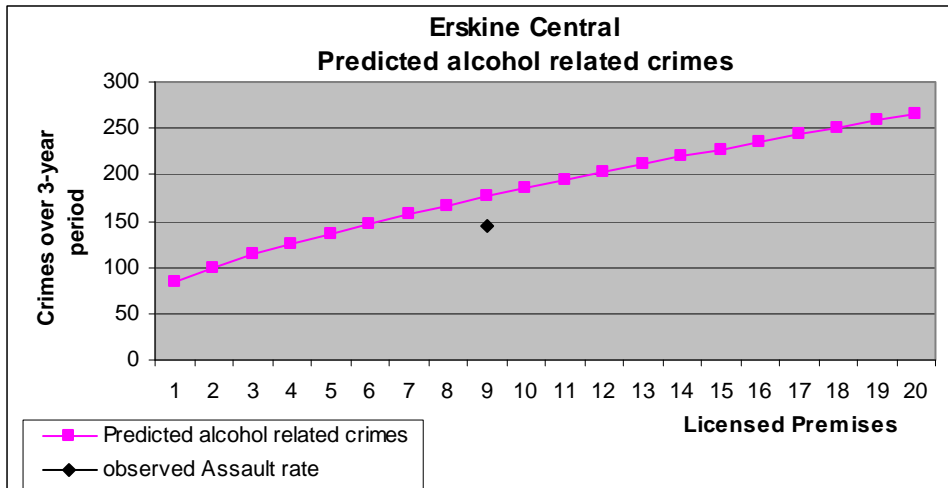
Renfrewshire CHP

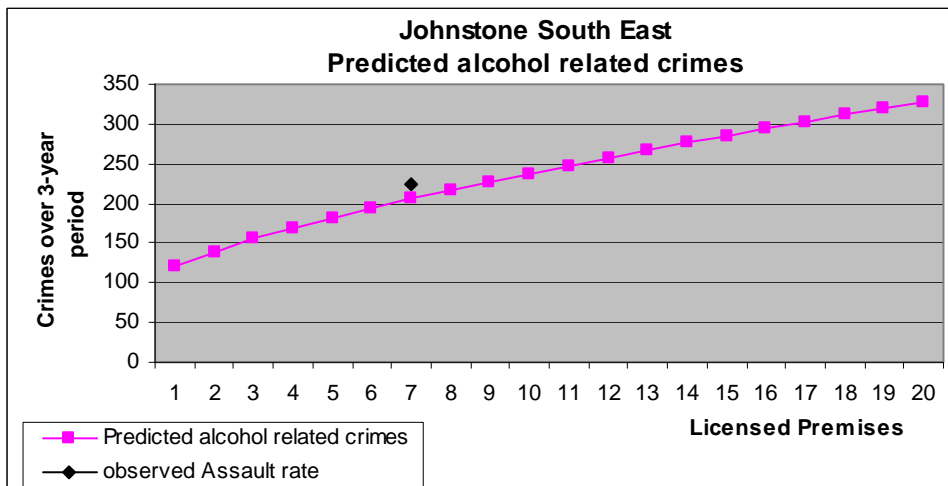
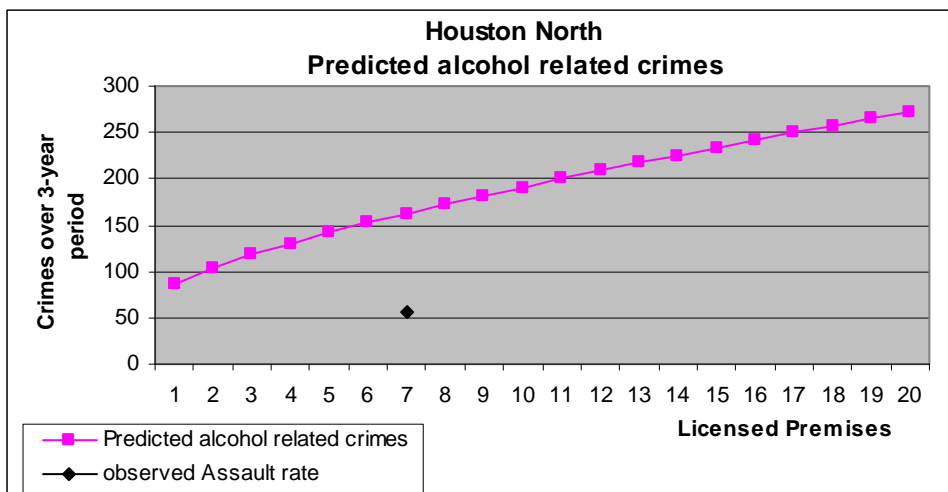
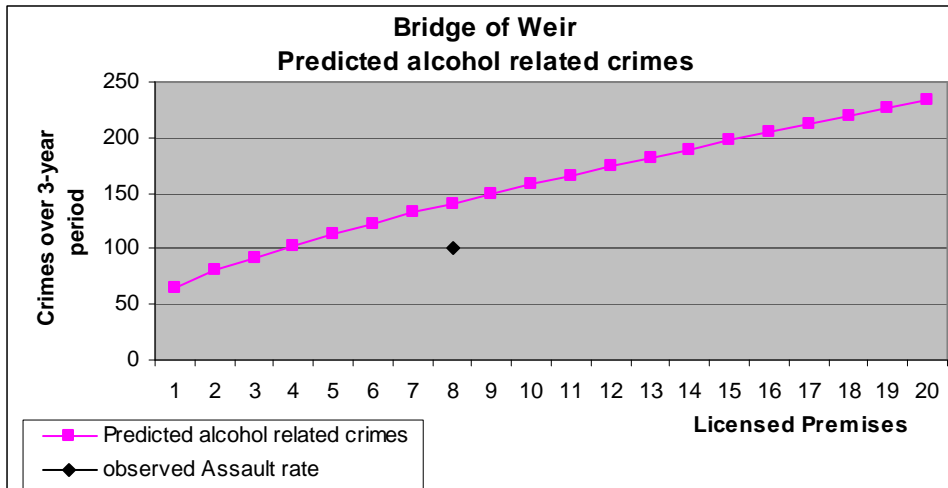


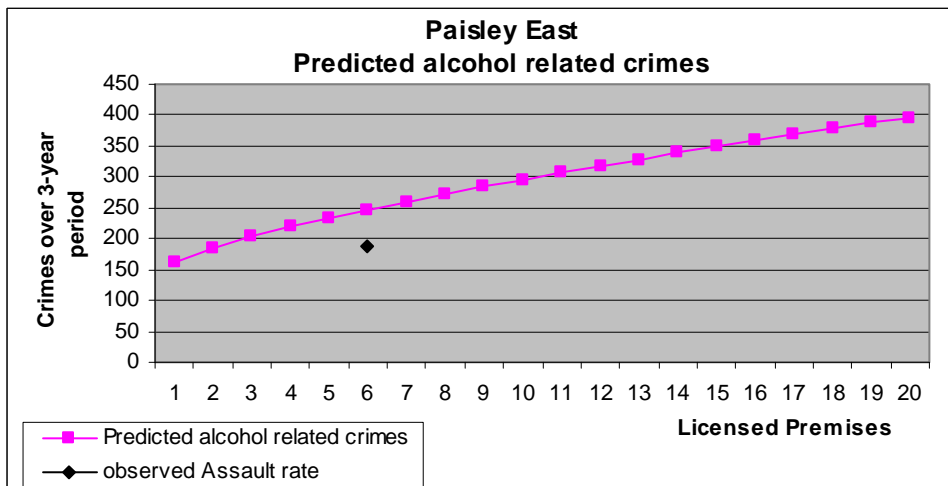
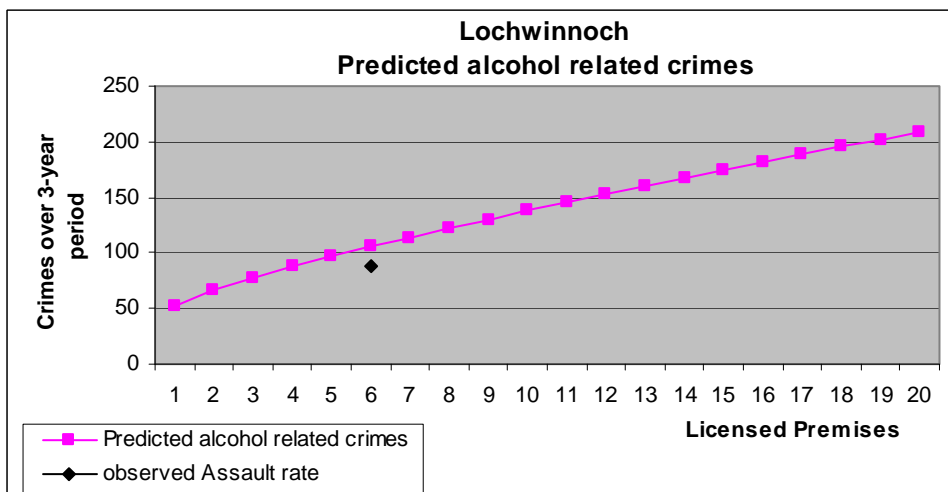
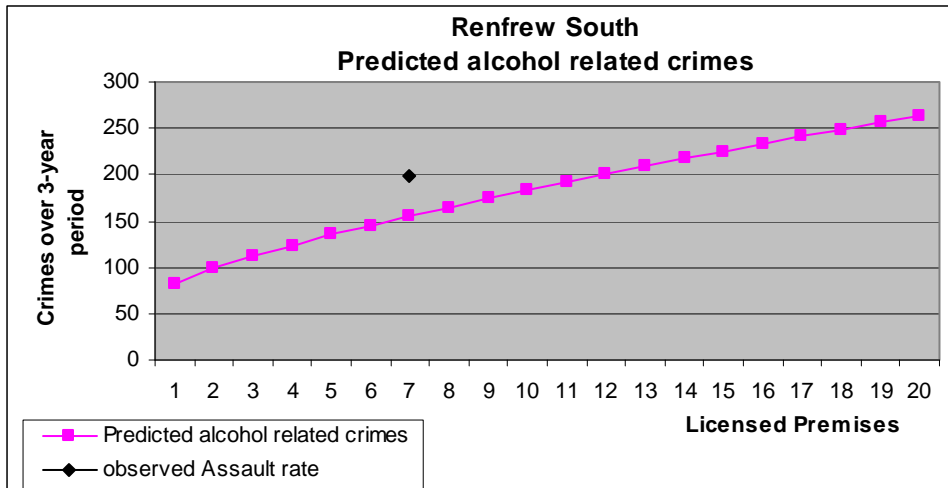


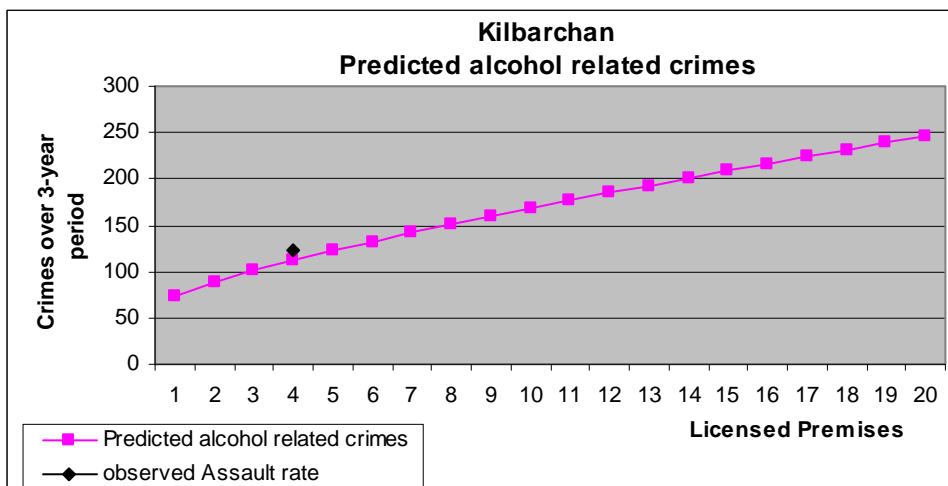
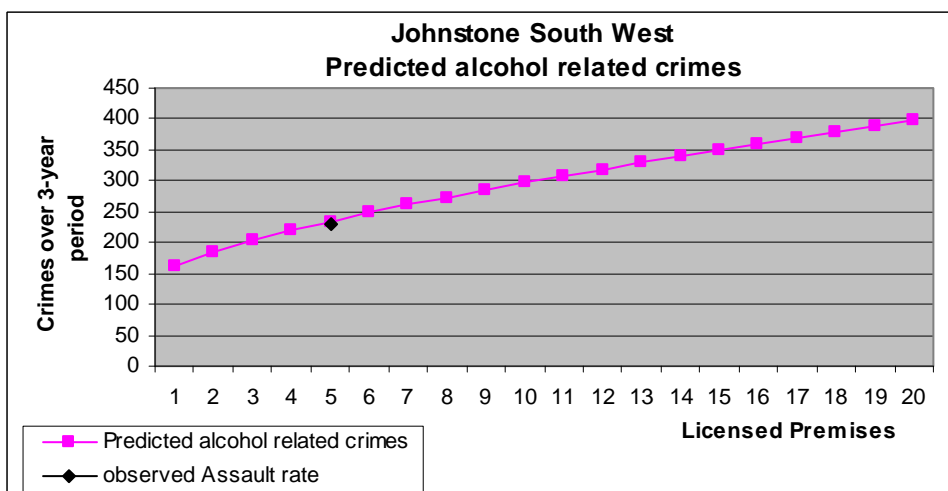
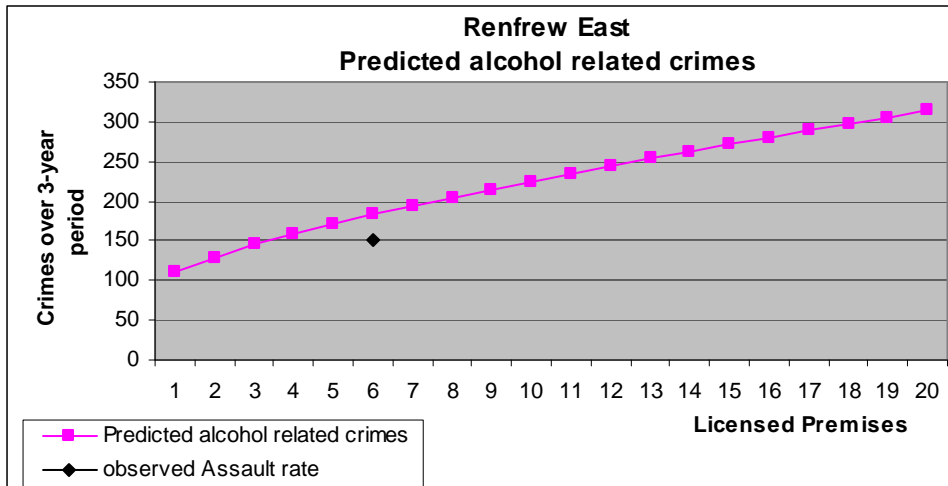


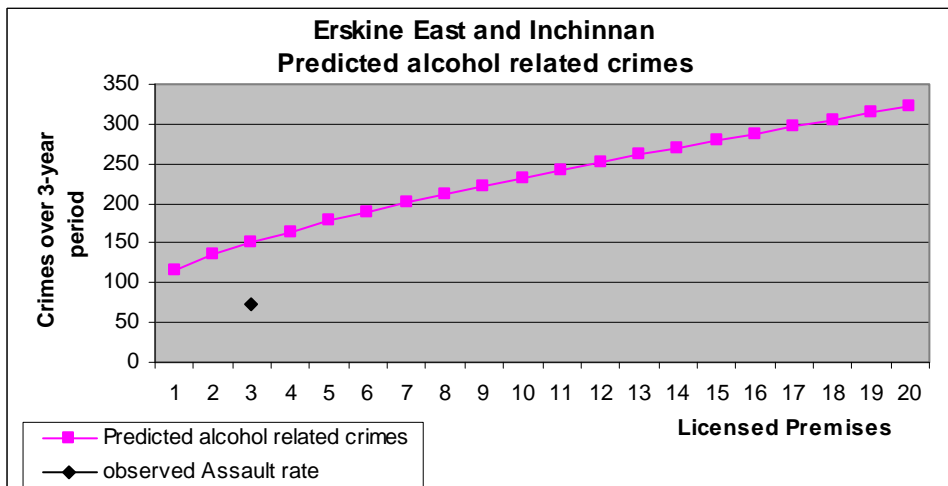
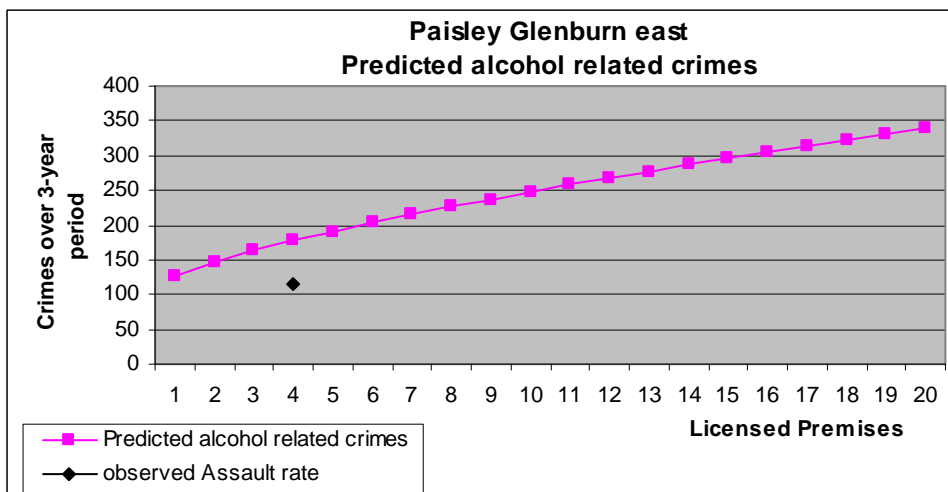
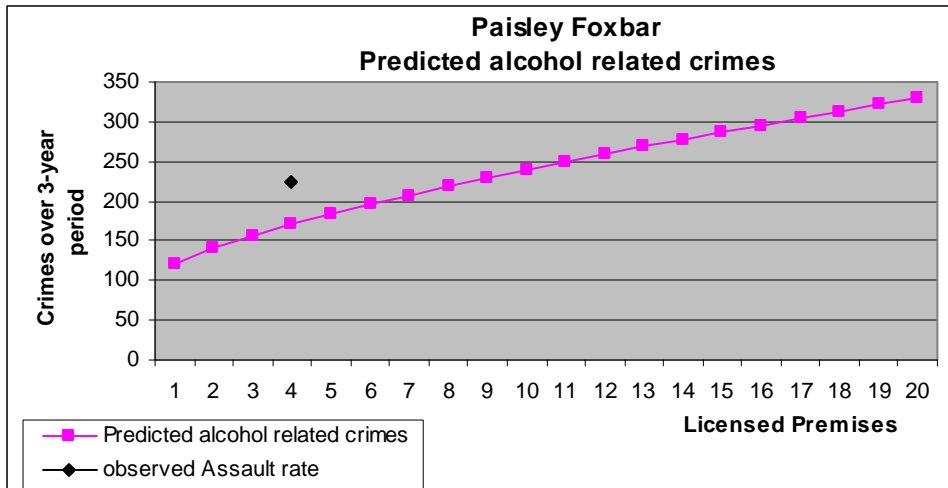


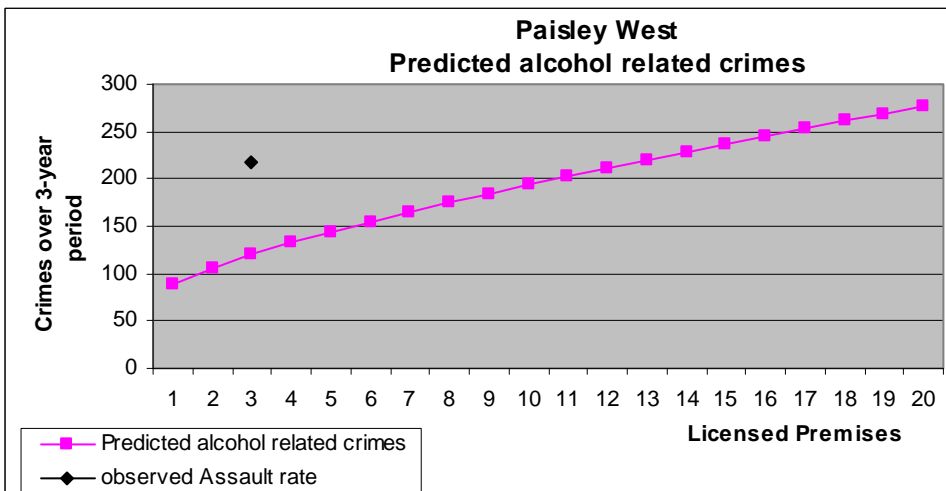
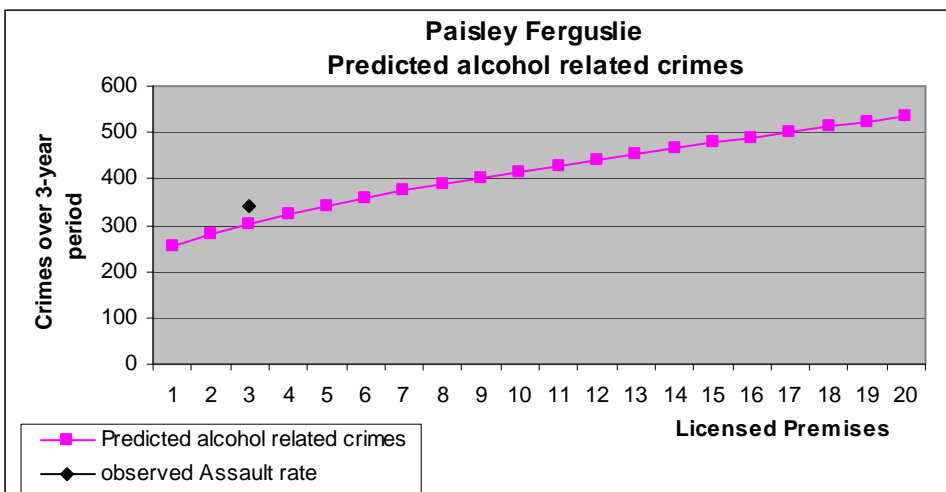
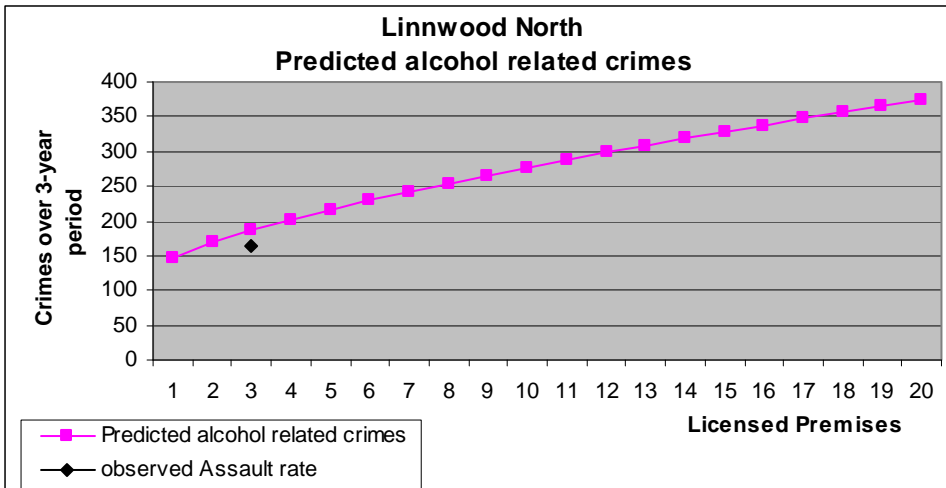


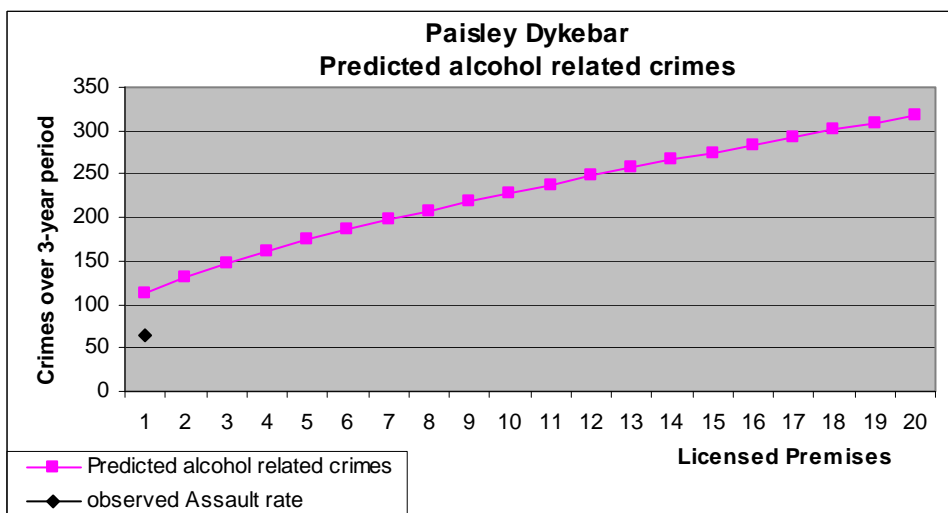
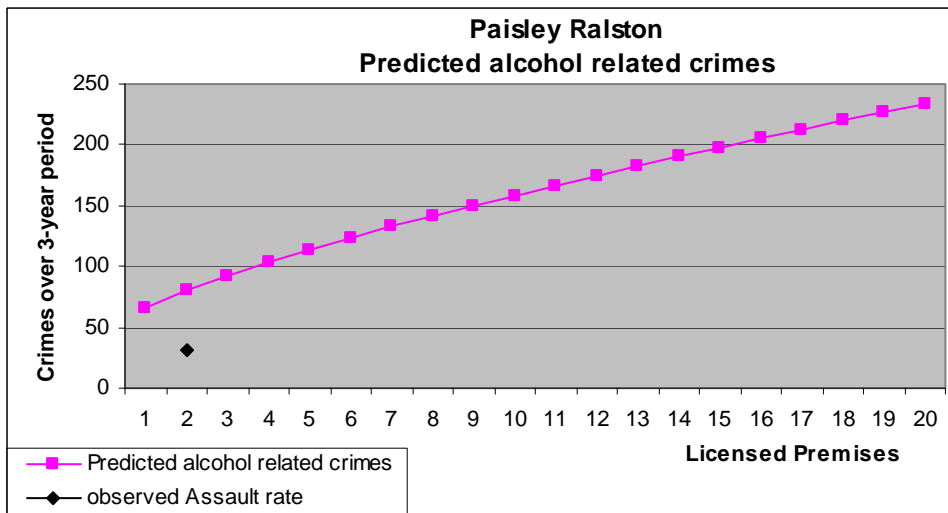
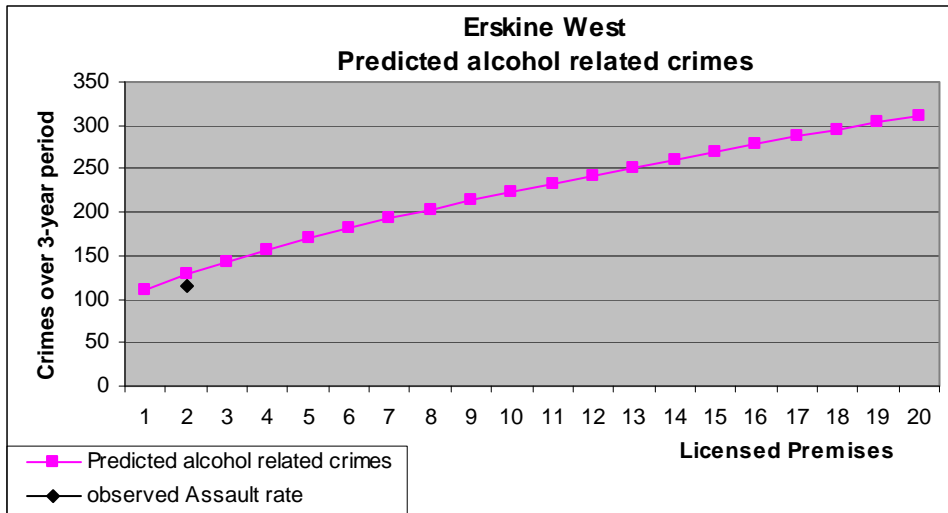


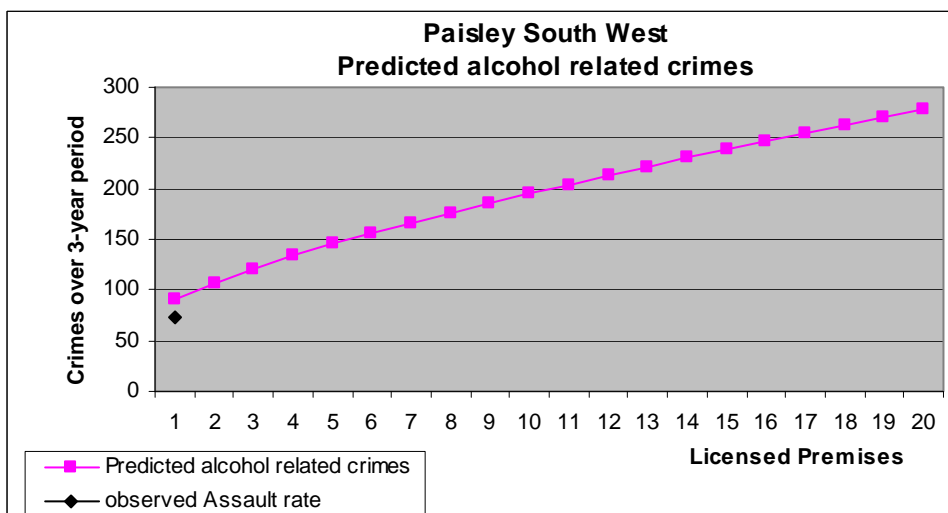
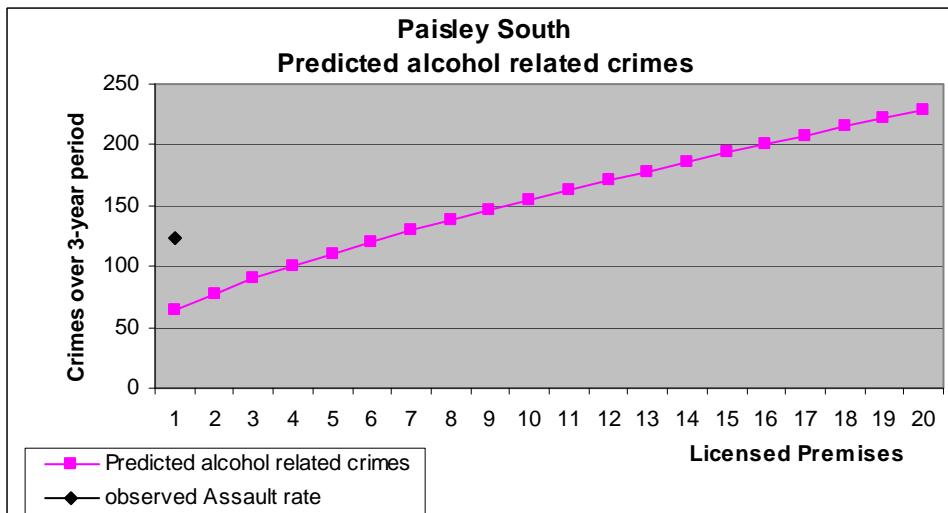
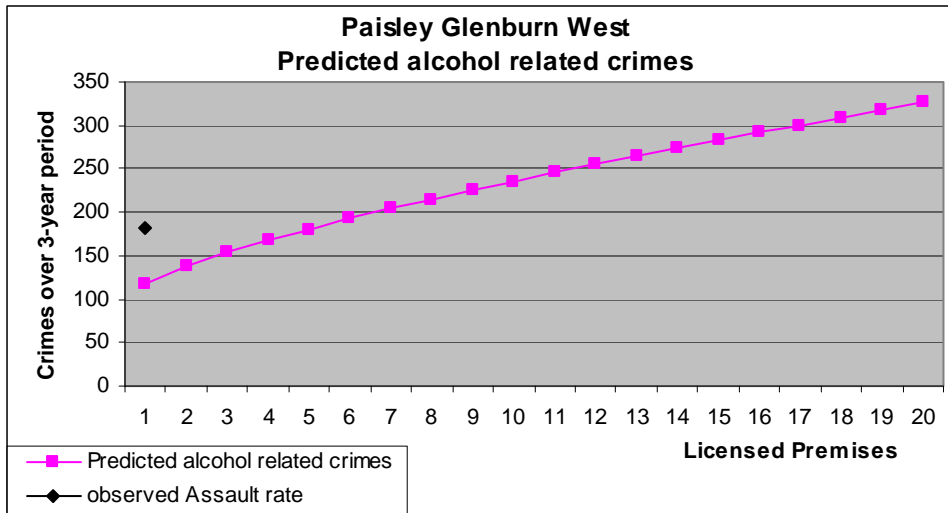


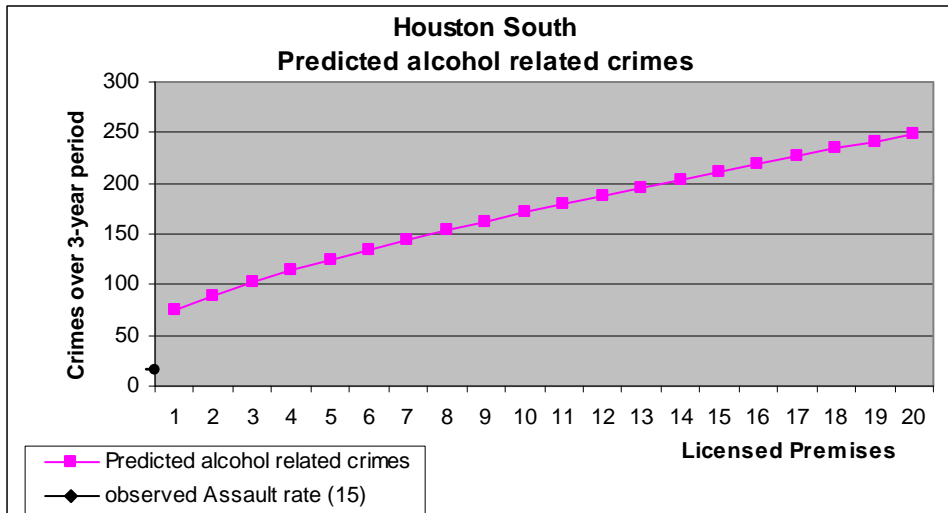




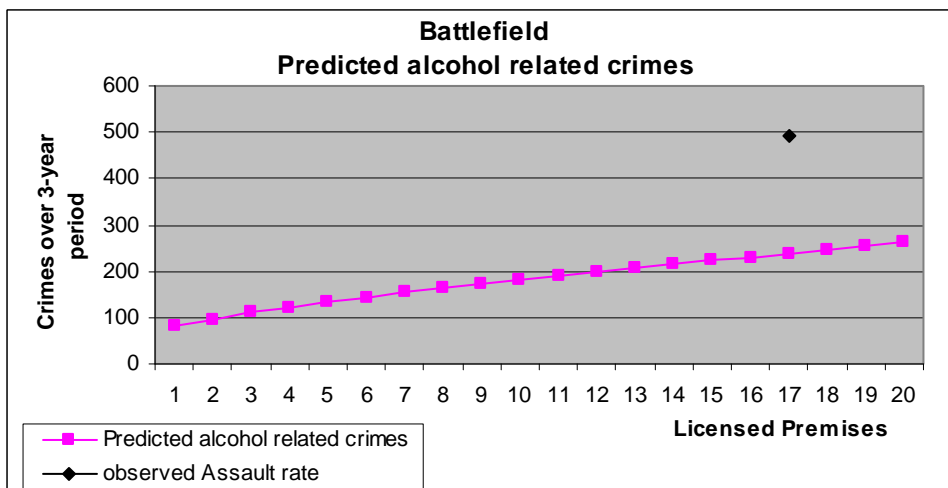
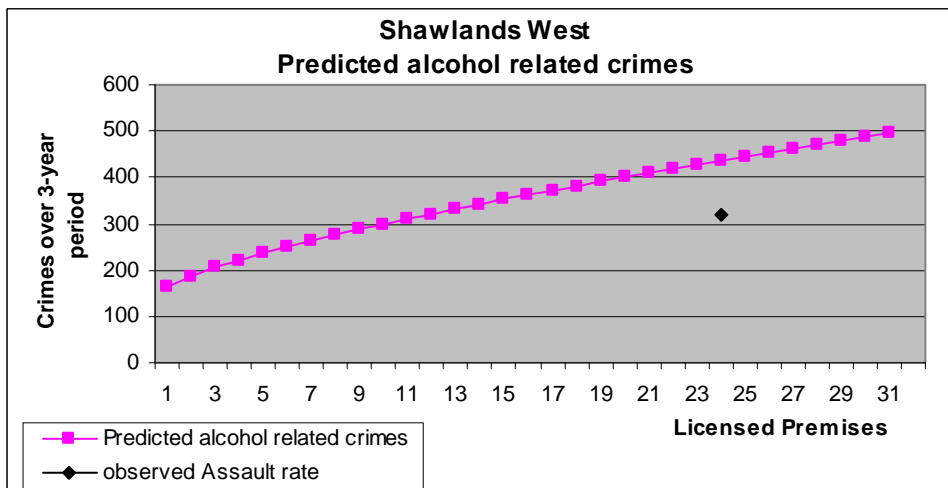
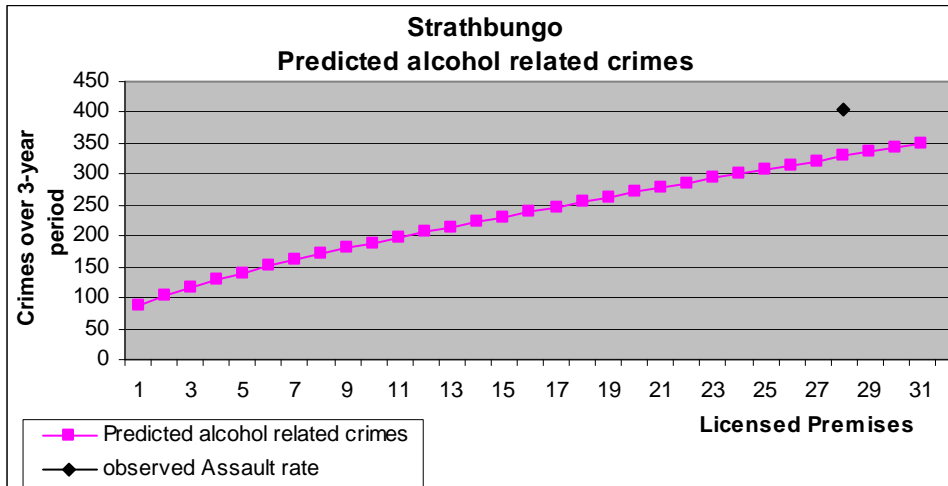


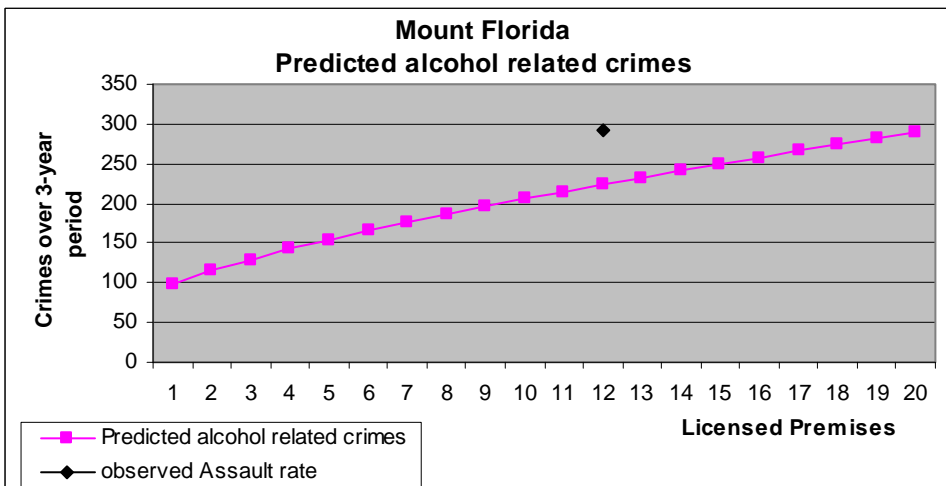
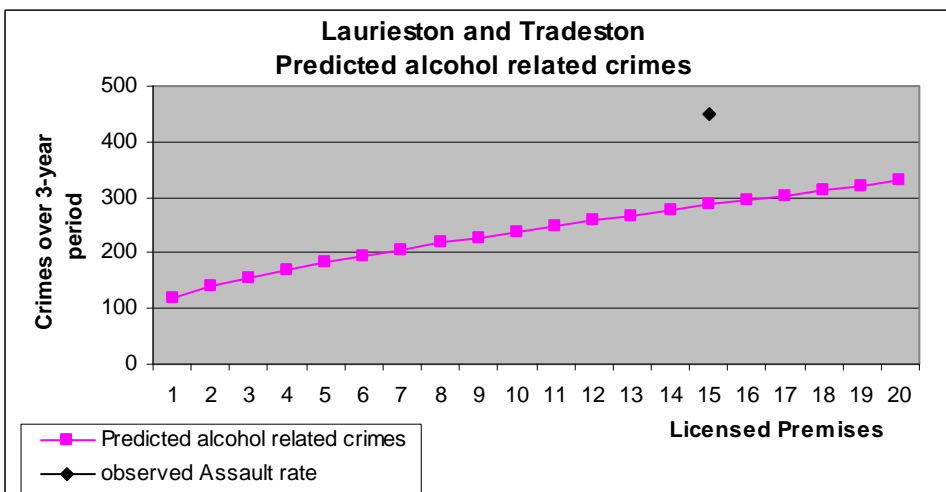
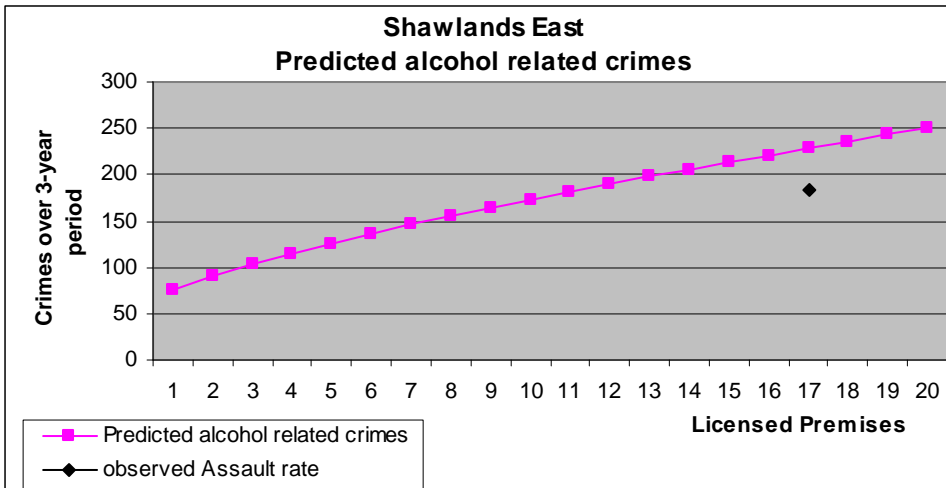


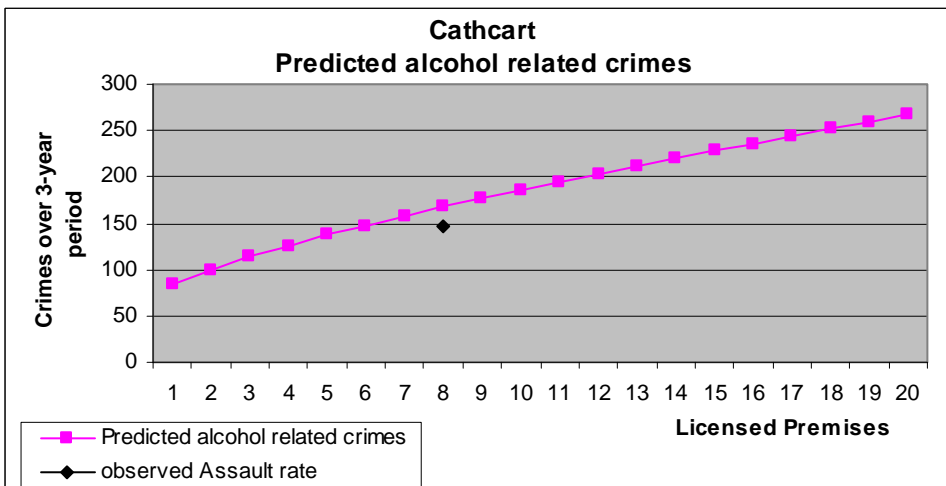
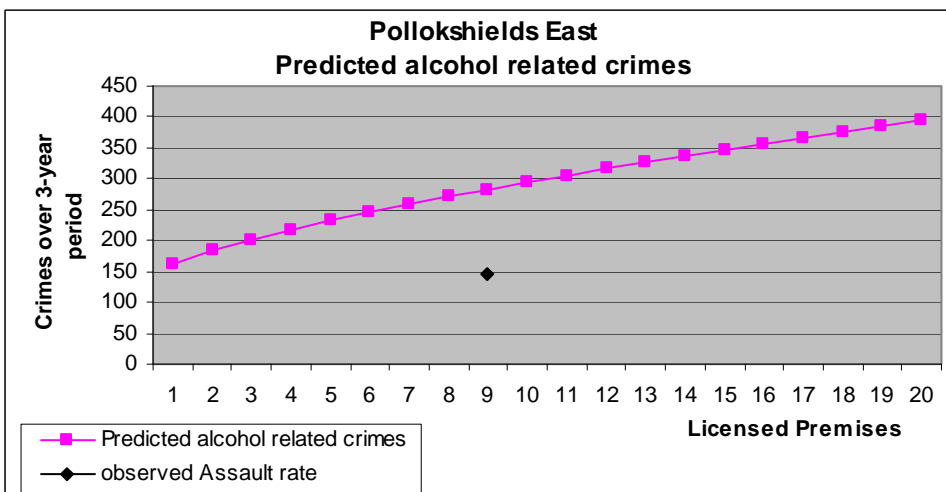
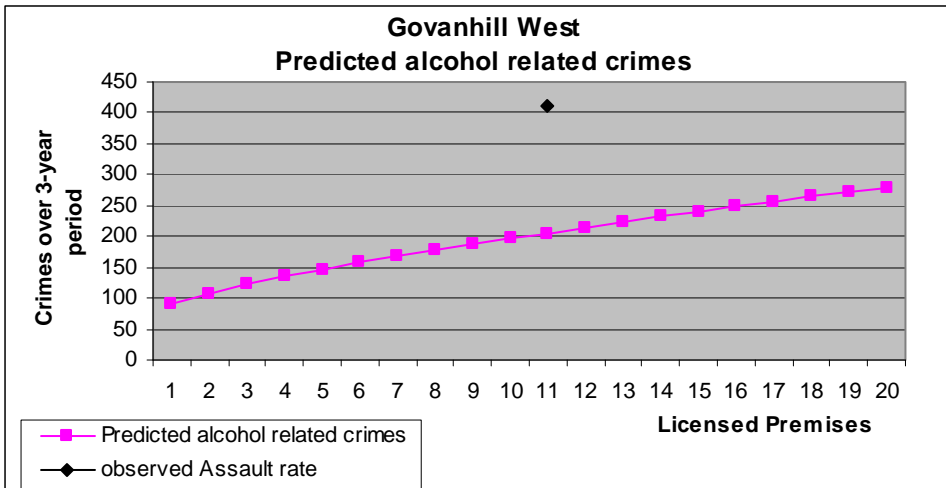


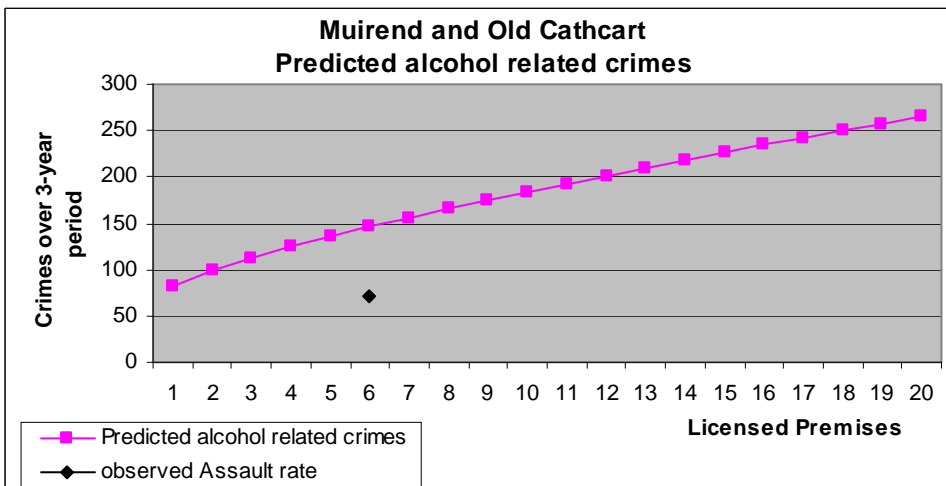
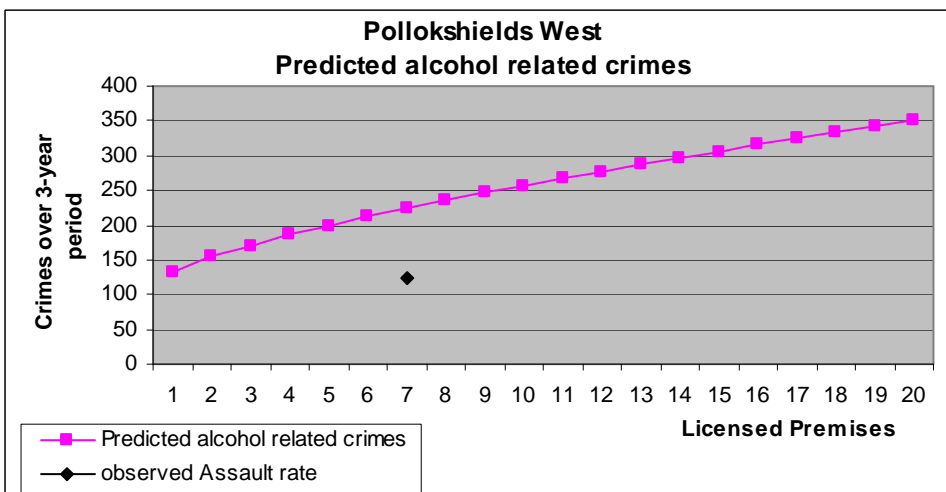
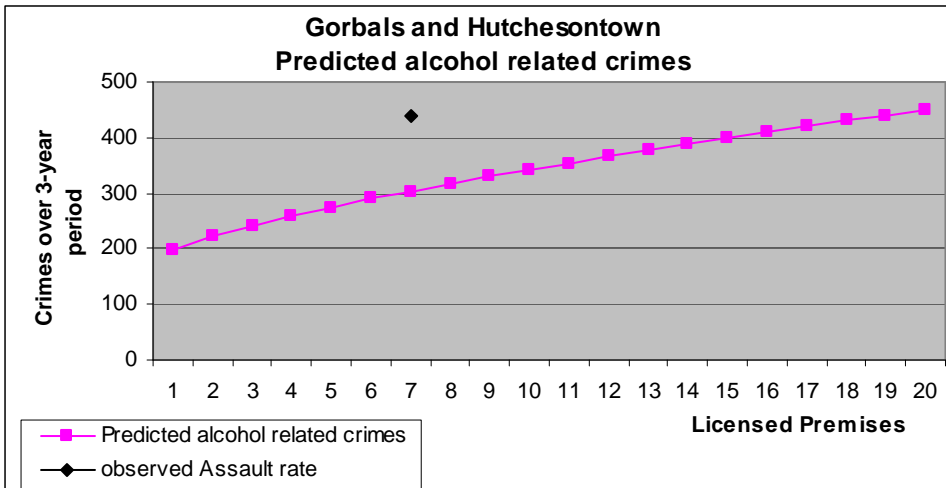


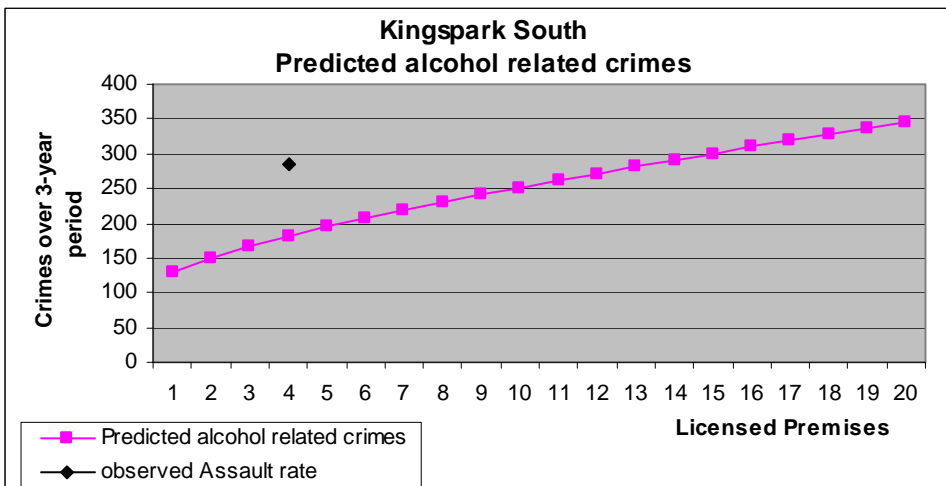
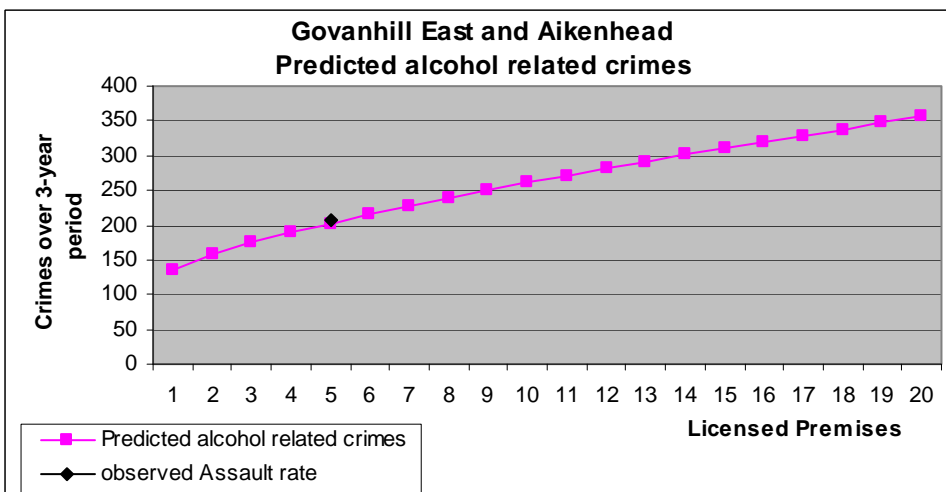
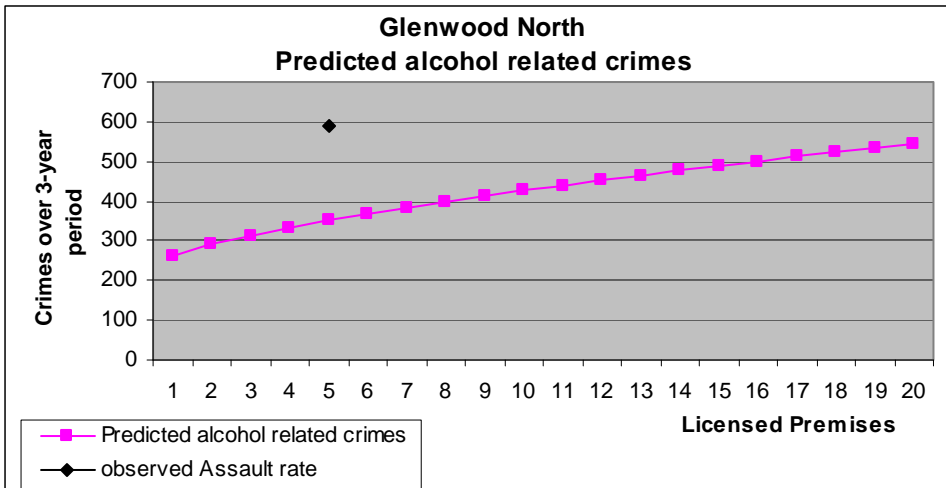
South East Glasgow CHCP

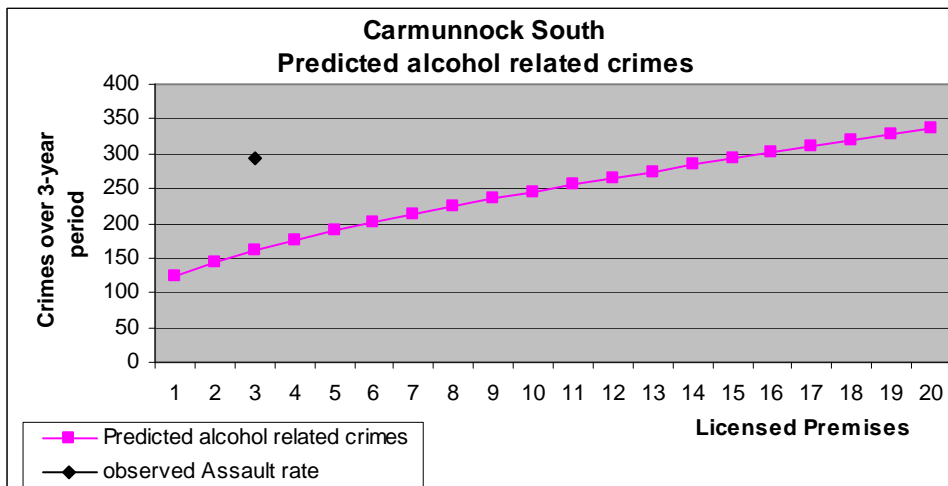
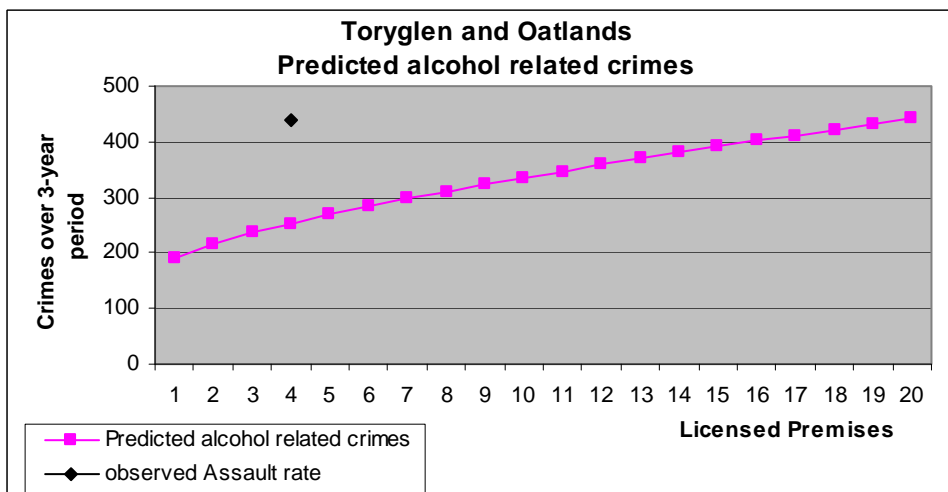
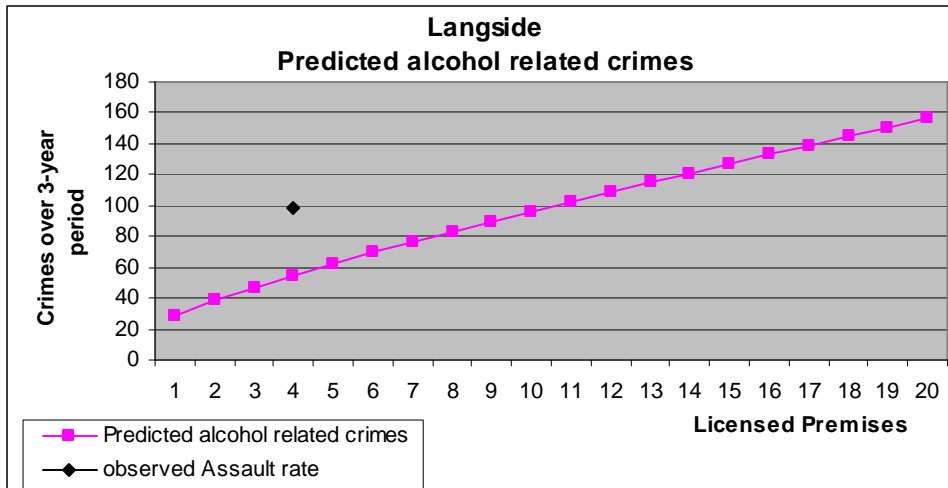


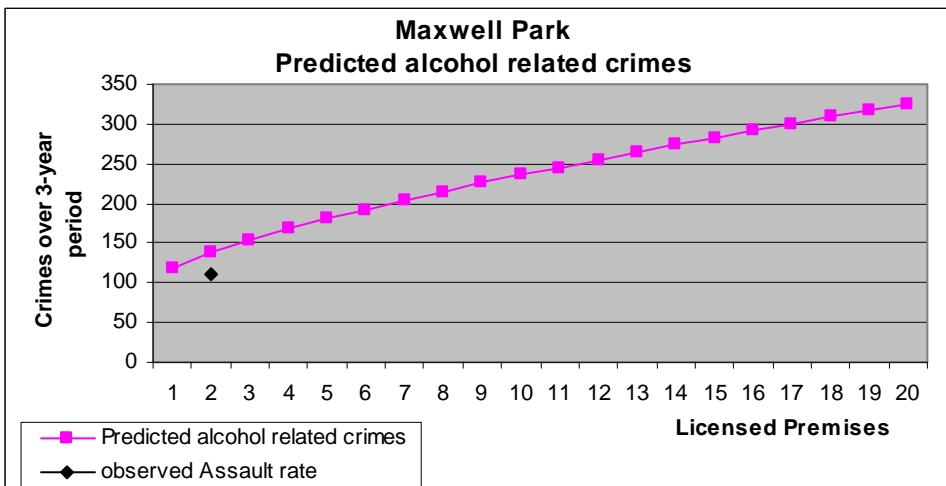
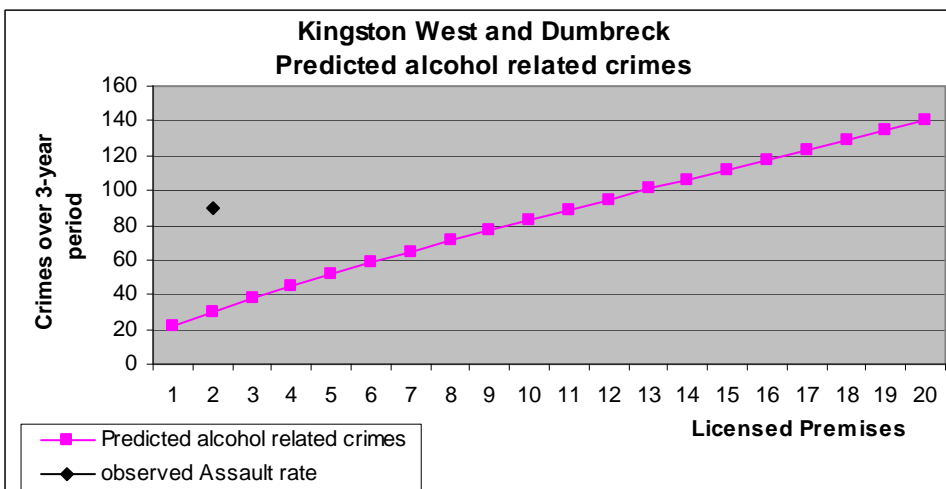
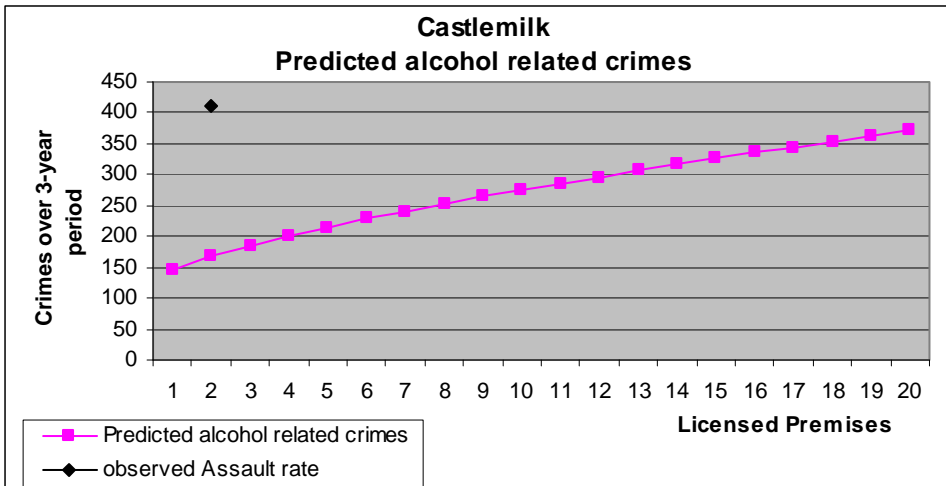


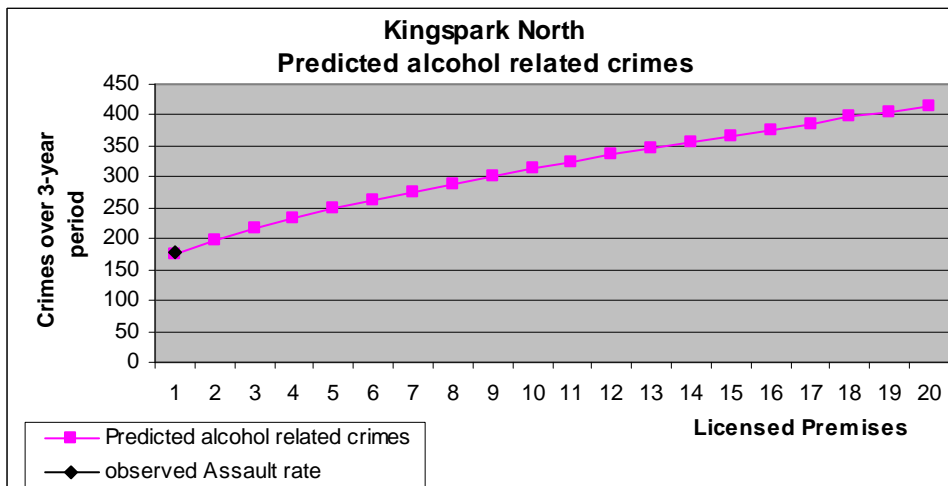
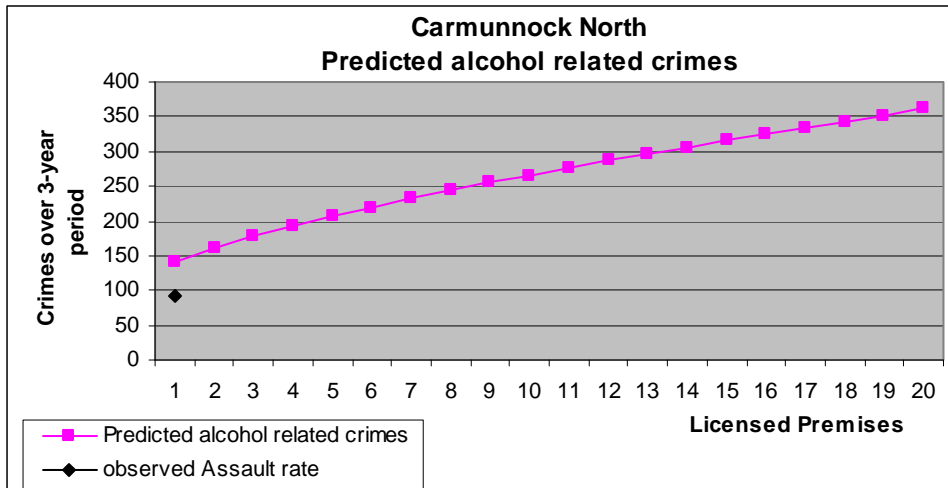




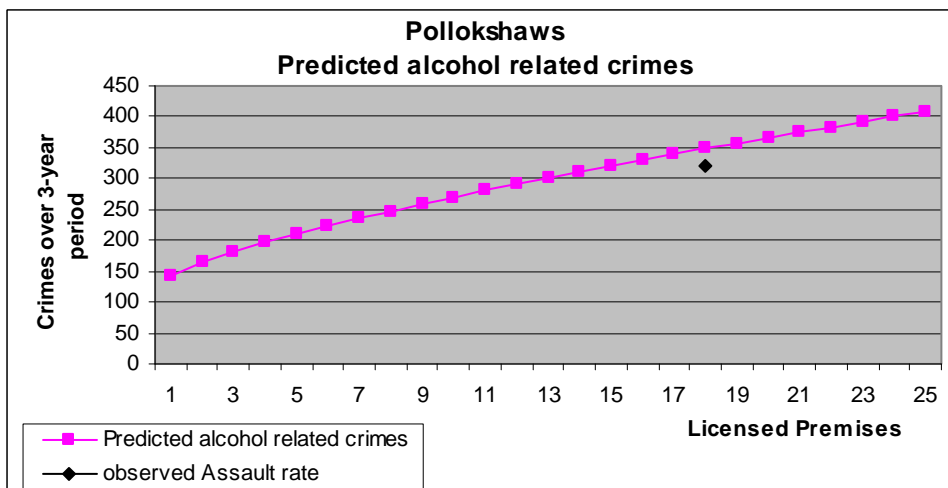
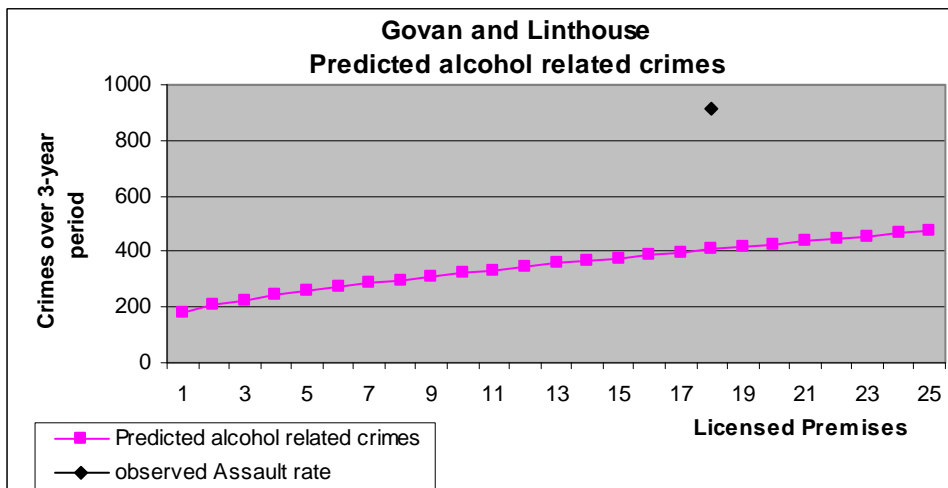
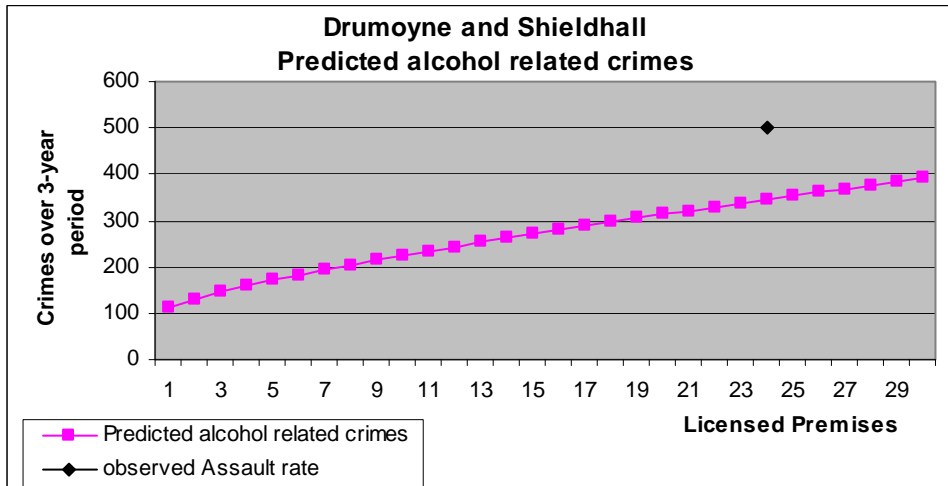


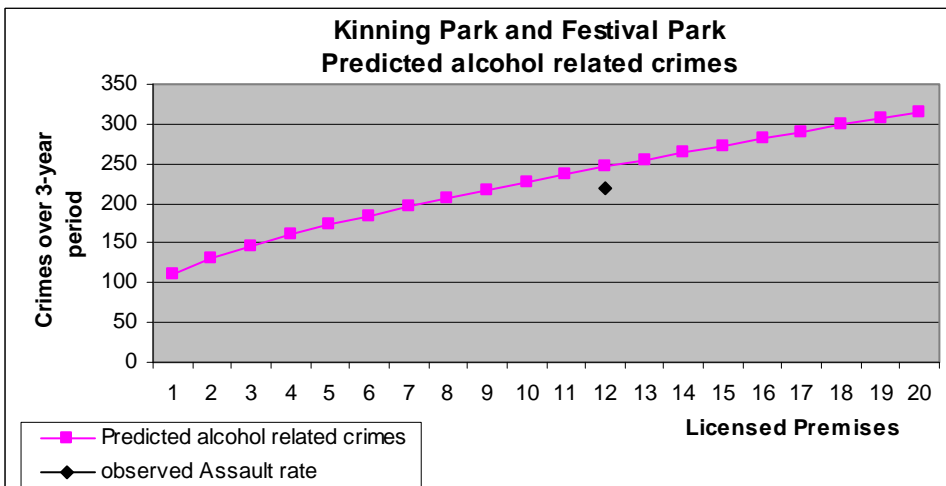
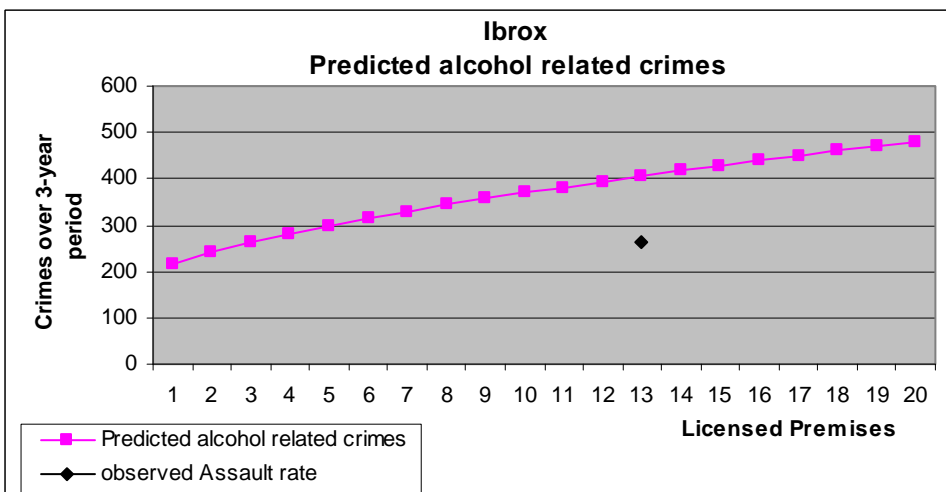
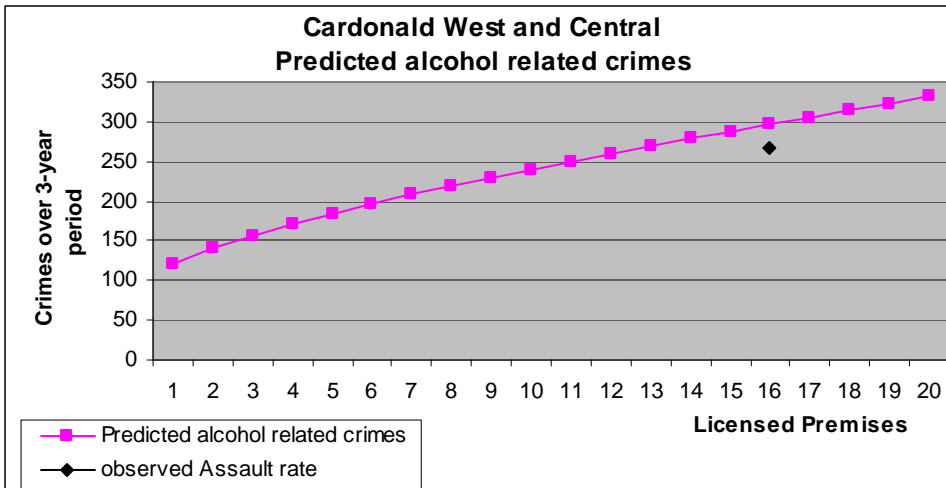


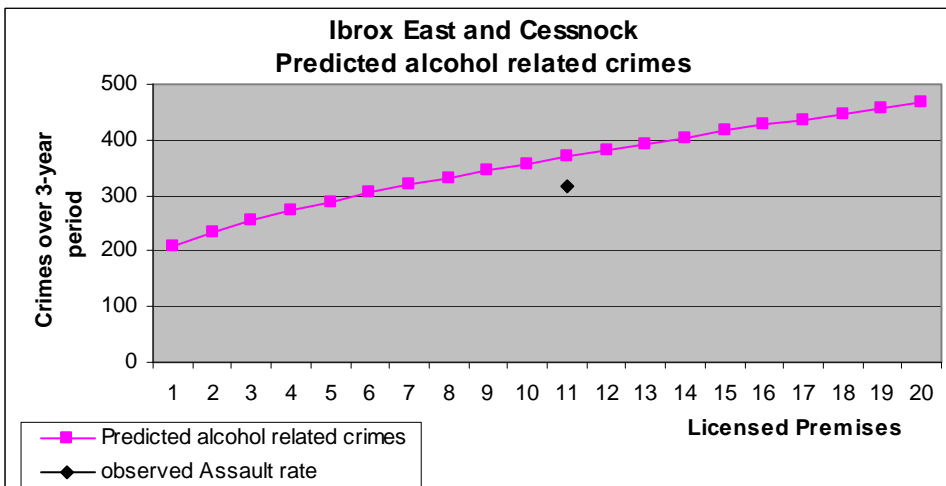
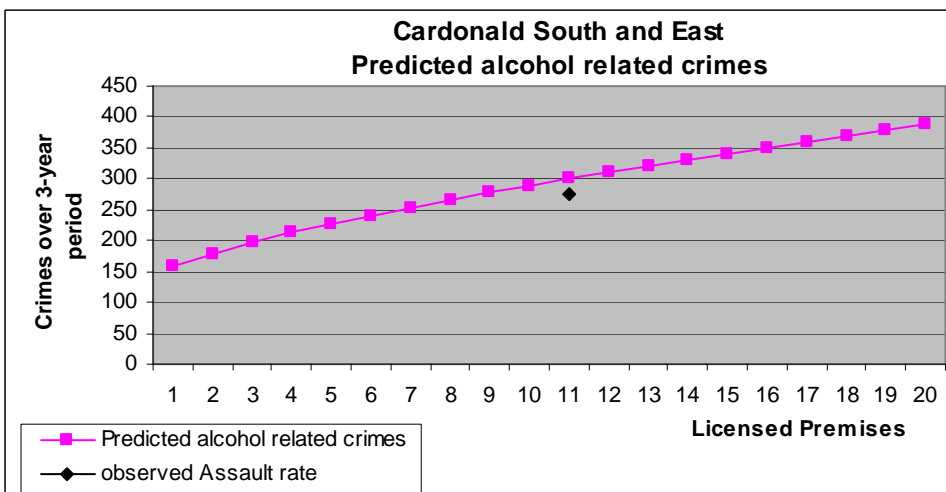
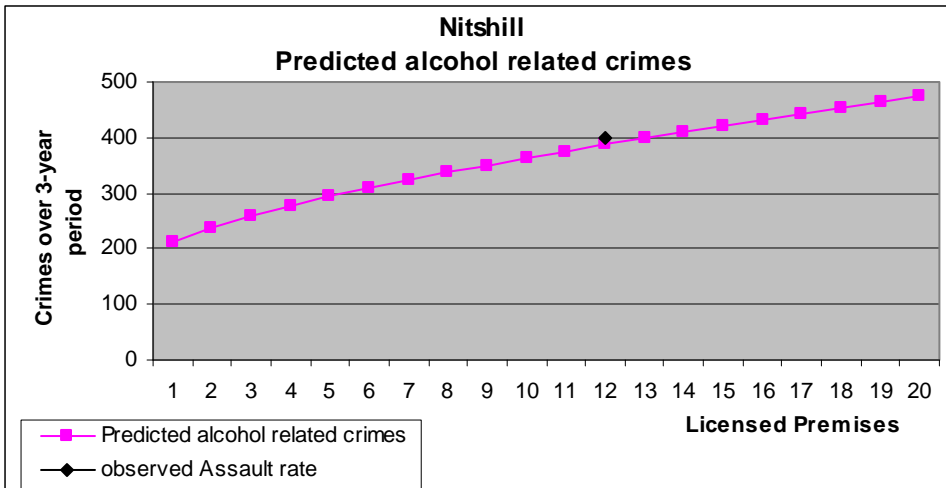


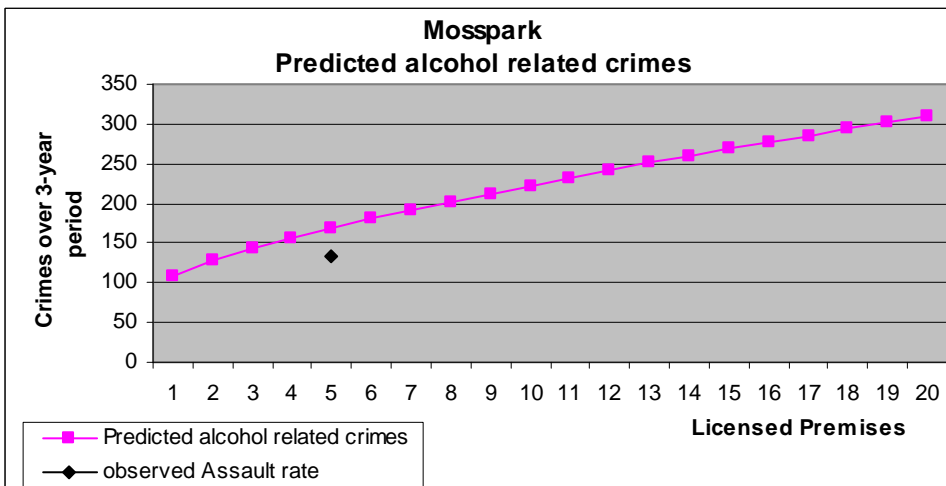
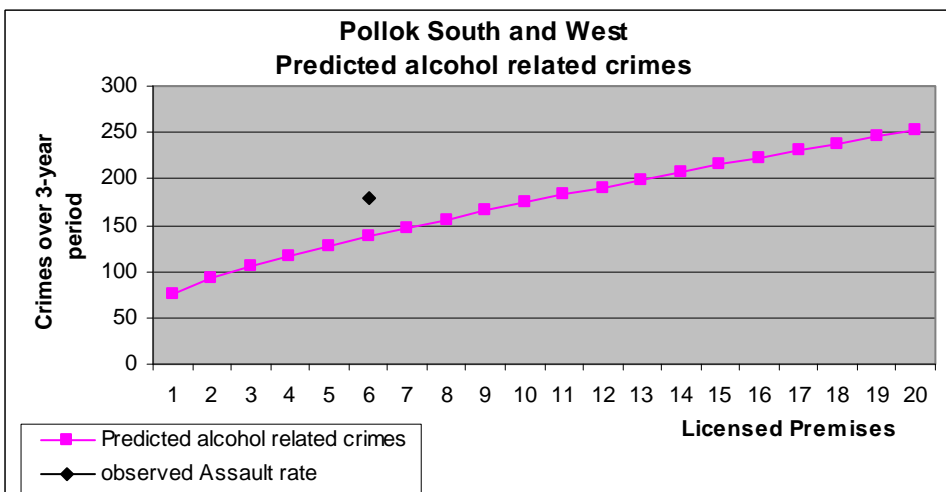
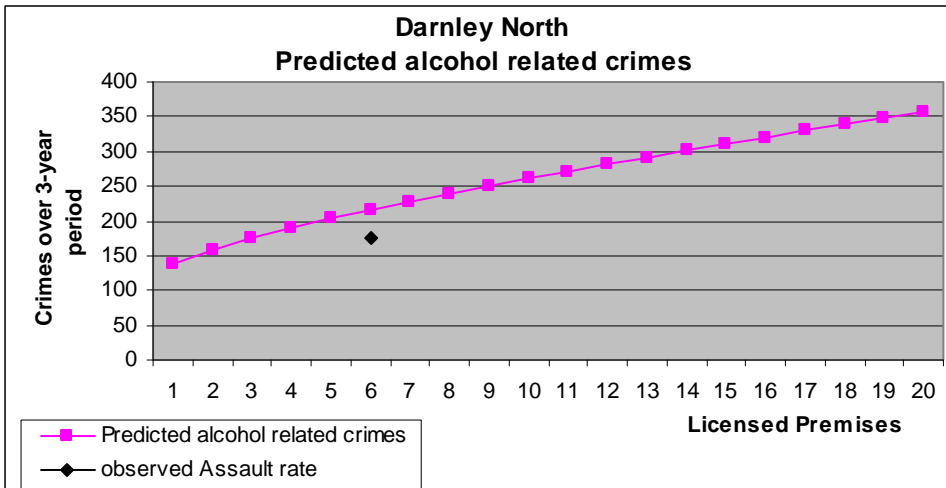


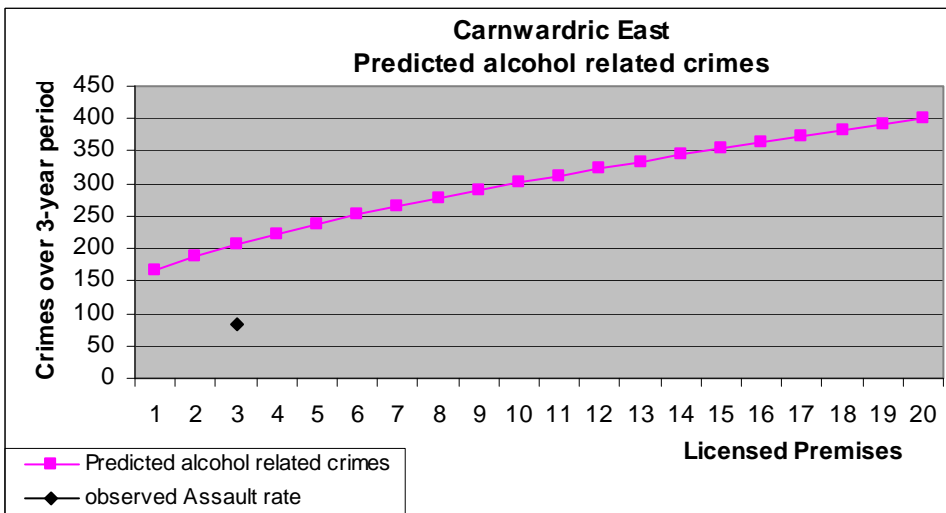
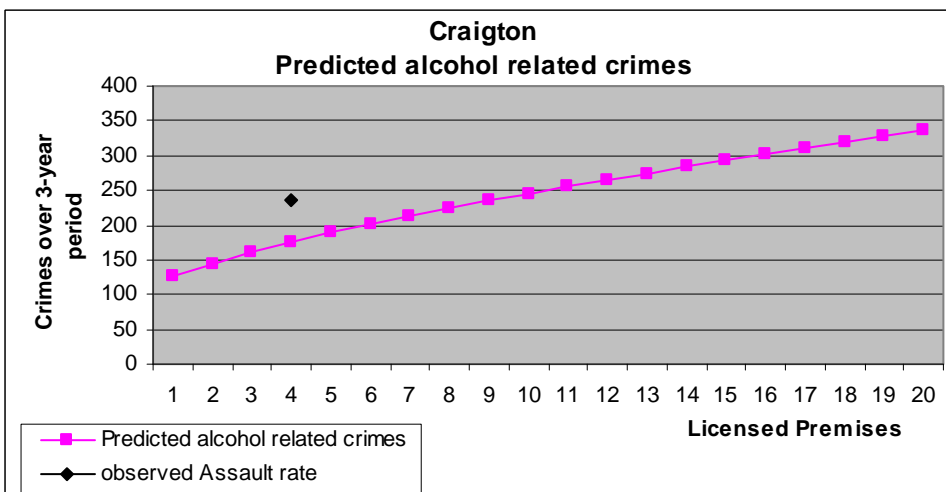
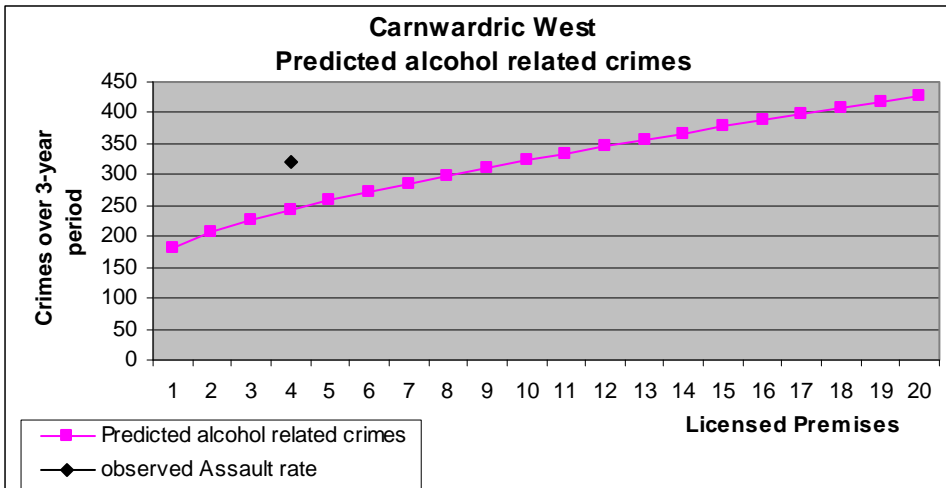
South West Glasgow CHCP

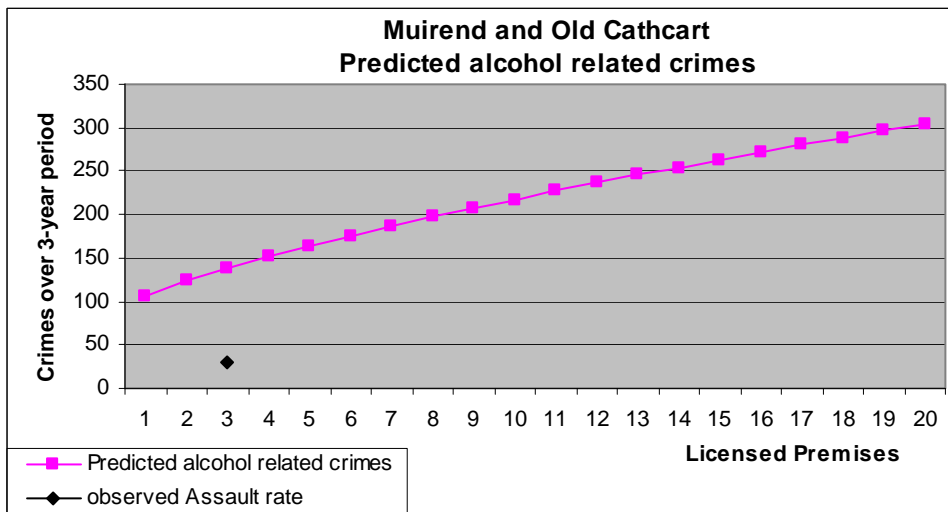
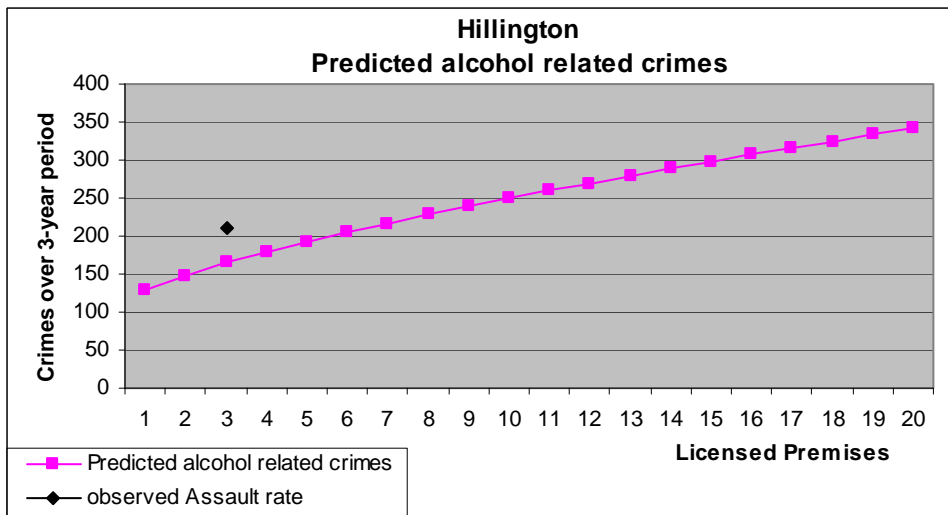
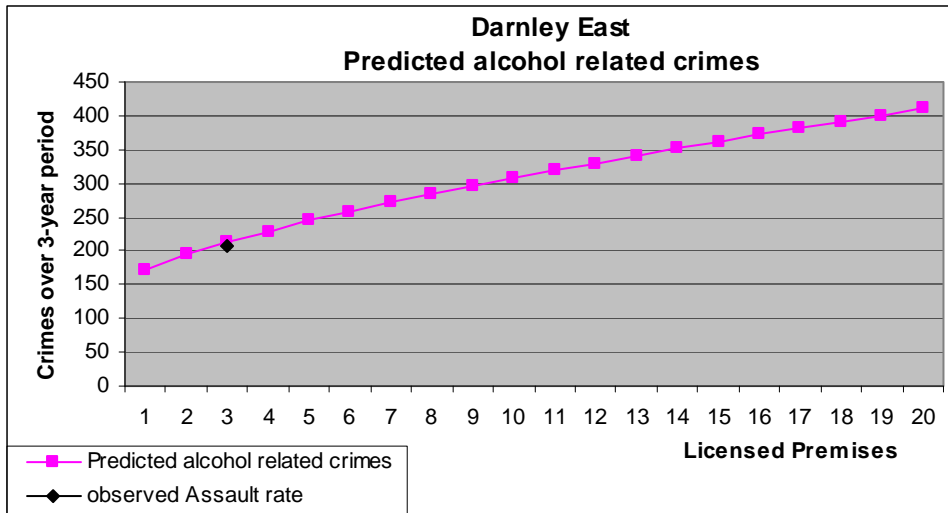


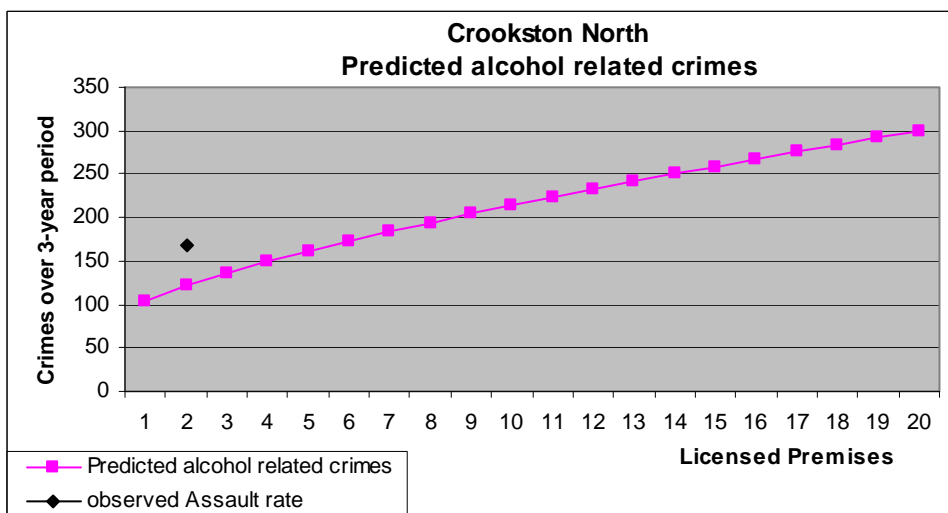
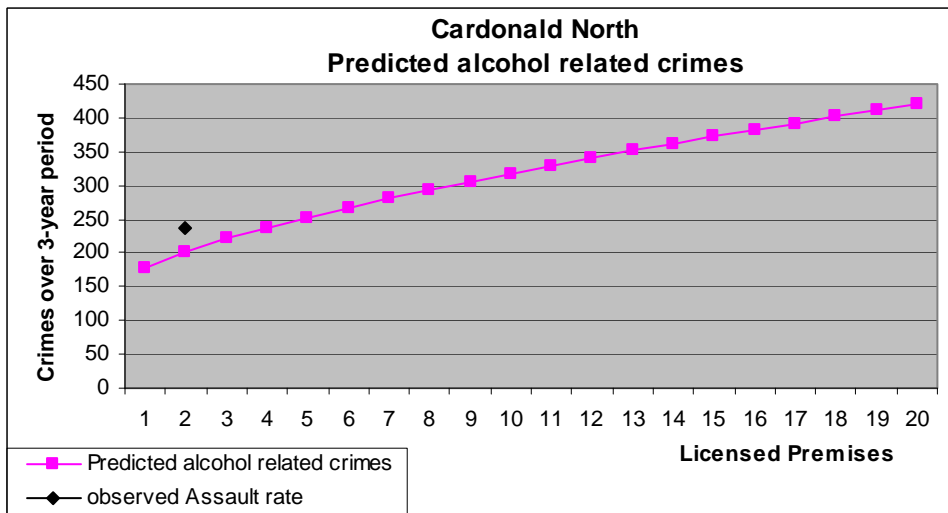
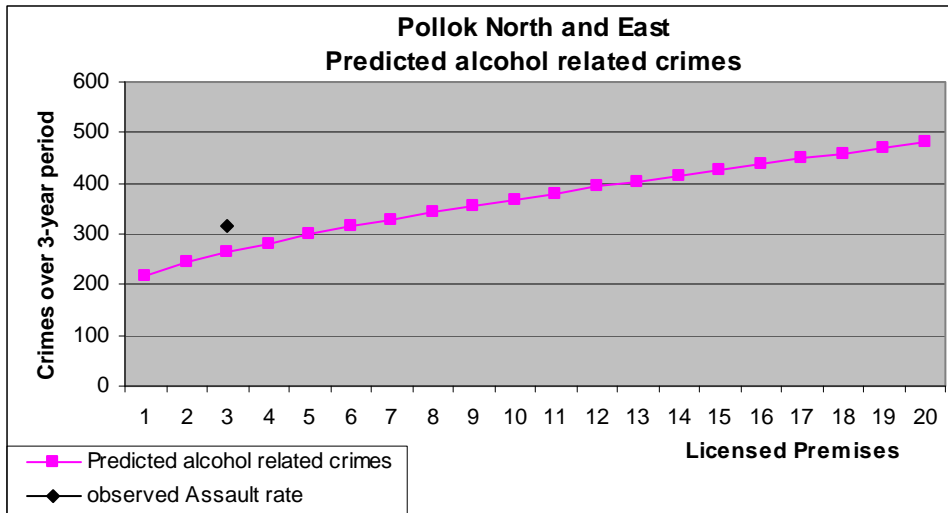


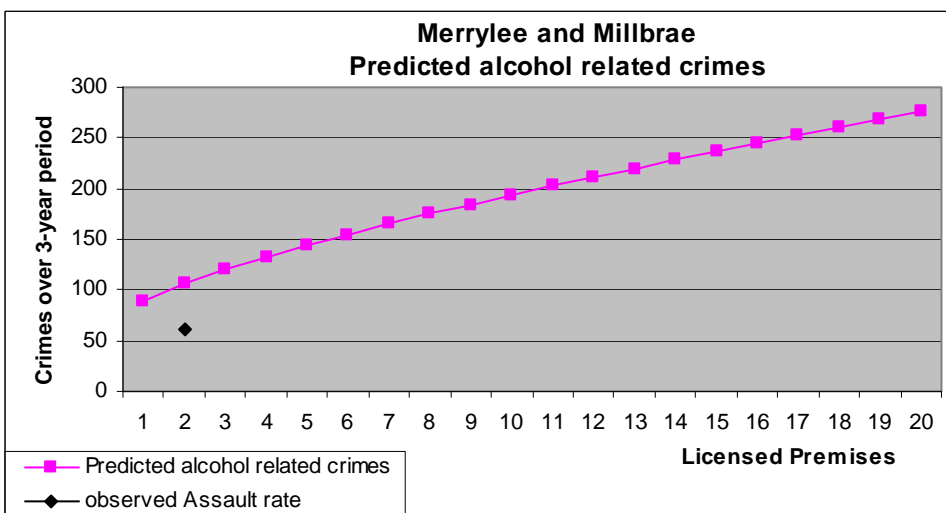
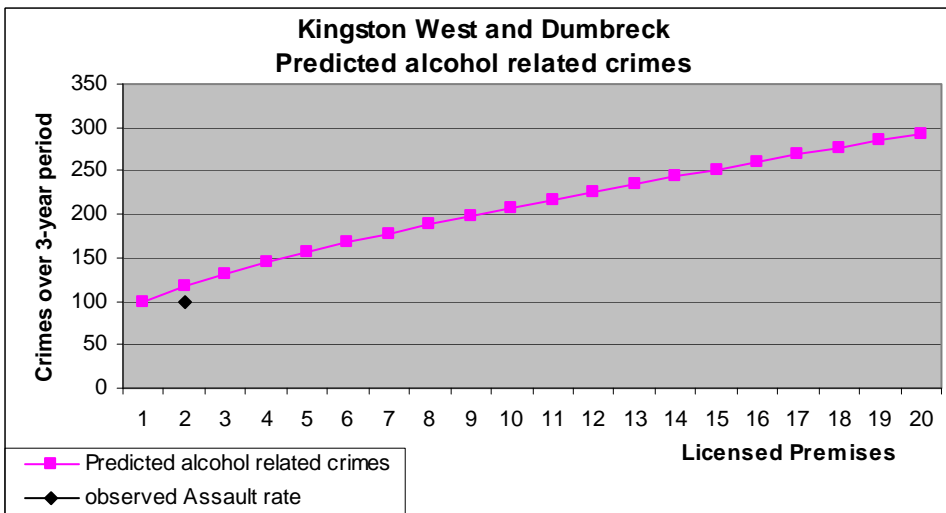
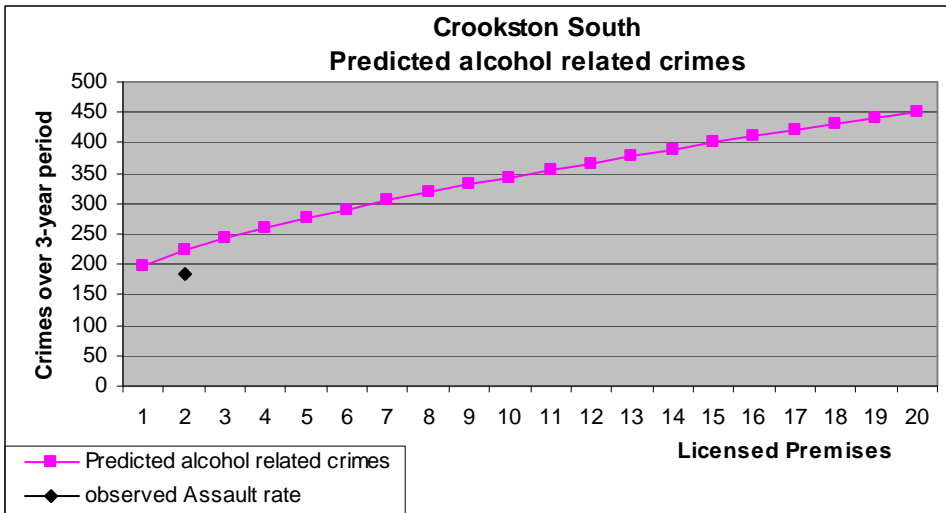


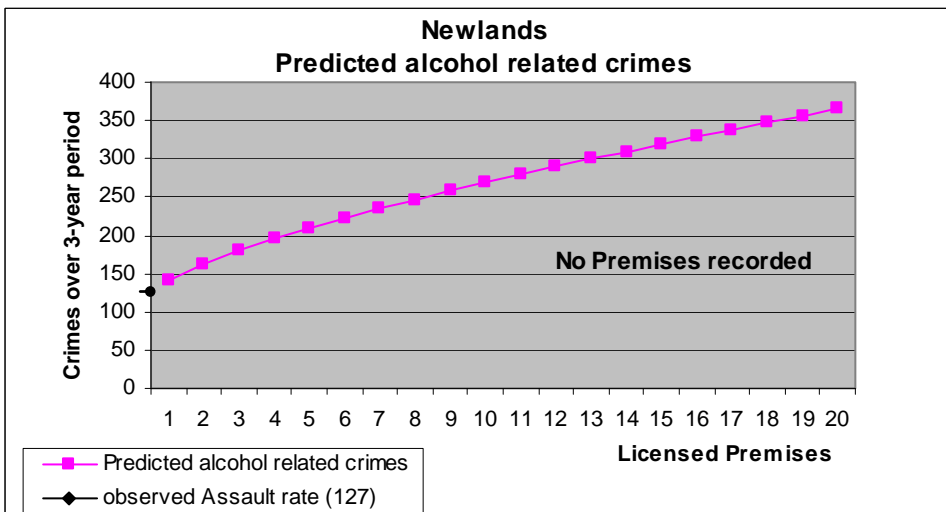
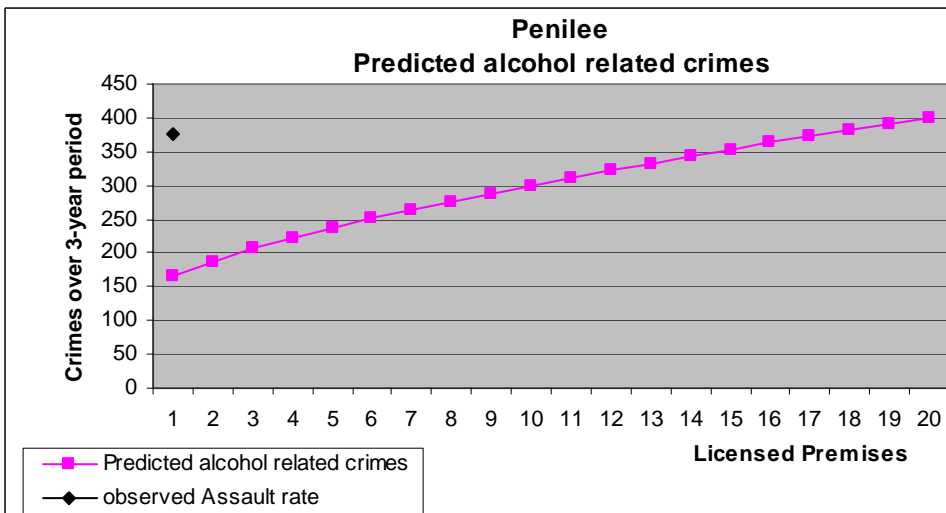
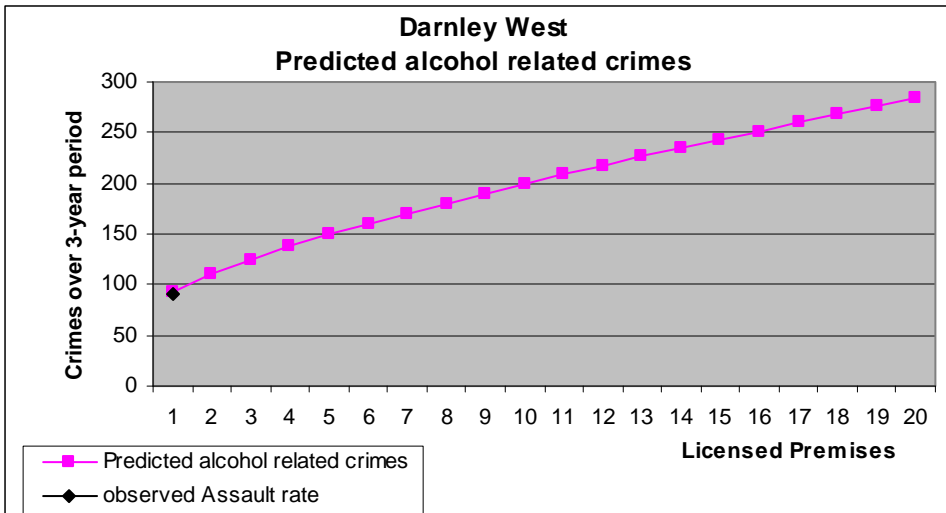




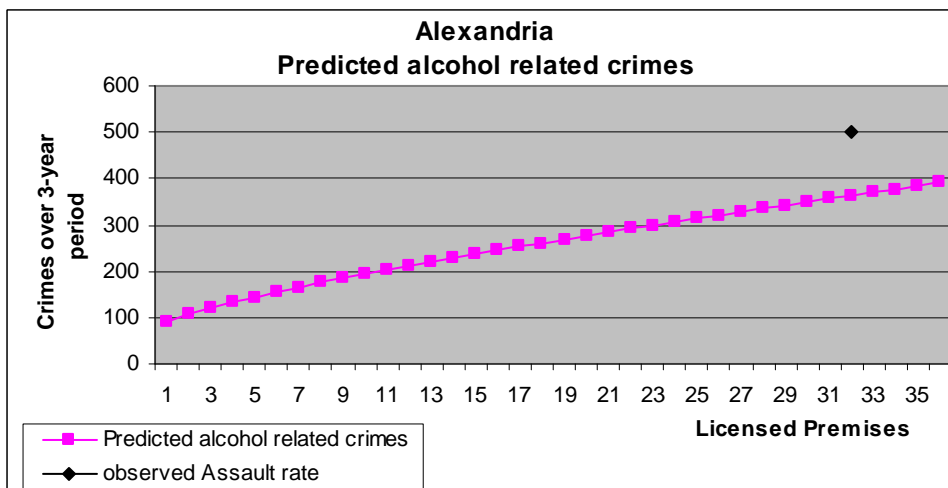
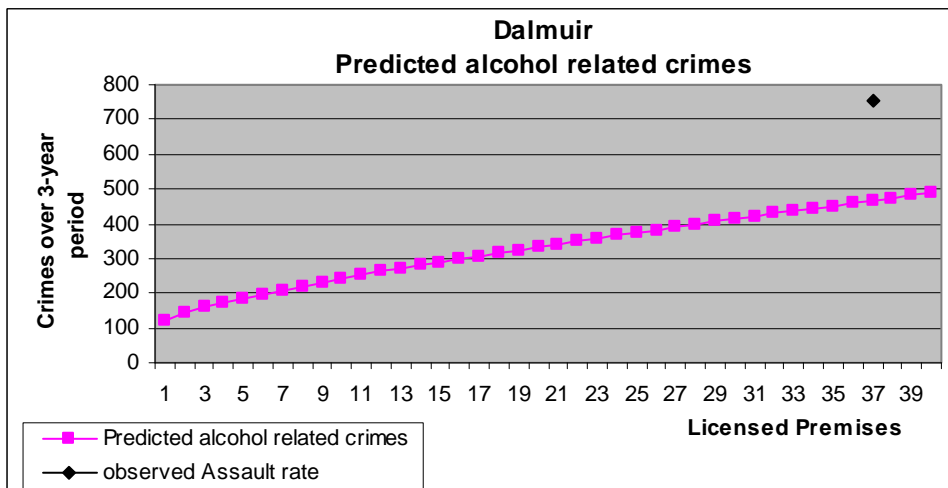
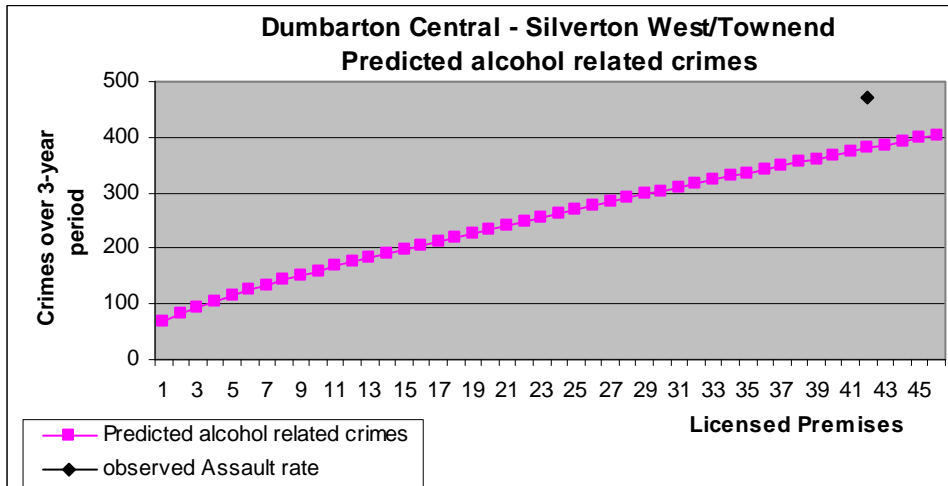


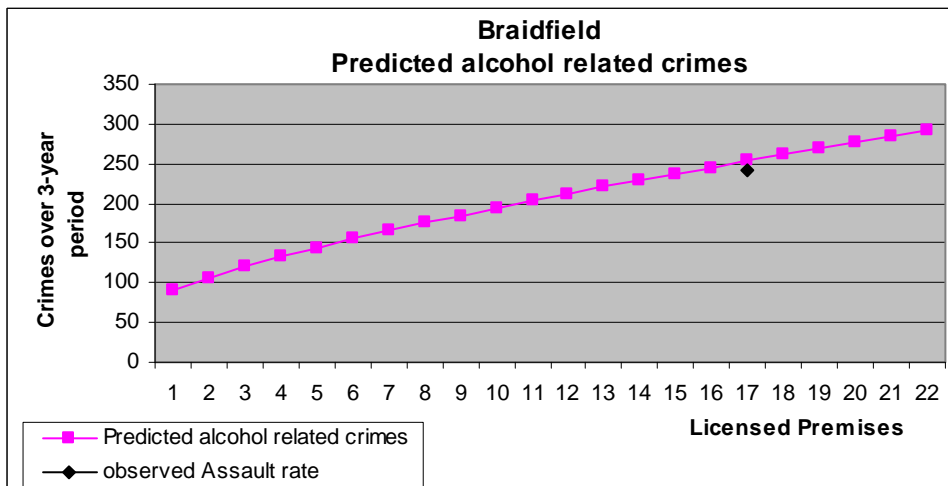
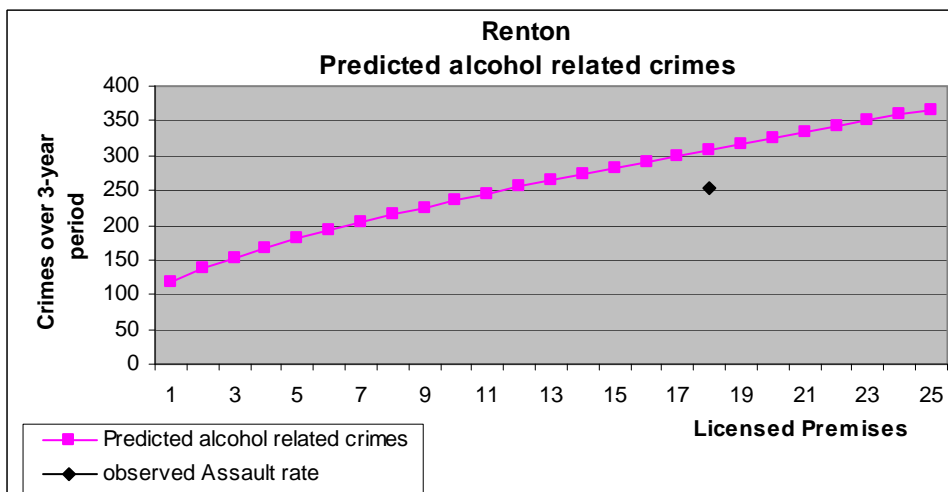
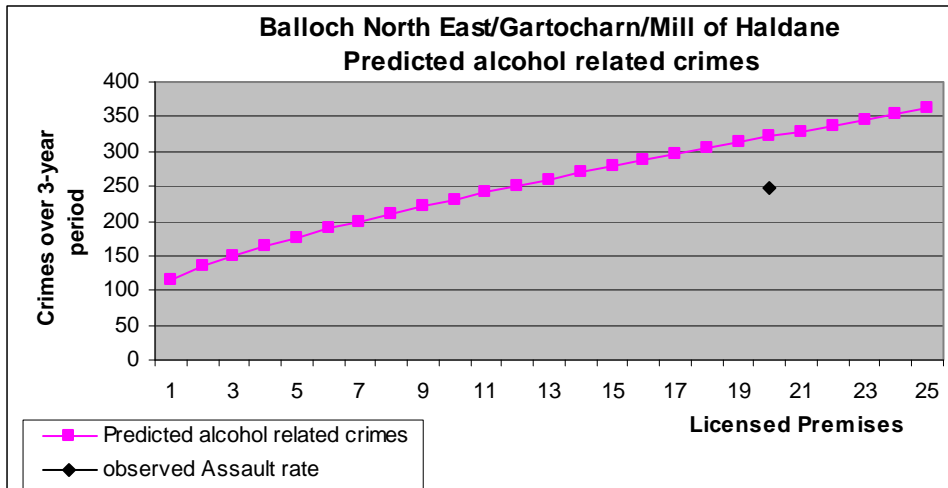


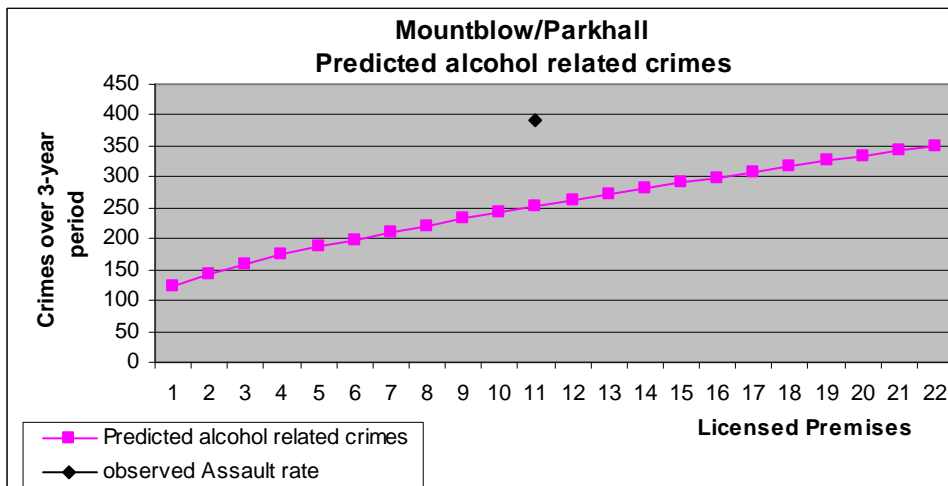
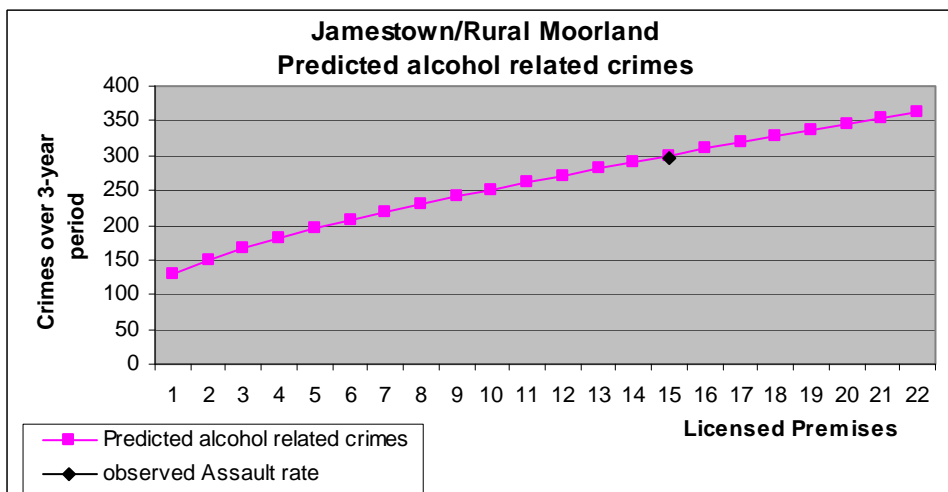
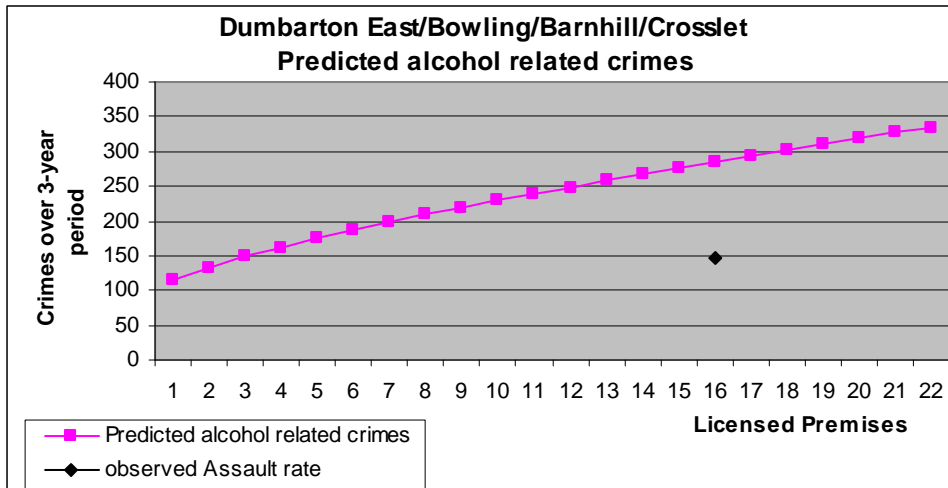


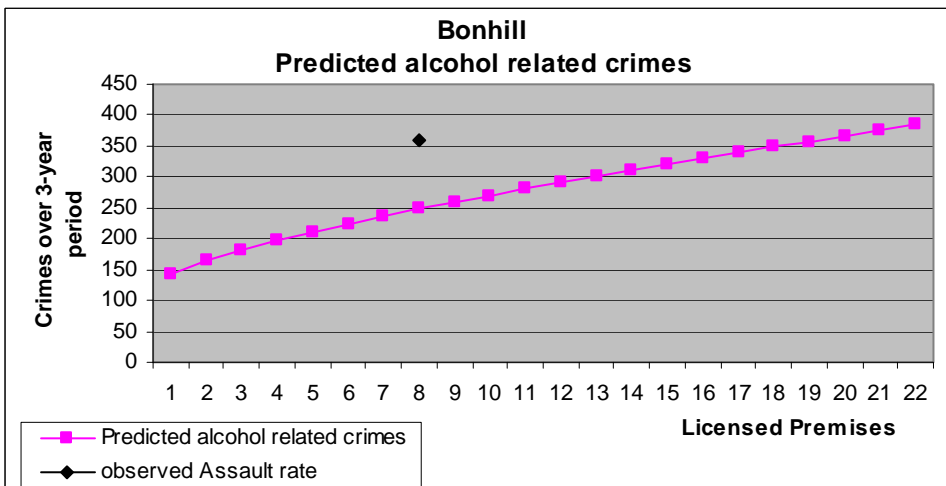
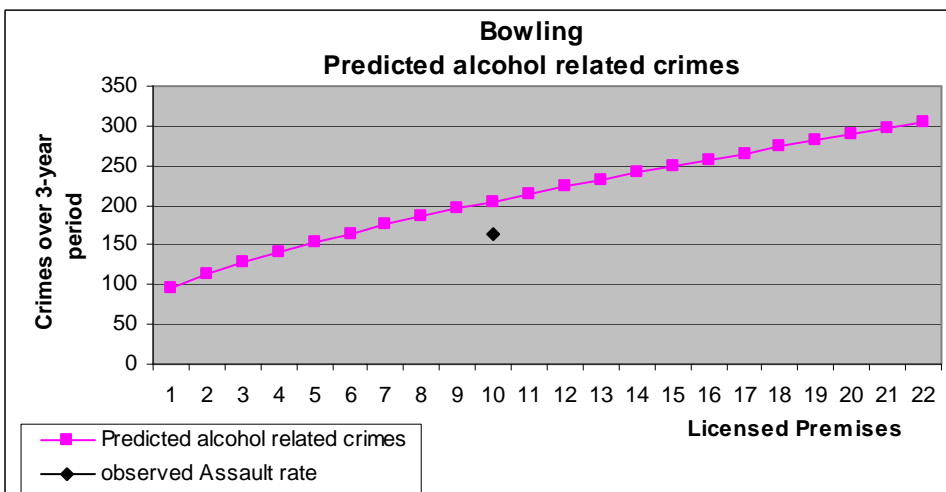
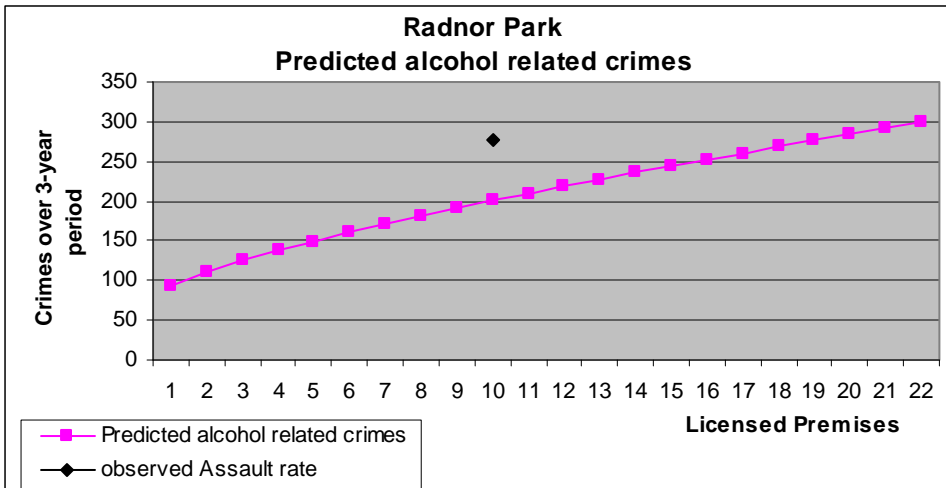


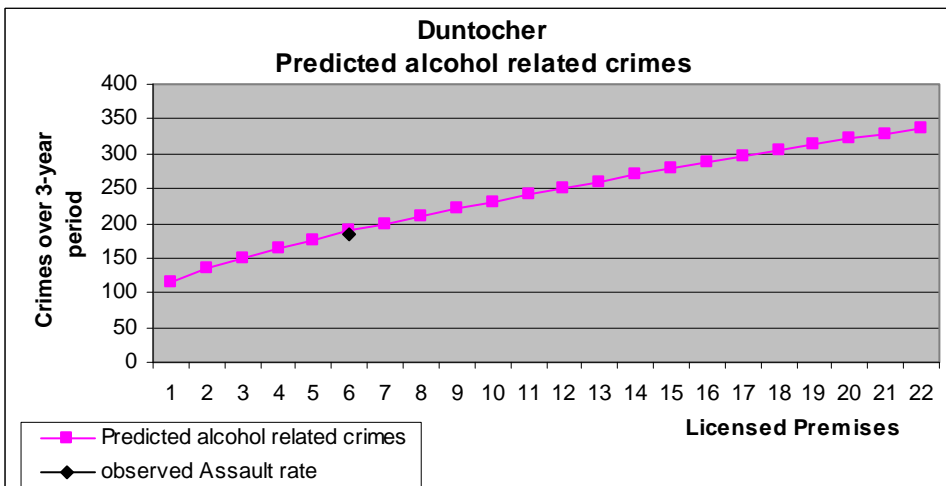
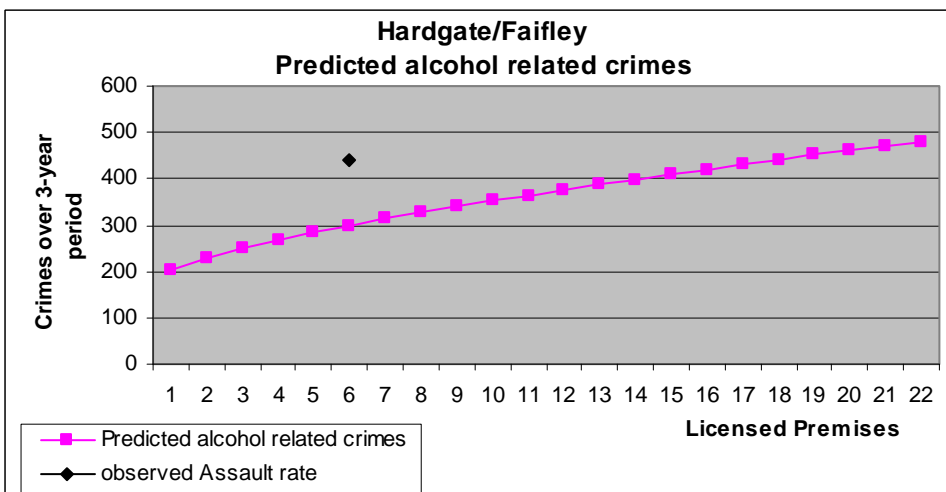
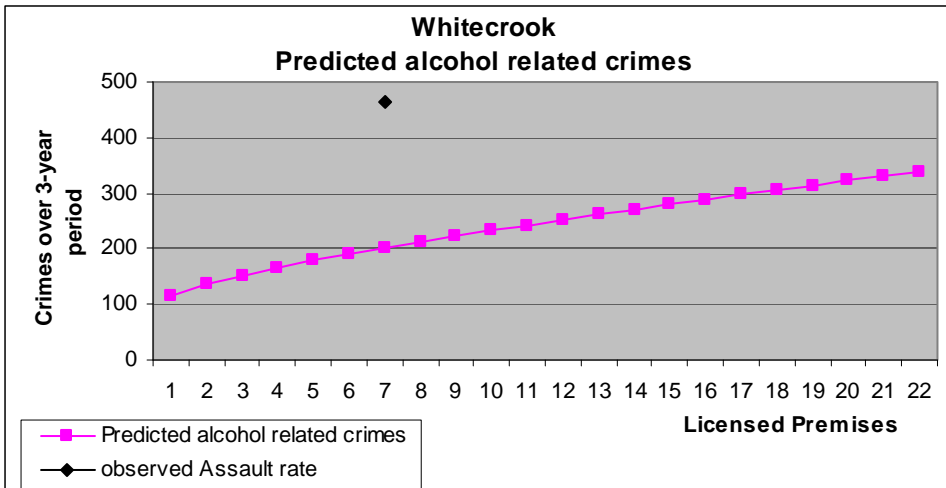
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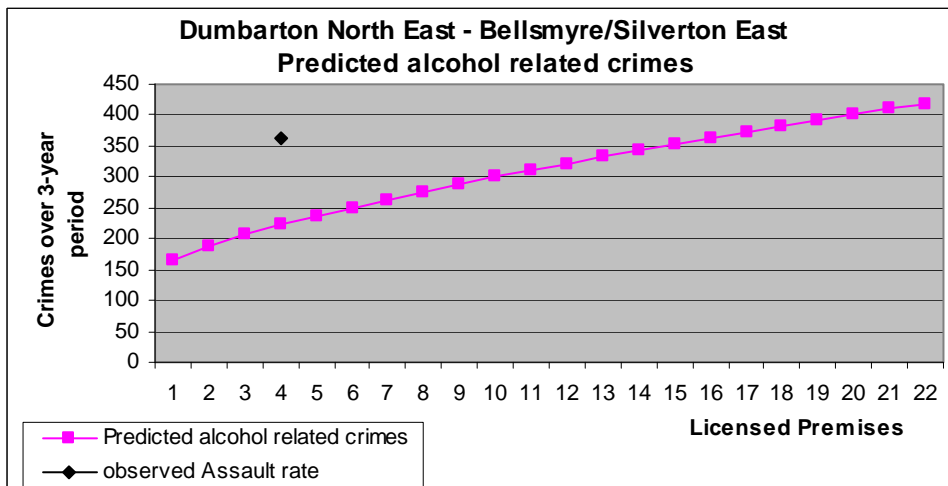
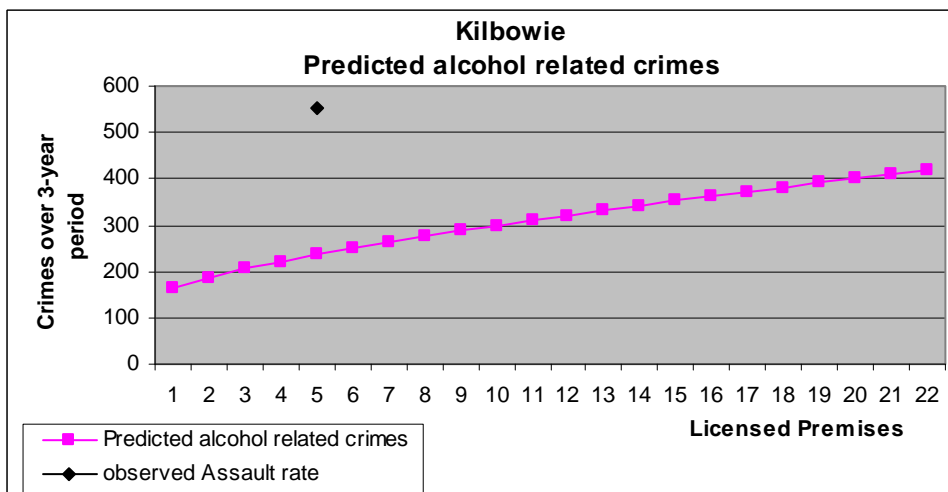
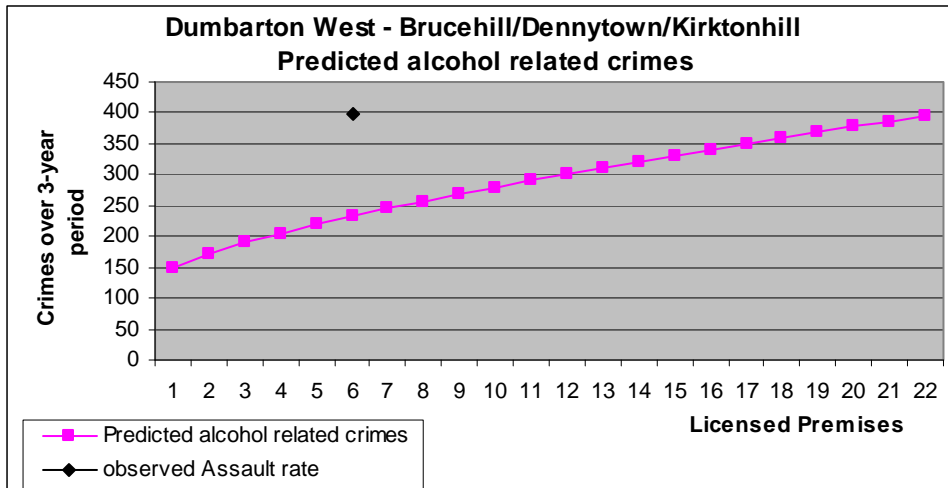












West Glasgow CHCP

