

UK Household Business Working Party 1998

Stephen Jones

Nathan Williams

Richard Winter (Chairman)

Overview

This paper follows on from that presented at the October 1997 GISG conference in Blackpool, and concentrates in detail on three subject areas.

The first section provides a review of the experience of UK household insurance business over the last 12 months. This year has, in particular, seen some exceptional weather events - 2 significant windstorms over Christmas and the New Year, the Selsey tornado on 7th January 1998 and severe river flooding following exceptional rainfall on 9th April 1998. These events, whilst not truly catastrophic in terms of the associated insured losses, have provided a timely reminder to senior management of the potential volatility of household business results, and of the need to fully understand and manage their companies' natural perils exposures.

In common with other business classes, legal developments in relation to personal injury losses have cast a spotlight on household liability coverage, for many years considered to be a virtually cost-free element of coverage under both buildings and contents covers. The results of an investigation into the perceived worsening trend in very large household liability losses are presented.

The second section of the paper follows on from the 1997 paper in considering the increased use of third-party data and risk-assessment software in the pricing of UK household business. The results of an exercise designed to assess the predictive value of selected proprietary risk-assessment systems are presented. A detailed survey of the data sources underlying the major third-party data systems, was made available at the conference. This has been updated and is included as an appendix to this paper.

The final section of the paper considers the issue of affordability in relation to household insurance. It has long been recognised that a potential consequence of increasingly sophisticated pricing approaches is that coverage in certain high-risk categories may cease to be affordable to potential policyholders. This section considers the extent to which this phenomenon is already visible in the UK market and to what extent a socially-responsible insurance industry can, or should, act to reduce this problem.

The views expressed in this paper are subjective - they are those of the working party and do not necessarily represent the views of any organisation with which any member of the group is, or has been, associated.

CONTENTS

1. REVIEW OF THE YEAR

1.1 Recent Household Business Claims Experience

- 1.1.1 Subsidence
- 1.1.2 Flood
- 1.1.3 Windstorm
- 1.1.4 Theft
- 1.1.5 Liability
- 1.1.6 Escape of Water
- 1.1.7 Fire

1.2 Economic Factors

1.3 Market Information

1.4 Year 2000

- 1.4.1 The Problem
- 1.4.2 Policy Exclusions
- 1.4.3 Sources of Y2K claims
- 1.4.4 Disaster Scenarios
- 1.4.5 Other Considerations

1.5 Postal Geography

1.6 Reinsurance

2. PROPRIETARY RISK ASSESSMENT SYSTEMS

2.1 Update to Survey of Proprietary Risk Assessment Systems

2.2 The Use of Proprietary Geodemographic Data in the Premium Rating of Household Contents Business

2.3 Testing the Predictive Value of Two Proprietary GDRASs

2.4 Summary and Conclusions

3. INSURING THE UNINSURABLE

3.1 Introduction

3.2 Why is the industry not self-correcting?

3.3 Methodology

3.4 Subsidence

- 3.4.1 Properties having already experienced a claim
- 3.4.2 Properties in high risk areas

3.5 Flood

3.6 Theft

3.7 Conclusion

4. CONCLUDING REMARKS

APPENDIX A:

1998 SURVEY OF PROPRIETARY RISK ASSESSMENT SYSTEMS

1. Review of the Year

This section describes the key factors affecting UK household insurers during the year since July 1997. In its previous paper (GISG Blackpool 1997) the working party expressed its opinion that the claims experience during the period since 1990 has been considerably better than a reasonable long-term average expectation and that, as a consequence, the senior management of some household insurers were increasingly tempted to assume that nothing could happen to dent profits. The exceptional weather-patterns and loss events experienced during the last year have provided a timely reminder of the volatility of household business results.

1.1 Recent Household Business Claims Experience

1.1.1 Subsidence

Industry figures¹ show that, although in 1997 there were slightly fewer claims notified than in 1996, the incurred claims cost was considerably higher, at just below £400m, making it the worst year since 1991. The worsening trend has apparently continued into 1998, as the first quarter figures are again the highest such figures since 1991 for both numbers of claims notified and incurred claims costs.

Several factors may be contributing to the increased numbers and costs of subsidence losses.

1.1.1.1 Weather Effects

The primary cause of the recent poor subsidence claims experience is thought to be the drought conditions that have been experienced in the UK since 1995. Much information regarding soil moisture levels and rainfall patterns is available to the interested household pricing actuary, particularly via the internet. Much of the information presented within this section of the paper has been obtained from the Institute of Hydrology² and from the BBC Weather Centre On-line³.

The UK weather during the year from July 1997 has been extremely mixed, with some months setting records for being particularly dry, and others for particularly high rainfall. Despite the recent mixed weather patterns, however, a significant rainfall deficit over the last few years has resulted in low soil moisture levels throughout most of the UK which have been a key contributor to recent subsidence problems.

The summer of 1997 saw a series of monthly weather records being broken. These culminated in November 1997 which, despite being the wettest month since early 1995, concluded the driest period of 32 consecutive months since the 1850's. Although both the June and August of 1997 had been particularly wet, with June 1997 being the wettest on record since 1869, this rainfall had very little effect on low ground water levels owing to the high rates of evaporation prevalent during the summer.

The weather in 1998 has been wetter than in 1997, with dry spells in February and May being offset by the wettest April since 1818 (of which more in section 1.1.2) and, at the time of writing, it is thought that June will break last year's rainfall record. As a consequence of the higher recent rainfall, groundwater levels have been largely restored over much of the country. Concerns remain about some areas, however, most notably East Anglia.

The expectation, based on largely restored groundwater levels, is that the number of subsidence claims reported should begin to show signs of reduction towards the end of 1998. These reductions are likely, however, to be too small and too late to prevent subsidence from again being a significant source of claims for the year.

There is growing concern, amongst insurers and others, about increases in the level of the water table in central London. These increases have resulted from significant reductions in the amount of water being extracted by local industry in recent years. Whilst this development may prove beneficial to insurers in relation to subsidence losses, there is a likelihood of a corresponding increase in the number of claims for flooded basements and cellars.

1.1.1.2 The Housing Market

It has long been recognised that the number of subsidence claims notified to insurers is influenced by the level of housing market activity, as much subsidence damage first comes to light during pre-sale property surveys. After a period of relative inactivity, the UK domestic property market gained momentum during 1997, led by a boom in London and the Home Counties which has since spread to some other regions. During 1997, the total number of property transactions in England and Wales was some 16% higher than in the previous year. Despite changes to MIRAS and successive marginal increases in base interest rates, the numbers of property transactions during 1998 are little down on 1997 figures.

1.1.1.3 Claims Handling Methods

During the year, some insurers have been affected by unexpected run-off losses on subsidence claims dating back to the early 1990's. On investigation, these appear to be the direct consequence of a change in claims handling practice in the early years of this decade.

Whereas the previous practice in relation to subsidence claims reported had been typically to embark on significant underpinning or other remedial building works, the revised approach was more minimalist, placing increased emphasis on monitoring with small interventions made only when necessary. This change in practice had an immediate beneficial effect for both insurers and claimants, with insurers paying out much smaller claim amounts and householders suffering much less disruption to their lives, and was assisted by a collapse in the housing market in many of the worst

affected areas which ensured that householders were more willing to accept a long-term solution to subsidence problems.

For some of the houses treated for which subsidence problems were initially dealt with by monitoring, these problems have now deteriorated so that extensive remedial building works are required. Indeed some of these cases have developed into total losses. It is no coincidence that old claims are re-emerging at the same time as the rates of reporting of new subsidence claims are high, as both phenomena are related to the recent drought conditions and the revitalisation of the housing market.

1.1.2 Flood

The most noteworthy flood event during the past year was that occurring over the Easter weekend in 1998. However, one incident occurring earlier in the year might potentially have had far greater consequences for UK insurers. On 27 October 1997, the Sand Kite, a 3,100-ton dredger, collided with part of the Thames Flood Barrier, rendering it inoperable for a few days. Had this incident coincided with high rainfall and water flow rates down the Thames, and high tides in the North Sea backed by a storm-force Easterly winds, then large areas of London that regard themselves safe from flooding by virtue of the Barrier might have been underwater. Cost estimates for such a flood run into many billions of pounds. The barrier has been closed as a precautionary measure about 25 times since it was opened in 1982.

This particular incident might, therefore, have resulted in one of the biggest catastrophic loss events (and marine liability claims!) in insurance history. It does serve to illustrate that, when assessing risk, the actuary should always bear in mind that such things as flood defences, be they the Thames Barrier or mere sea walls, can and do fail from time-to-time.

The riverine floods occurring in England and Wales over the Easter weekend were, in some areas, worse than the previous “benchmark” river floods of 1947. The floods resulted from a short period of extremely high rainfall on Maundy Thursday (April 9th) in areas where the ground was already saturated from a previous period of wet weather. The Environment Agency preliminary report⁴ on the incident describes how around 75 millimetres of rain (6 weeks’ average rainfall) fell in just 36 hours. Many of the rivers in East and Central England and mid-Wales immediately became swollen beyond the extent to which their flood defences (e.g. those in Northampton and Banbury) had been designed to withstand. The resultant flooding was at a level estimated to have a return period of between 100 and 150 years. A map of the worst affected postal sectors is shown as Figure 1.

In the first few days following the flooding, press speculation regarding the ultimate insured cost of the flood damage, and its likely effect on household premium rates, was typically ill-informed. Initial estimates placed the total insured loss at around £1.5 billion, and suggestions were made that insurers would be forced to increase household premium rates by as much as 35% as a direct consequence of the floods. Whilst, at the time of writing, there remains some uncertainty regarding ultimate insured costs, a

figure of between £300m and £500m looks most likely, with a best estimate towards the lower end of this range. Since most responsible household insurers rate fully for the expected average annual cost of infrequent, catastrophic flood events, and hold statutory claims equalisation reserves specifically for such events, the effect of the Easter 1998 floods on overall household premium rates is likely to be close to nil.

Given the attention that the risk of catastrophic coastal flooding has attracted in recent years, with such high-profile studies as that undertaken by ABI/Halcrow, it is ironic that the largest UK insured flood event in a generation related to riverine flooding. Insurers are notably short of relevant historic claims data on river floods, the only significant recent experience relating to the Perth floods of 15th to 17th January 1993. Furthermore, models of riverine flood risk have, until now, been largely missing from proprietary risk-assessment systems.

As a consequence of the Easter 1998 floods, a large volume of new claims data has been obtained. In particular, many household insurers have taken the opportunity of collecting extra information on the extent of flood damage in each particular case, in order to better understand the correlations between the height of flood water in the home, the duration of flooding, and the size of the subsequent loss.

One issue that the insurance industry might wish to consider is that of the effectiveness, or otherwise, of flood warning procedures. Insurers will wish to ensure that policyholders receive the earliest possible warning of a potential flood incident in order that they may take appropriate action (e.g. sandbagging doorways, removing valuables to an upper floor). The Environment Agency preliminary report comments on the effectiveness of flood warning and recovery procedures, and concludes that there are deficiencies.

Many household insurers now have very effective telephone servicing operations which make use of detailed data regarding customer addresses and contact phone numbers. Insurers themselves might wish to receive flood warnings at the earliest opportunity in order that they may use these facilities to communicate flood warnings to a targeted at-risk area. Alternatively, insurers may wish to despatch their own sandbagging contractors! Any additional expense incurred would probably be more than offset by a subsequent reduction in claims costs, notwithstanding customer service benefits.

1.1.3 Windstorm

The UK experienced two significant windstorms during the period under review, the first of such magnitude since the 90A and 90G events.

The first windstorm (97G) occurred on Christmas Eve 1997, with the worst-affected areas being north-west England and North Wales. Seven people lost their lives as mean windspeeds of up to 100mph, and gusts of up to 115 mph, were recorded. In most areas, however, the winds were not sufficiently strong to cause structural damage to residential properties, and much of the insured property damage related to roof tiles, chimneys, windows, garden walls and fences. As a result of damage to overhead power

lines, over 100,000 homes were left without electricity throughout the Christmas holiday period, leading to many claims for loss of freezer contents. Such claims had unusually high severity owing to the large quantities of frozen food purchased ahead of Christmas celebrations.

The second windstorm (98A) occurred on 4th January 1998, with the worst affected areas being southern and south-west England, and South Wales. This event was more severe than 97G, with maximum mean and gust windspeeds exceeding those of the earlier storm by around 5 mph. The highest recorded gust windspeed of nearly 120mph was measured on Dartmoor, Devon. A further 3 people lost their lives and, yet again, over 100,000 homes were left without electricity. In Selsey, West Sussex, flooding of the sole access road following the failure of a defensive sea wall resulted in over 1000 people temporarily being cut off from the UK mainland.

Details of the 97G and 98A windstorms, including maps of each windstorm track, have kindly been provided by EQECAT⁵, using data supplied by the Met Office. The maps, shown on the next two pages, show that the track of the 4th January 1998 windstorm was rather more southerly than that of the 24th December 1997 event, although limited areas of North Wales were badly affected for the second time in 12 days.

The third windstorm event to attract the attention of household insurers was the tornado that hit Selsey, West Sussex, at around 11.45 p.m. on 7th January 1998. Because of the localised nature of the event and its very short duration (around a minute), little reliable windspeed information was recorded, although estimates are that maximum gust speeds reached around 160 mph. The tornado headed from west-to-east through the town on a path around 3 km long and 500m wide. The high winds were accompanied by a thunderstorm and hailstones of up to 2 cm in diameter.

Around 1000 houses in Selsey were damaged, with most insurable losses relating to roofs and chimneys. Because of the limited and fairly well-defined area of impact, insurers were able to quickly identify those of their policyholders who may have been affected and to send in task forces to locate and assist them, much to the delight of their public relations departments. Also delighted by the event were the influx of cowboy builders, roofers and glaziers. A disadvantage of the limited area of effect for some insurers was their greater-than-usual business penetrations within the worst affected streets. Initial estimates of insured losses ranged as high as £10m although, in reality, many individual claims turned out to be less severe than expected. A current best-estimate insured loss cost (for domestic properties only) is around £3m.

Although the UK experiences an average of around 30 tornadoes per year, the Selsey event was exceptional in its intensity and in its impacting a densely populated area. The working party is aware of no evidence which suggests that this event is indicative of an increasing trend in either the frequency or severity of insured tornado losses in the UK.

All of the significant UK windstorm losses occurred in a period concentrated closely around New Year 1998. As a consequence, any household insurer preparing reports

and accounts as at 31st December 1997 was in immediate need of accurate insured loss estimates in order to establish appropriate IBNR and claims equalisation reserves, and to assess the adequacy of unexpired risks reserves.

When a large natural perils loss event occurs, insurers may, in the first instance, request their household actuary to prepare an estimate of the company's expected losses from the event, net and gross of any reinsurance. The actuary will typically use claims notification patterns in order to estimate the ultimate number of claims, and data from loss adjusters' reports or from non-event losses in order to estimate claim severities. When an estimate of the company's loss has been calculated then this may be checked by applying market share percentages to third-party estimates of total market losses. For the series of windstorm events around New Year 1998 this methodology failed in two key respects, and left many actuaries over-estimating the costs to their company, to the disadvantage of the Inland Revenue.

First, the pattern of claims notification was much faster than in previous comparable events. In the eight years since 90A and 90G, the widespread introduction of telephone claims handling systems had invalidated any models of reporting delays based on these events. Although some insurers found their telephone claims handling services pushed to breaking point by the co-occurrence of major loss events with a bank holiday (24th December) and the New Year holiday weekend (4th January), these systems proved to be very efficient in quickly recording the number of claims that had been incurred. Reliance on the historic models, however, and an assumption that many policyholders would be away from home and hence not able to report immediately any damage sustained, led some actuaries to ignore the statistics produced by their company's modern systems and to over-estimate the number of claims incurred.

Historic patterns of settled claims severity were also misleading as a basis for estimation. For the 87J and 90A events, a trend of strongly increasing severity with elapsed time from the date of occurrence was seen, as the smallest claims were settled first and the larger ones thereafter. For the 97G and 98A events, however, the increasing trend was less pronounced, so that the application of historic models caused ultimate claim severity to be over-estimated. The less pronounced trend followed from an increased proportion of large claims being settled earlier, as a result of lower numbers of claims associated with the event and of efficient claims management procedures placing increased emphasis on customer service

Second, media and industry estimates of market losses were grossly overestimated. As a consequence, any individual insurer applying their market share percentage to such an estimate would over-estimate their own losses. A feature common to the 97G, 98A and Selsey events was the large number of organisations, typically reinsurance brokers or vendors of natural perils risk assessment software, that were prepared to venture estimates of market insured losses soon after the event occurring. A cynic, although certainly not the working party, might suggest that both these types of organisation have an interest in erring on the side of caution in providing estimates of natural peril losses and loss potentials. That said, there are now two additional major UK

windstorms for which vast quantities of meteorological and insurance claims data have been collected, so that the estimation models used may now be better calibrated.

Even whilst the 98A windstorm was in progress, media reports were comparing it with the 87J and 90A events for its intensity, and were predicting insured losses in the region of £2 bn. Within days of the storm subsiding, estimates were typically in a range between £400m and £600m, with popular opinion tending towards the upper end of that range. At the end of February 1998, an estimate of insured losses of less than £200m was published, this even including an element for losses in Continental Europe arising from the same event. Estimates of market losses for the 97G event followed a similarly decreasing pattern over time, with initial estimates of around £300m decreasing to around £120m by the end of February 1998.

So just how much did the 97G and 98A windstorms cost UK household insurers? ABI statistics based on claims notified during Q4 1997 and Q1 1998 indicate that domestic weather damage losses during this period, including windstorm losses, amounted to less than £250m. One difficulty in estimating the costs of the windstorms is that potentially the best source of such information, the reinsurance industry, is unlikely to have been impacted by these events. It is the view of the working party that the losses for each of these events will ultimately turn out to be around £100m. Given the relatively small costs, insurers are unlikely to access claims equalisation reserves as a result of these events, even after allowing for the Easter 1998 flooding.

Many commentators were inclined to attribute the first occurrence for eight years of significant UK windstorm events to changes in the North Atlantic jetstream caused by the Pacific El Nino effect. Credence is added to such a theory when it is considered that the El Nino effect also peaked during 1987, and may therefore have been a contributing factor to the occurrence of the 87J event. However, the subsequent El Nino peak in 1992 did not coincide with severe weather conditions in the UK, and there was no El Nino effect in 1990, at the time of the 90A and 90G events.

1.1.4 Theft

1.1.4.1 Recent Claims Experience

ABI statistics¹ indicate that the improving trend in domestic property theft claims experience, which has been evident since 1993, continued throughout 1997. Claims numbers were some 11% lower than one year earlier, with severities having increased almost exactly in line with price inflation. The claims experience for the first half of 1998 shows a continuation in the trend of reducing year-on-year claim frequencies, although the rate of reduction has decreased. It is expected that, at or around the end of 1998, the decreasing trend will reverse as the UK economy cools, with the effect that the theft frequency for 1999 will be worse than that for 1998.

1.1.4.2 The “World Cup Frequency Effect”

Some insurers have, in the past, noticed a significant reduction in the frequency of household (and motor) theft claims during the period of the World Cup football tournament. This effect has been explained, somewhat unconvincingly, by the assertion that burglars are deterred from their activities by the prospect of missing an important football match and, because householders are more likely to be at home watching television during this tournament, that there are fewer opportunities for successful burglaries. At the time of writing, there is not yet sufficient evidence to confirm or refute the existence of a 1998 “World Cup frequency effect”.

1.1.5 Liability

In its 1997 paper, the working party noted the anecdotal evidence suggesting an increasing incidence of large liability claims under household policies. The possibility of such an adverse trend did not seem unreasonable, given the increasingly litigious nature of UK society, and the potential for significant additional claims costs unfunded from premiums was sufficiently concerning for the working party to initiate an investigation into current trends. Because of the extremely low frequencies of the largest liability claims, a data-pooling exercise was undertaken by a number of major UK household insurers. Even then, the number of claims included in the exercise was so small as to prevent any analysis by rating factor - only the overall trends could be investigated.

In the UK, liability cover may typically be provided under up to four sections of the household policy. These are:

- property owner’s liability (buildings covers)
- occupier’s and personal liability (contents cover)
- liability to domestic employees (contents cover)
- tenant’s liability (contents cover)

The insurer may also face exposures of a similar nature under a section of the contents cover relating to unrecoverable court awards. A comparison of policy documents within the market suggested that liability section coverage and wordings are extremely uniform and, in particular, recent market entrants are not deviating from the practice adopted by traditional household insurers.

The property owner’s liability and occupier’s and personal liability sections cover similar third-party property damage and personal injury risks in relation to an individual’s ownership of or residency in an insured property. Owing to the similarity of the cover provided, most insurer’s policies provide for equal limits of indemnity (typically £1m) under these sections. The liability to domestic employees section is an employers’ liability cover and so has higher limits - a statutory minimum of £2m and increasingly as much as £10m. Despite the high limits of indemnity, exposures are low as few policyholders retain domestic employees and much of any large loss will

typically be reinsured. The tenant's liability section is a property damage cover, relating to damage caused by the policyholder to a rented property. The section typically has a limit of indemnity expressed as a percentage (e.g. 15% or 20%) of the contents sums insured, so that very large claims are not possible.

For the investigation of household liability claims trends, each participating company was asked to provide, for as many years back as possible, the following information:

- exposures (in earned policy years) by calendar year, separately for buildings and contents covers,
- numbers of claims by calendar year, separately under property owner's liability and occupier's and personal liability sections,
- payments on above claims, separately by payment year.

This information was used to estimate, for each calendar year, the frequency, severity and cost per policy year under each of the two liability sections. In a separate exercise, the numbers and amounts of claims having sizes exceeding an inflation-adjusted £0.1m or £0.5m were analysed, in order to separately identify any trends in experience for the largest claims.

A condition of the data-pooling exercise was that detailed results of the analysis would remain confidential to the participating companies. Selected summary results are as follows, however:

- there is some evidence of increasing claim frequencies under both the property owner's liability and occupier's and personal liability sections. It is believed that this trend is not unrelated to the increasing provision of legal helpline services, and policyholders' increasing utilisation of these. Nevertheless, claim frequencies remain low at below 0.1 per mille and 1 per mille respectively.
- claims numbers are so low that no clear trends in inflation-adjusted claims severity could be identified for either liability section.
- amongst the very largest claims, there is no pattern of increasing claim frequency, although the long-tailed reporting and settlement patterns may act to disguise trends for the most recent calendar years.

The participating companies represented sufficiently large a proportion of the UK household market during the investigation period that they expected any significant trends that exist to be visible within the pooled data.

Despite the apparent absence of any increasing trend in the frequency of the very largest household liability claims, an increasing trend in claim severity would be expected following recent legal developments which will act to increase the amounts of personal injury awards. These include the implementation from 6th October 1997 of the Social Security (Recovery of Benefits) Act 1997, and the recent House of Lords ruling in relation to discount rates for use with the Ogden Tables.

1.1.6 Escape of Water

There were no significant freeze events during the winter 1997/8.

1.1.7 Fire

ABI statistics¹ indicate a worsening trend in domestic property fire claims experience, with total gross incurred losses for 1997 some 11% higher than those for 1996. This is a reversal of the experience in recent years, during which the increased ownership and usage of smoke detectors had contributed to significant reductions in fire claims frequencies.

1.2 Economic Factors

Over the past 12 months, inflation has increased, with the RPI now standing at around the 4% mark. However, the index that is more usually used by insurers is that for consumer durables or household goods, which have increased by -0.5% and 1.5% respectively.

House prices have increased over the year by about 5% to 6%, but estimates of rebuilding costs have risen by nearer to 7.5%, apparently due to an excess of demand over supply for builders.

The rate of unemployment has not altered significantly over the year, but is an indicator that will be watched with interest over the coming months due to the likely impact on contents insurance.

1.3 Market Information

Average prices for both buildings and contents have stayed virtually level over the past 12 months. As the increase in price of consumer durables have been small, contents policies with automatic indexation have seen similarly small rises, although those on buildings could be significantly higher.

However, there has been a marked change in bedroom rated contents policies. Last summer the typical standard sum insured was £30k - £35k. It now seems that £40k is increasingly prevalent, some companies are offering cover up to £45k or £50k, and at least one company is marketing a contents policy which is offering unlimited cover. While this has little impact on a large number of households (where the value of contents was already below £30,000 in any case), the potential for adverse selection against bedroom rated policies has increased.

1.4 Year 2000

1.4.1 The Problem

In common with those insurers writing other classes of non-life business, UK household insurers are exposed to potential additional insurance liabilities arising from

the “Year 2000” (Y2K) event. Claims potentials arise mainly from microchip and computer software problems, but also from the likely intense celebrations of the millennium itself. The Insurance Directorate of HM Treasury has recognised the potential adverse impact of the Y2K event by requiring all UK non-life insurers to provide assurances, by the end of July 1998, that they have completed an exercise to identify and quantify potential Y2K exposures. The Treasury further require that insurers identify measures by which Y2K liabilities may be controlled, and assess the likely impact on balance sheet strength.

1.4.2 Policy Exclusions

Insurers have argued that current household policy wordings allow no cover for Y2K claims, in particular those from microchip-related problems, because such claims will not result from a fortuitous, unforeseeable event. Nevertheless, the majority of UK household insurers have sought to limit their exposure to additional insurance liabilities by means of amended policy wordings. These amendments are considered to be “endorsements of clarification” rather than “exclusions” (although the latter term is more commonly used) because they are not deemed to change the scope or level of cover provided. The principles behind, and wordings of, the exclusions applied generally follow guidance provided by the Association of British Insurers (ABI).

Most insurers have applied a “partial” Y2K exclusion to their household policies. In relation to malfunctioning domestic equipment this means that damage to the item itself is excluded, but that any resultant claims under an insured peril are allowed. For example, the replacement of a non Y2K-compliant central heating control system is not covered, but if its malfunctioning causes an escape of water loss then any consequent damage to insured property would be covered.

1.4.3 Sources of Y2K claims

Despite the application of specific Y2K exclusions it is expected that additional household claims will arise from two main sources. First there is a possibility that a policyholder suffering an excluded Y2K-related loss might make a fraudulent claim representing the loss as arising from an insured peril. Examples would include claims for theft of, or accidental damage to, non Y2K-compliant audio or video equipment.

Some household insurers have sought to exert influence over the number of such claims by alerting policyholders (perhaps on renewal) to potential Y2K-compliance problems in respect of insured electronic equipment. It is a possibility, however, that by raising policyholder awareness of the Y2K problem, the number of fraudulent claims will be increased. Each insurer’s claims department must seek to identify and repudiate such claims, although it is unlikely that this will be entirely successful.

The second main source of additional Y2K household claims will be those events for which coverage is provided but which are, themselves, consequences of Y2K-related problems. Examples would include the domestic fire which might have been avoided

but for a malfunctioning smoke alarm, or the personal injury sustained during millennium celebrations in the home. It is from such claims that it is expected that the majority of additional Y2K liabilities will arise. Additionally, insurers should not rule out the possibility of a successful legal challenge to Y2K exclusions.

Independently of any interest from the regulator, the actuary would be well-advised to undertake an exercise to estimate the potential for additional claims costs from Y2K sources, over and above the long-term average expected claims costs that are allowed for in household business premium rates. The decision as to whether to increase rates for periods of cover close to the millennium is a separate issue, but should be taken from an informed position regarding the adequacy of current rates and the solvency margin.

A useful starting point to such an exercise is to determine the views of household underwriters regarding potential Y2K exposures, and to discover whether, and to what extent, it is planned to control these exposures by means of specific Y2K exclusions. Thereafter, for each household product and for buildings and contents covers separately, the actuary should examine the scope and nature of cover provided in order to postulate some more or less plausible events giving rise to Y2K-related claims under policies within that product grouping. One way of doing so is by reference to a list of insured perils or claims codes. For each event, parametrised models of claims cost may then be developed. Although many of the probability parameters will be extremely uncertain a “likely” range for total Y2K claims costs may be derived and this may prove informative in framing a Y2K strategy. As the millennium approaches, regular reviews of events, models and parameter values will enable exposure estimates to be refined.

1.4.4 Disaster Scenarios

Whilst some Y2K events are reasonably foreseeable - the malfunction of central heating systems, burglar and smoke alarms, and audio and video equipment, accidents and personal injury in the home following drunken behaviour - there are a number of possible “disaster” scenarios which could give rise to significant additional claims costs. These would include such events as fluctuations in, or failure of, domestic power supplies leading to freezer contents losses, frozen pipes or fires, or the failure of communications or transport systems preventing the reporting of fires and the prompt attendance of emergency services. These possibilities add considerably to the uncertainty of any estimate of Y2K exposures and may best be dealt with by means of an arbitrary additional loading.

1.4.5 Other Considerations

Additional Y2K liabilities may be incurred as a result of the failure of the insurer’s own computer systems. For example, a failure in claims handling systems may result in reduced control of claims costs. The 1997 paper described other additional Y2K

expenses such as the cost of actuarial resource tied-up in amending statistical systems, and the opportunity cost of IT resource being unavailable to implement changes to products or to premium rates. Furthermore, if as some commentators predict, the cost of millennium systems changes drives the UK economy into recession, then household insurers must expect to see increasing numbers of recession-related theft and other claims being notified.

1.5 Postal Geography

Appendix A to the 1997 paper provided a detailed description of Royal Mail postal geography and the consequences of the use of postcodes as a basis for the geographical rating of household insurance business. One particularly important issue covered was in relation to the periodic updates to postal geography, and the difficulties that these pose in terms of the degradation of historic claims data and the generation of premium rates in affected areas.

Since July 1997 there have been two Royal Mail postcode updates (numbers 25 and 26), affecting postcodes in 6 of the 124 postcode areas (BB, BS, SK, BT, E, N and YO). These updates have created 151 new postcode sectors and have created, or amended, the unit postcodes attached to approximately 315,000 residential delivery points (around 1.4% of the 24.9m UK-wide total).

According to the working party's best available sources at the time of writing, the Royal Mail postal geography recognises 26,135,446 delivery point of which some 24,895,201(95.3%) are residential in nature. These residential delivery points are distributed between 1,418,410 postcode units (e.g. AB12 3YZ), 9,267 postcode sectors (e.g. AB12 3), 2,787 postcode districts (e.g. AB12), and 124 postcode areas (e.g. AB). A further 255,124 postcode units, 251 postcode sectors and 83 postcode districts relate entirely to non-residential delivery points.

Those companies choosing to rate their household business at the postcode sector level may be tempted to assume that, because the average number of delivery points per postcode sector is large (at around 2,700 it is confusingly similar to the number of postcode districts in the UK) then experience-rating by postcode sector is a practical possibility. Companies should note, however, that of the 9,267 postcode sectors which contain residential delivery points, some 12 sectors contain only one such delivery point. Rating any household business in these sectors by reference to claims experience alone may prove extremely difficult. In contrast, the largest UK postcode sector in terms of the number of residential delivery points is HU7 4, which has over 9,700.

1.6 Reinsurance

There has been little change apparent over the last year in the UK property catastrophe excess-of-loss reinsurance market. High market capacity and growing statutory claims equalisation reserves have combined to ensure the continuation of excess supply and historically low rates-on-line. Many 1998 programmes were placed at a small price

reduction relative to 1997 despite increasingly sophisticated natural perils risk-assessment techniques raising market awareness of the potential for large catastrophe losses. Very few changes to retention levels or upper limits of cover were evident amongst the larger UK household insurers.

Following the problems caused to reinsurers by the LMX spiral and the 87J/90A storms and other coincident large losses, it became common practice for primary insurers to retain 5% to 10% co-insurance on each excess-of-loss layer. A key justification for this change in the context of household business was to provide the primary insurer with an incentive to control claims costs in the event of a catastrophic loss on which recoveries are anticipated but the ground-up cost of which is not expected to exceed the upper limit of reinsurance cover. In the last two renewal seasons, the market has become so soft that some insurers have again been able to obtain property catastrophe cover having no co-insurance percentage.

Another market development has seen the largest UK insurers, particularly those with European owners, subsidiaries or aspirations, increasingly considering their property catastrophe exposures, and reinsurance purchases, on a pan-European or global basis. One consequence of such an approach is that less reinsurance may be deemed necessary owing to increased geographical risk diversification.

2. Proprietary Risk Assessment Systems

2.1 Update to Survey of Proprietary Risk Assessment Systems

In its 1997 paper, the working party summarised the results of a survey of proprietary risk assessment systems which were, at that time, being marketed to UK insurers for use in the premium rating of household insurance business. This survey considered both geophysical risk assessment systems (GPRASs), designed for use in assessing risks from natural perils, particularly subsidence, flood and windstorm, and geodemographic risk assessment systems (GDRASs), designed for use in assessing risks from other perils, most commonly theft and fire.

The survey has since been updated for developments in these systems during the year and also for merger and acquisition activity amongst the main system vendors. The updated survey results are presented in Appendix A.

2.2 The Use of Proprietary Geodemographic Data in the Premium Rating of Household Contents Business

In Section 3.4. of its 1997 paper, the working party described the use by insurers of third-party geodemographic data in the premium rating of household contents business, particularly in relation to theft claims. The concept behind such an approach is that the risk of a theft claim under a contents policy is influenced by characteristics of the policyholder, their lifestyle, their household and their neighbourhood, and, in the absence of adequate historic claims experience relating to that policy or similar policies, the level of risk may be determined by reference to these geodemographic factors. The use of such data has become more widespread in recent years as its availability has grown and as insurers have attempted to differentiate between risks at increasingly fine levels of postal geography.

The widespread use of postcode sector as the basic geographical unit in the rating structure for household contents business has left all but the largest insurers uncertain of the credibility of their historical claims experience as a basis for assessing the geographical variation theft risk over the whole of the UK. Even the largest insurers may wish to obtain some comfort from the use of third-party data to confirm their own assessment of the theft risk. As a consequence, almost all UK household insurers have considered the purchase of third-party geodemographic datasets or systems in order to assist with premium rating, and there is certainly no shortage of potential vendors beating a path to insurers' doors.

For the avoidance of confusion, it is important to distinguish between two different types of geodemographic product that may be used by insurers when quantifying the theft risk.

A) Geodemographic datasets (e.g. ACORN, MOSAIC): These are datasets which contain the values of various demographic factors (e.g. age, occupation, family size, household income, property ownership status) for each of a large number of geographical units, typically full (unit) postcodes. The values of these factors may additionally be used, by means of cluster analysis techniques, to classify the geographical units into groups sharing “similar” demographic characteristics, albeit using a measure of similarity which may be defined by reference to marketing or other considerations, rather than by the insurance risk. Typically, no explicit information on the incidence of household burglaries is included in geodemographic datasets.

Geodemographic datasets may be used in the risk-assessment process by incorporating selected of the demographic variables, or the “grouped” classification variable, within the insurer’s own multifactorial statistical models of risk. This approach contains many pitfalls for the inexperienced and unwary actuary, particularly in relation to the correlations which may exist between explanatory variables included within the multifactorial statistical models. It is not intended to describe such an approach within this paper.

B) Geodemographic risk assessment systems (GDRASs): These are systems which provide estimates of claim frequencies, severities or costs per unit exposure for different geographic units. Alternatively they may estimate only the geographic relativities of these quantities. Occasionally they may provide a facility which enables the output variables to be re-estimated following changes in the values of the underlying demographic factors.

For systems relating to theft claims, the base geographical unit is typically the full (unit) postcode, but may be the postcode sector or some intermediate unit, perhaps based on groupings of full postcodes. Because a system output which takes the form of three long lists of postcode-referenced numbers may not seem particularly impressive to a prospective purchaser, these systems may additionally include some limited spreadsheet and mapping facilities. Such additional facilities may enable the insurers’ own policy exposures to be used to estimate total claims costs for selected geographical areas, and the composition of pretty pictures of these costs or the underlying risk variables.

Whilst the output of the GDRAS might typically be limited, the data underlying the theft risk estimate for each geographical unit may be extensive. This data may include demographic data, but also actual burglary statistics or insurers’ claims experience. The system will typically arrive at its final risk assessment for a postcode by means of a multifactorial statistical model fitted to, and calibrated using, the extensive underlying data.

Some of the more popular GDRASs can be quite expensive - six-figure (Sterling) prices are the norm, rather than the exception. Given these prices, it is particularly important that such a system adds value to the risk-assessment process. The issues that are considered in relation to a prospective purchase are likely to include:

- internal data - is the insurer really making the best and most statistically efficient use of its own internal data, whether historic claims experience or customer data? Is valuable internal data being deleted, overwritten, corrupted, or allowed to degrade, and hence lost to the risk-assessment process?
- rating approach - can the system easily be incorporated into the current rating methodology and premium structure?
- skills - how difficult is the system to understand and to use correctly?
- hardware/software considerations - will the system run alongside other software using current hardware configurations?
- system or data - does the GDRAS, in its entirety, dovetail with the insurer's current rating methodology, or would the detailed data underlying the system be more useful, perhaps enabling the customisation of any statistical model programmed into the system?
- redundant modules - does the GDRAS version on offer contain modules, perhaps relating to other perils, which are not required?
- updates - how up-to-date are the data underlying the system? Is there any commitment by the vendor to update this data or any postal geography by which the data and outputs are classified? What costs and delays are involved in updates?
- third-party access to insurer's own data - is the system vendor suggesting or requiring access to the insurer's own policy, claims or customer data for purposes of "calibration" or "tailoring the model to the insurer's own portfolio"? If so then what is the value of this data to the vendor and those others of its clients who are direct competitors? What is the cost of the loss of competitive advantage?
- cost - what is the cost of the system initially? Of updates? Of training? Of ensuring computer hardware/software compatibility? Of loss of opportunity through commitment to one vendor?

The primary consideration of course, which is not listed above, is whether the system actually has any predictive value in relation to the theft risk. This key issue is investigated in the following section.

2.3 Testing the Predictive Value of Two Proprietary GDRASs

The working party has sought to test the predictive value of proprietary GDRASs by means of a rough-and-ready comparison between the aggregated contents theft claims experience of a number of major UK household insurers and that predicted by two leading such systems. The working party would like to record its gratitude to the owners of the systems for their willing participation in this exercise.

For household contents cover, it is the theft peril which dominates the risk premium. As a consequence, other than in those limited areas of the UK which are susceptible to flooding, the geographical variation in the theft risk dominates considerations in determining an appropriate premium rating structure. In comparison with that of claim frequency, the geographical variation in theft claims severity is low. For this reason, the working party has restricted its comparison study to data relating to theft claims frequencies.

In order to ensure a degree of statistical credibility, the comparison exercise has been undertaken at the postcode sector level, although one of the systems considered does provide a risk assessment at the full (unit) postcode level. Twenty postcode sectors, representative of a broad range of theft risk intensity, were selected as a basis for the comparison. To further improve statistical credibility, only those sectors containing a large number of households (residential delivery points) relative to the UK average were considered for inclusion (those chosen contained an average of 5,600 households per sector as compared with the UK-wide average of around 2,700 per sector). In addition, postcode sectors were selected so as to exclude those affected by changes to Royal Mail postal geography either during or since the investigation period.

The pooled claims experience relates to exposure on standard new-for-old household contents covers during the three-year period commencing 1st January 1995. Participating insurers were asked to provide, for each postcode sector, their policy exposures and the numbers of theft claims incurred during the investigation period. GDRAS vendors were asked to provide, for each sector, their best estimate of household contents theft claim frequency.

Five insurers provided data for this exercise. Across the twenty postcode sectors considered, the average percentage of households obtaining cover from the participating companies was around 17%. After making allowance for those households not purchasing contents insurance, and for those buying cover on an indemnity basis, the pooled data sample represents around a quarter of the UK new-for-old contents insurance market during the investigation period. This is consistent with published data which suggests that, over the investigation period, the participating insurers between them represented some 26% of the total UK household insurance market in premium income terms.

Table A provides, for each postcode sector, the percentage of households obtaining new-for-old contents cover from the participating companies. Because the insurers'

claims experience and the GDRAS output have considerable commercial value, each sector has been identified in this paper only by reference to the postal town to which it is closest. In some cases, two of the sectors considered share an associated postal town.

Table A – Estimated Percentage Penetration Amongst Participating Companies

	Closest Postal Town	Estimated Penetration		Closest Postal Town	Estimated Penetration
1	Duns	21%	11	Huddersfield	16%
2	Larbert	16%	12	Workington	19%
3	Ipswich	25%	13	Gateshead	14%
4	Nuneaton	17%	14	Coventry	12%
5	Tamworth	23%	15	Huddersfield	11%
6	Lancaster	20%	16	Sheffield	14%
7	Swadlincote	29%	17	Doncaster	16%
8	Nottingham	23%	18	Ashington	13%
9	Retford	19%	19	Sheffield	10%
10	Hinckley	21%	20	Leeds	10%

Although not immediately apparent given the “disguised” identities of the postcode sectors included in the study, the penetration percentages are lower for those sectors in urban areas, and higher for those in rural areas. This pattern is as expected given the lower uptake of contents insurance generally, but higher proportionate uptake of indemnity covers, in certain high-risk and less affluent urban areas. A consequence for insurers is that any estimates of theft frequency based on claims experience alone are least reliable in those areas where the frequencies themselves, and the potential disadvantages of underestimating them, are highest.

The insurance companies’ aggregate data was used to calculate, for each postcode sector, the experienced theft claims frequency during the investigation period. Table B compares the calculated theft claims frequency with that predicted by each of the two GDRASs, with sectors ordered by increasing experienced claim frequency. Also shown, for each source, is the weighted-average frequency over all twenty postcode sectors (with weights equal to the number of residential delivery points in each sector). Graph 1 represents table B graphically. In Graph 2 the predicted claim frequencies have been scaled so that, for each GDRAS, the average predicted claim frequency over all 20 sectors is the equal to that for the pooled experience.

Table B – A Comparison of Theft Claim Frequencies

Closest Postal Town		Aggregate Company Experience	Predicted - System A	Predicted - System B
1	Duns	0.49%	1.11%	0.02%
2	Larbert	0.61%	1.24%	1.47%
3	Ipswich	0.95%	1.56%	1.38%
4	Nuneaton	1.49%	3.03%	2.35%
5	Tamworth	1.55%	2.49%	2.66%
6	Lancaster	1.61%	2.10%	1.69%
7	Swadlincote	1.95%	4.11%	1.70%
8	Nottingham	2.70%	4.37%	3.03%
9	Retford	2.86%	3.52%	7.36%
10	Hinckley	2.97%	4.10%	4.69%
11	Huddersfield	3.34%	3.63%	4.73%
12	Workington	4.04%	3.13%	3.70%
13	Gateshead	4.32%	6.45%	3.23%
14	Coventry	4.40%	10.19%	3.47%
15	Huddersfield	4.42%	6.10%	7.48%
16	Sheffield	4.43%	7.46%	3.10%
17	Doncaster	5.30%	8.44%	2.79%
18	Ashington	6.25%	6.68%	4.56%
19	Sheffield	8.14%	12.55%	3.96%
20	Leeds	10.92%	11.99%	6.68%
Average		3.69%	5.41%	3.67%

Points of note include:

- of the 40 frequency estimates provided by systems A and B, 29 are higher and 11 are lower than the corresponding claims experience. For 10 postcode sectors both estimates are higher, whilst for only 1 sector are they both lower.

- of the 40 frequency estimates provided by the two systems, 7 are within 20% of the claims experience. However, a further 9 are greater than 200% or smaller than 50% of the corresponding experienced value.
- for system B, the average predicted frequency over all 20 sectors is remarkably close to the corresponding figure based on the pooled data. However, the system A figure is some 47% higher.

Some quite significant differences are evident between the experienced claim frequencies and those predicted by the two GDRASs. Reasons for these differences will include:

- the comparison exercise has been based on only 20 postcode sectors selected from the 9,267 UK sectors containing residential properties. Those selected for inclusion may possess particular characteristics which cause the statistical models underlying the GDRAS estimates to predict low or high values - they may, in fact, be the 20 worst outliers for each system's favoured model. It was commercially unattractive, however, to GDRAS vendors and insurers alike to extend this study to include all UK postcode sectors. Short of doing so, there will always be scope for the unintended selective sampling of sectors.
- although the pooled data represents around 25% of the new-for-old household contents market by exposure, this subset may also be select in some sense - perhaps owing to the precise policy wordings adopted by the participating companies, or to the characteristics of their particular customer bases. If these company-specific effects on claim frequency are pronounced then this will reduce the attractiveness to all companies of a GDRAS which predicts values based on whole-market expectations.
- the pooled claims experience relates to the period 1995 to 1997, so that the absolute level of the experienced claim frequency reflects some exposure-weighted average of underlying theft claim frequencies during this period. Household contents theft claim frequencies in 1998, however, are around 25% lower than those experienced during the investigation period. This illustrates the necessity for those GDRASs which generate absolute frequency estimates to make appropriate allowance in those estimates for past and projected future trends in theft claims frequencies and in any underlying geodemographic data.
- whereas the output variables of the GDRASs are specified by reference to postal geography, some of the underlying estimation models may make use of data inputs which are indexed according to some other geographical variable. As an example, the geodemographic data obtained from the 1991 OPCS census is categorised (in England and Wales) according to "census enumeration district", for which there is no one-to-one mapping to elements of postal geography. The approximations necessary to adjust this data onto current postal geography may bias the predicted claim frequencies towards a uniform average value.

- one of the GDRAS systems estimates claim frequencies at the postcode unit level. In the process of aggregating this data to sector level the unit-level frequencies have been weighted according to the numbers of residential delivery points in each postcode unit. If the contributing insurers' exposure is not uniformly distributed by postcode unit within the sector (i.e. it is distributed disproportionately to the number of residential delivery points) then entirely accurate GDRAS estimates at the unit level may appear inaccurate at the sector level. In practice, however, owing to the very large volumes of data contributed by participating insurers, this is unlikely.

The differences between the pooled claims experience and some of the predicted values might be deemed to cast doubt on the value of the GDRAS systems for premium rating purposes. It is enlightening, however, to subject the pooled experience to a basic statistical test of credibility, in order to assess how confidently it might be used for rating in the absence of any GDRAS system.

For a typical postcode sector included in the study, the pooled claims experience relates to the insurance of 17% of 5,600 households for a period of three years - a total of 2,856 earned policy-years of exposure. Suppose that the experienced claim frequency is equivalent to the weighted-average frequency of the pooled data (3.69%), so that we see 105 theft claims in the sector. If we assume that, for each policy-year, the number of theft claims follows a Poisson distribution then, by means of the central limit theorem enabling a Normal approximation, a 95% confidence interval for the underlying claim frequency is given by (2.98% , 4.30%). A conclusion is that, even if one large insurer controls one-quarter of the UK market (17% from an assumed 68% uptake of new-for-old cover), and retains accurately postcoded historic claims data for the most recent three years, then its best estimate of theft claim frequency at postcode sector level might easily be up to 20% inaccurate in either direction.

In practice, no UK insurer enjoys such a large share of the new-for-old contents market. The largest household insurers, however, are typically able to draw on databases of historic theft claims experience which span more than three years, although trends in the geographical structure of the theft peril may devalue the claims experience of the oldest years. Because most postcode sectors contain fewer households than those included in the study, and many experience low theft claim frequencies, and some are newly-created by the Royal Mail and so lack any historic claims experience, companies' estimates of sector-level theft claim frequency based on their own data will typically be more uncertain than those from the pooled data.

In these circumstances, it is clear that even the largest UK insurers can benefit from access to appropriate collateral data regarding the theft risk. In the first instance, such collateral data may be the theft claims experience of other business classes, such as indemnity contents, buildings or private motor cover. It is unlikely, however, that any UK insurer can reduce the uncertainty in estimates of theft claims frequency for a typical postcode sector below the 20% level based on its own data alone.

Even the smallest UK household insurers should be able, from their own claims experience, to obtain a broad grasp of the trends in overall contents theft claims frequencies. As a consequence, many companies considering the purchase of a GDRAS will be content if the system provides estimates of the theft frequency relativities between distinct geographical areas, rather than absolute frequency levels.

Table C restates, separately for each of the three sources, the theft frequencies provided in Table B as relativities to the overall average frequency.

Table C – A Comparison of Theft Claim Frequency Relativities

	Closest Postal Town	Aggregate Company Experience	Predicted - System A	Predicted - System B
1	Duns	0.13	0.21	0.01
2	Larbert	0.17	0.23	0.40
3	Ipswich	0.26	0.29	0.38
4	Nuneaton	0.40	0.56	0.64
5	Tamworth	0.42	0.46	0.72
6	Lancaster	0.44	0.39	0.46
7	Swadlincote	0.53	0.76	0.46
8	Nottingham	0.73	0.81	0.83
9	Retford	0.77	0.65	2.01
10	Hinckley	0.80	0.76	1.28
11	Huddersfield	0.90	0.67	1.29
12	Workington	1.09	0.58	1.01
13	Gateshead	1.17	1.19	0.88
14	Coventry	1.19	1.88	0.95
15	Huddersfield	1.20	1.13	2.04
16	Sheffield	1.20	1.38	0.84
17	Doncaster	1.44	1.56	0.76
18	Ashington	1.69	1.24	1.24
19	Sheffield	2.20	2.32	1.08
20	Leeds	2.96	2.22	1.82

Even if an insurer is content to premium rate on the basis of predicted frequency relativities alone, it should be aware that these relativities will themselves change over time. In particular, there is fairly conclusive evidence that the theft frequency relativities between high- and low-risk areas are positively correlated with the overall level of theft claim frequency.

Graphs 1 and 2 illustrate a degree of positive correlation between the pooled claims experience and that predicted by the two GDRASs, although a chi-square statistical test indicates significant differences. Broadly speaking, the predicted frequencies from system A are too high, although their relativities are fairly consistent with those exhibited by the pooled data, and those of system B, whilst demonstrating a close correspondence in terms of the overall average value, tend to understate the relativities between high- and low-risk postcode sectors.

2.4 Summary and Conclusions

The survey of proprietary risk assessment systems, described in Section 2.1, indicates that UK household insurers can obtain one or more such system to assist with the premium rating of most insured perils, in particular the key perils of subsidence, windstorm, flood and theft. Most of these systems are now well-established, with growing customer bases, and some recent rationalisation within the vendor market has diminished concerns regarding continuing vendor viability. The systems obtain their underlying data from extensive range of generally reliable sources, and are thereby successful in bringing considerable additional relevant information into the household insurance industry's premium rating processes.

One supposed benefit of proprietary risk assessment systems is that they enable premium rating at a finer level of geographical detail than is possible by using only the insurer's own data. Section 2.2. describes the potential usage of third-party geodemographic data and risk assessment systems in premium rating the theft peril under household contents cover at the postcode sector level.

The comparison analysis described in Section 2.3 suggests that even the largest UK household insurers do not possess sufficient relevant data to make accurate estimates of theft claim frequency at the postcode sector level. As a consequence, companies must either resign themselves to rating at the postcode district level, copy a larger competitor's sector-level rating structure (!), or obtain an additional source of rating data, perhaps by purchasing a GDRAS.

Because of the problems of credibility of the company's own claims experience, it is difficult to assess the predictive value of any particular GDRAS by means of a comparison of actual and predicted sector-level claims frequencies. Because the various GDRASs generate predicted values by applying differing statistical models to the underlying geodemographic data, it may instead be necessary for the insurer to work closely with systems vendors and use its claims data to assess which model and set of parameter values provides the best fit to its own claims experience. This is a

potentially dangerous business, because in making available its claims experience the insurer will benefit the system vendor and ultimately its own competitors.

If the insurer cannot negotiate mutually beneficial terms with a potential system vendor for access to its own data assets then a leap of faith may be necessary in selecting between GDRASs. Any purchase should not be undertaken without considering the issues listed in Section 2.2. If possible, access to the underlying geodemographic data and statistical models should be obtained in order that the system output may be calibrated using the company's own particular claims experience.

If purchased, a GDRAS is likely to be used differently by companies according to the available volume of relevant historical claims data. Smaller companies may combine the predicted values with their own claims experience within a credibility approach, whilst larger companies may use the system only in postcodes where data are scarce, or as comfort check. Dependent on the preferred method of usage, some companies will be content with a system that estimates risk relativities rather than absolute values.

The attractiveness of a GDRAS to an individual insurer will depend on factors other than its own data volumes. These will include the quality and experience of its own actuarial and statistical pricing staff, and its current premium rating approach. The potential usefulness of even the best system will depend upon the extent to which the insurer's philosophy and preferred sales channel enables it to reflect risk differentials suggested by the system in its premium rates and underwriting.

There may be a hint of "me too" behaviour in household insurers' uptake of proprietary risk assessment systems, with some companies purchasing such systems without really understanding how they will then make use of them. Certainly, the industry continues to overlook a far cheaper alternative source of additional rating data - the established industry data pooling arrangements such as the ABI Household Risk Statistics Scheme (HRSS). This scheme provides participating companies with a wealth of risk statistics including aggregated theft claim frequencies at the postcode sector level. The annual subscription fee in 1997 was around one-fiftieth of price of a typical GDRAS, yet only 17 medium- and small-sized companies remain members. Some larger household insurers have, in the past, declined to join the HRSS on the grounds that competitive edge would be yielded by releasing their own claims data. However, with only a few proprietary theft risk assessment systems available, if the dominant vendors negotiate access to the claims experience of their client companies, and use this data to refine the systems to be sold to future clients, then this surely constitutes an equivalent threat to competitive position.

3. Insuring the Uninsurable

3.1 Introduction

A basic principle of insurance is the spreading of risk amongst a large group of people. Where the premium charged for cover is permitted to vary between different policyholders then this principle is modified so that risks are spread between the smaller groups of policyholders who are charged the same premium. As risk assessment and premium rating become ever more sophisticated, and policyholders are segregated into smaller and smaller groups, it is feared that some subsets of society will be unable to obtain insurance cover at a “reasonable” price and, in particular, at a price which is affordable by them.

The aim of this section of the paper is to assess how justified is that fear in the present UK household insurance market, and what the insurance industry might do to mitigate it, in particular by means of product design.

3.2 Why is the industry not self-correcting?

The practice of differentiating by geographical location the premium rates for buildings cover is a relatively recent phenomenon in the UK market. For contents business, however, the higher risks associated with inner-city areas have long been reflected by higher premium rates than those charged in rural areas. The degree of geographical differentiation in household premium rates is, however, now greater than ever before, driven by increased computer power, widespread understanding of advanced statistical techniques, and readily-available geophysical and geodemographic datasets. Any proprietary premium quotation system will show that the household premium rates charged by a single company often vary by as much as a factor of eight on geographical grounds alone.

The insurance market does not necessarily benefit from sophisticated premium structures - the expense of the pricing process is increased and, in the competitive UK market, the potential for adverse selection and for lower profitability through the “winner’s curse” is high. Because an objective of pricing sophistication is to charge a premium that better reflects the underlying risk, the real winners are policyholders in low-risk cohorts. Lower premiums for some, however, must be balanced by increased premiums for others. Non-affordability problems can then arise if the highest premium rates fall on those policyholders having the lowest means.

This problem is different from that of “red-lining” (i.e. the non-provision of cover for specified risks - for household business typically by reference to geographical area). Indeed, there is no real evidence of any consistent “red-lining” in the UK household insurance market. The working party’s own research suggests that it is possible to obtain a satisfactory number of quotations for a typical risk in all areas of the country.

Instead the problem is whether the cheapest quotation for an acceptable level of cover is actually affordable by the policyholder.

In the absence of legislation, the UK insurance market is extremely unlikely to revert to uniform rates for household business. Throughout the European Union, the trend is towards deregulation, increased competition and more complex rating structures. In this environment, there is considerable scope for non-affordability problems and for such problems to be exacerbated by increasing sophistication in pricing.

Most would recognise the availability of affordable household insurance cover as a requirement for an orderly society. The onus for ensuring its continuing availability must fall, in the first instance, on the dominant household insurers. Despite some policyholders' opinions to the contrary, however, insurance companies cannot operate as charities. If the capital employed by the insurance sector cannot earn an adequate return then it will migrate to other sectors with the inevitable result that no insurance, affordable or otherwise, will be available. The challenge to insurers is to develop commercially viable solutions to the problem of non-affordability, but these may not be straightforward nor immediately palatable. The problem will not disappear if no simple solution can be found.

Ultimately, insurers may be forced to accept, by means of legislation if not of their own initiative, that the right to sell profitable insurance cover for the majority of risks carries a responsibility to sell unprofitable (but affordable) cover for a minority of risks. In the context of household cover, this would require the cross-subsidy of high-risk, low income geographical areas by low-risk or high income ones. Such a redistribution can only persist if all market participants adhere to it. Otherwise, an unrestricted participant might easily monopolise the low-risk or high income households.

A market agreement might not require all insurers to provide affordable insurance in all risk groups - different insurers may have different specialities or preferences. A satisfactory situation would be one in which affordable premiums are available for each risk, and individuals do not experience too much difficulty in obtaining cover.

A discussion of the legislative options in this area was included in the 1997 paper.

If many consumers really do believe that insurers are a charity, then they may have to behave more like one in order to protect their freedoms and, ultimately, to survive. When difficult circumstances present themselves, the most successful businesses are often those that identify the potential opportunities presented by the circumstances. In dealing with problems of non-affordability of cover, it may be the mutual household insurers who most easily identify an opportunity to represent changed behaviour as being consistent with a mutuality message.

In some cases, the unavailability or non-affordability of insurance cover may be inflicted by the policyholder on themselves. If so then insurers may be justified in refusing to provide cover on terms that would prove unprofitable. As an example, a policyholder having a history of dishonesty or of submitting claims known to be fraudulent will find difficulty in obtaining cover. This does not seem unreasonable -

insurance cannot function in the absence of good faith from both parties to the insurance contract.

Whilst few reasonable people would argue the issue in the case of fraud, some other instances in which cover is denied or unaffordable may seem more harsh on the potential policyholder. One would be where an insured property is certain to be badly damaged or destroyed in the near future, e.g. where the property is regularly flooded by a nearby river, or is built close to a cliff which is steadily eroding. Insurance has never been intended to cover such risks, and exclusions would be applied or cover refused. One could argue, however, that such problems should have been identified and understood at the time the property was purchased.

Three perils have a pronounced influence on the affordability of household insurance. These are flood (affecting both buildings and contents covers), subsidence (affecting buildings) and theft (affecting contents). The main changes in rating in recent years have been for subsidence and flood, and these perils will be considered first.

3.3 Methodology

A key objective of this piece of work was to ascertain whether there was a problem firstly in obtaining insurance, and secondly if the insurance would actually be affordable. Price investigations for this paper were done using a quotation system as used by some insurance brokers. This system works at the postal sector level.

The rates of 13 major companies were used. The property under consideration was a “typical” semi-detached house, with a rebuilding cost of around £60,000. Within the individual insurers the most expensive locations were approximately three to four times the cost of the cheapest rates. However, it should be noted that the most expensive quote obtained was around £260 per annum, which is a relatively low amount compared to the cost of home ownership. For investigating contents insurance, an indemnity policy for £15,000 was used.

One of the key areas that was investigated was the number of insurers for which a postal sector was referred. This was taken to be an indication that there could be an underlying problem within that area perceived by the insurer. It was assumed that on buildings insurance the cause was likely to be flood or subsidence, and for contents insurance it would be theft.

3.4 Subsidence

3.4.1 Properties having already experienced a claim

It is currently virtually universal practice within the insurance industry that new business underwriting will mean that a property that has suffered a subsidence claim will not be accepted for buildings insurance. In such instances, the customer (who could be the new owner of the house) will usually be referred back to the current insurer of the property. Popular reference is made to an agreement that in such cases

the existing insurer will not refuse to insure the property in the future. In practice, no such agreement exists (although it is unquestionably market practice to continue to insure such properties), and the industry needs to be careful that it doesn't appear to be operating as a cartel operation. Insurance is therefore generally available, albeit with some restrictions. An excess of £5,000 rather than £1,000 for future subsidence claims is not unusual. The restrictions could also take the form of a higher premium, although if the claim has been handled by the insurer to a reasonable standard, there is no justification for this on the grounds of increased risk - if anything the property could be a better risk than one the immediate neighbourhood.

Even in this environment, it is possible to obtain insurance from more than one insurer. Limited underwriting is available on block policies (for example through a building society), and individuals may find it possible to get insurance via this route.

There are also companies in existence that are targeting such properties. The theory is that if the repair is a good one, then risk for that property in future could be less than for surrounding properties. As the supply of insurance is limited, there is also the possibility of better than normal profit margins for the insurer. The only problem with such a strategy is that the amount of investigation required for new business underwriting will be far more extensive than would usually be the case. It is very hard to establish the quality of repairs once they have been completed. Even given this information, a detailed survey is likely to be required to assess risk of the parts of the property that weren't damaged in the original claim; or indeed to see if recommended risk management measures have actually been enforced - for example a nearby tree may have been lopped at the time of claim, but have been allowed to grow back to a size where further damage was possible (or indeed probable).

Despite some difficulties, it seems likely that the insurance industry would be self correcting when it comes to such properties. A concerted move to increase the price of insurance on these properties would lead to an attractive niche market for specialist insurers to move into.

Even if this were not the case, when considered against the overall cost of house ownership buildings insurance is not a major expense (probably far less than a council tax bill for example). It is also something for which there is a high degree of customer demand. A house is likely to be an individuals most important asset, and it is unlikely that they are going to not insure it, as the potential loss is too great.

3.4.2 Properties in high risk areas

The increasing use of external datasets has led to the fear that some areas of the country would be deemed as such a high risk that insurance would not be available for any property in the area. Using the methods described in section 3.3, in the worst case the highest number of referrals was just 7 for any one sector (i.e. only half the companies appeared to be imposing any special terms). A map of the areas suffering the highest proportion of referrals is shown in Figure 4. This map shows a combination of flood and subsidence risks.

This would seem to show that there is not a significant problem at the moment. Companies are currently clearly not using a universal approach, and so shopping around should mean that a cheap premium could be obtained. For the sample property used, an individual in the most expensive sector could still have obtained insurance for £160.

It also seems unlikely that the problem of obtaining insurance for high subsidence risks is going to get very much worse in the foreseeable future. Even if there were universal agreement on which are the high risk areas, subsidence is a high severity low frequency event. If all properties that were regarded as high risk were picking up their fair share of the risk premium, there would still be a high degree of spreading the risk.

The most significant factor in the rating of subsidence is the increasing proliferation of systems or databases that claim to precisely identify the subsidence risk of various properties. To date, however, these rely on soil information, and it is becoming increasingly clear that the proximity of trees is as significant a cause of problems. There is also an argument that says that the very dry weather of the last few years has been a significant driver for the development of these systems. If subsidence experience returns to more “normal” levels over the next few years, the demand for an increasingly more accurate (and doubtless more expensive) data solution may reduce significantly. As an example of this, it has been suggested that it is technically feasible to use on-line satellite photographs to assess the risks of tree proximity at the point of sale. Unless the problem remains a high cause of buildings claims it would seem unlikely that such measures (at current prices) will be viable.

3.5 Flood

The risk of catastrophic flood affects both buildings and contents insurance. However, the price survey conducted suggests that the main driver of high contents premiums is the theft risk.

By definition, a catastrophic flood is rare. The sea defences in the UK have been steadily improving over the years, and will cope adequately with many situations. It is probably only when events with a probability of occurring once every 50 years (or less frequently) are considered that there is a significant potential problem. An event with this sort of expected frequency is clearly one that an insurance company is likely to cover using catastrophe reinsurance rather than a premium loading. Even if the full cost of such reinsurance is passed on to the affected households, this is unlikely to lead to very high insurance premiums. The price survey conducted showed that for a typical company, the highest rated areas were being charged three times the premium rate compared to the cheapest areas, and are only about 50% more expensive than the average. The conclusion of the work done is therefore that there is not a significant problem of affordable insurance being available for areas deemed to be a high flood risk.

As for subsidence, it is also felt that the problem will not significantly worsen over time. It is true that current geophysical models are not as sophisticated as they could

be. The majority of the work has been done on the east coast, as the initial interest in such models was to give a tool that would estimate an insurers PML for purposes of reinsurance. This is not entirely appropriate - for example, riverine floods at Easter this year were not modelled very well (1.1.2); and as pointed out in last year's paper floods in Scotland were not picked up; flooding round the Severn or Mersey could have a very damaging effect and areas at risk are not currently well defined. Improvements in such models may well lead to more properties being identified as being at risk rather than less.

However, the main risk management technique that insurance companies use is to buy catastrophe excess of loss reinsurance. If there was an alternative method, it is possible that a company could gain a competitive edge, while still making an adequate return, which in turn could lead to lower premiums to customers.

As an extreme case, an insurer could not buy any flood catastrophe cover at all. Given the nature of the current reinsurance market, this may not lead to particularly great savings. This would be more plausible were the insurer to have built up a significant capital base which should in theory reduce the need for reinsurance. While this is unlikely for a shareholder backed business, as it is an extremely inefficient use of capital, this is possible for a mutual, and indeed seems to have happened in practice. However, it is a higher risk/high return strategy which is not one that sits well with the mutual ethics, and the reinsurance purchasing of such insurers does not seem to have altered significantly.

It has also been suggested that some sort of alternative risk transfer mechanism could be used, with some form of insurance bond being issued. A brief look at this possibility suggests that UK catastrophic coastal flood is not an ideal contender for such a financial instrument. The sort of coastal flood that is feared is one that (it is hoped) will be a very low frequency (1953 flood has been referred to as a 1 in 500 event). The distribution of expected losses is also quite unusual. If the flood were to be such that it breaches the flood defences, then the cost would be massive; a tidal surge that was only slightly less severe, but for which the defences work effectively, would cause virtually no damage at all. A feature of the insurance bonds that have been issued to date seems to be that the frequency of an event causing some damage is relatively high, but that severity is (relatively) low. There is therefore quite a lot of information about the smaller events, and the risk that is being transferred is that one of these events has an extremely high severity. While the market is still in its infancy, it does not seem that an East coast flood would be an attractive proposition. In any case, the incentive for launching such a bond at the moment would be to save on reinsurance costs. As has already been discussed, the cost of such flood cover is relatively cheap. The risk premium that could be offered on the bond would be very low even if it were equivalent to the reinsurance premium. This position could obviously change over time.

3.6 Theft

The most significant problem with non-insurance is contents insurance, with estimates of the proportion of households that do not hold contents insurance varying between 20% - 25%. This is not a new problem as this level of non-insurance has been around for many years. During the last year, an extremely comprehensive analysis of this area has been published by the Institute for Policy Research: *Paying for Peace of Mind*⁶. The report concludes that 20% of homes are knowingly without any forms of contents cover. In addition, there are believed to be a significant number of tenants (particularly in council accommodation) who think that the insurance that the council has for the building will also cover any damage or loss to contents.

The price survey described in 3.3 ties in with the findings of the research done by the IPR, in that you can get a price for contents insurance in all areas. Using the sectors for which referral to the head office was required as a guide, there was no postal sector identified where as many as half of the insurers agreed that the sector needed referral. This does not in itself mean that insurance is easily accessible, however. It is available if householders are both able and motivated to go looking for suitable insurance. Many uninsured houses will not be contacted by direct mail campaigns as their profile will not fit the target market being approached. While brokers will be available for these individuals, the distribution of contents insurance for many inner city areas will tend to be via home service sales forces. These are in decline in this country, and hence the availability of insurance could be deemed to be worsening. In any case, direct sales forces will always operate with a certain amount of selection. Salesman are not going to go willingly into areas where they believe that there is a high risk of being attacked, and will tend to avoid the lowest income households as there will be little prospect of making a sale. Although if customers approach the insurance companies they will usually be able to get a quotation, there are going to be areas where insurance companies will (literally) not be knocking on the door to try and obtain the business proactively.

There are a combination of features of this part of the insurance market place that mean that it is not particularly attractive. If the insurance is to be affordable, it will of necessity be low premium, which in turn implies low profit margins and proportionately high expenses. A low disposable income is likely to lead to poor retention, customers preferred methods of payment are the most expensive (as is discussed later in this section), and the geographical areas in question tend to be very high theft risk.

From the survey⁶, half of the total uninsured were categorised as price or condition excluded - in other words that they were unable to get affordable insurance.

Premiums can undoubtedly be high in urban areas. In the premium investigation, the price spread from cheapest to most dear contents cover was a factor of 10; a far wider spread than that observed for buildings insurance. Figure 5 shows a map of the top quartile contents insurance premiums.

As the areas in question are generally areas perceived to have a high theft risk, in many cases insurers will insist on a minimum level of security for the property (for example, fitting and using window locks, and deadlocks on doors). The cost of making such improvements could easily be over £100, which provides another barrier to insurance being affordable.

Given that the problem is concentrated on low income families, it is highly unlikely that the premium will be affordable as one annual lump sum, particularly if home security improvements have been required. Indeed, even in high income families this could be a problem. In theory, this should not be an issue, as most insurance companies will offer some form of payment by instalments. However, from the insurers point of view, the only really cost effective method of collecting instalments is direct debit (as illustrated by the table below), and according to the study, over half the uninsured do not have a current account that they will use for bill payments.

The following expenses are meant to be indicative only, but should give an idea of the variance between the different methods of payment. These costs (which are per payment) take into account payments made to whoever collects the money (be that an individual or a bank), plus the additional costs of applying that premium to the insurance company's records.

Door to door cash collection	£10.00
Credit Card	£ 2.00
Cash payment at bank/post office	£ 1.00
Cheque payment direct to office	£ 1.00
Cheque payment via bank (LockBox)	£ 0.20
Direct Debit	£ 0.05

To counter this problem, the idea of an “insure with rent” scheme is an obvious solution, where the cost of insurance premium collection is a marginal activity, and ties in with rent collections. Claims experience on these schemes has in the past been poor. However, there are some new entrants into the market at the moment, who seem to be writing the business profitably. The credit for this has been given to good claims control. As is noted in section 1.1.4 claims appear to be currently at an exceptionally low point. If a recession starts to bite and theft experience worsens then “good claims control” may not be sufficient, particularly if the scheme gains a reputation for being an easy source of money, as has been the case for some such initiatives in the past.

Affordability is not the only problem that needs to be considered when looking at reasons why individuals are not insured. A further reason for non-insurance is those people who either assess insurance as poor value for money or have had bad experience of an insurer in the past.

From the anecdotal evidence within the report, two notable features are that the only risk that is appreciated tends to be theft, and that there is very little understanding of

what indemnity insurance (which has often been sold as the cheapest, or most appropriate cover) actually means, which has led to a great deal of dissatisfaction when claims have had to be made.

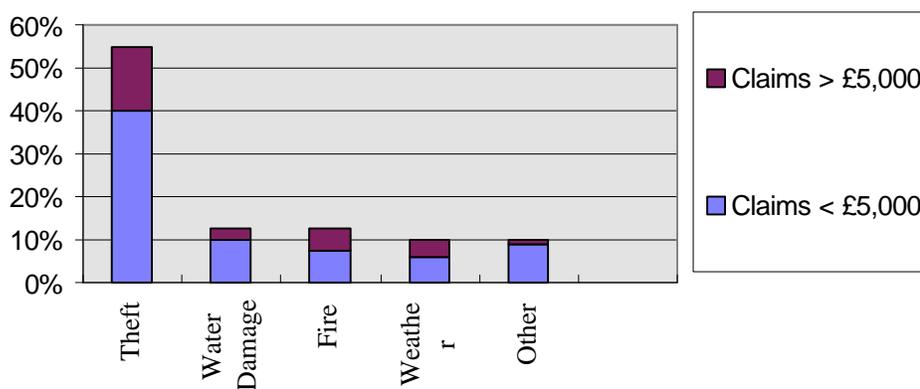
The problem in these cases would seem to be that the insurance is not really providing “peace of mind”. Priority for these individuals would seem to be assessed more on the basis of whether they will get back more than was paid in, than whether the individual could cope with a total loss of possessions.

Providing insurance is priced correctly, a policyholder should pay more for their insurance than they would expect to get out of it. Insurance companies need to (at least) break even for claims, and also will have expenses that need to be covered. This argument, of course, is equally valid for insurers purchasing reinsurance, which is something that seems to be forgotten on occasion. The value to the insured should be that were a serious incident to occur, they would not be financially ruined.

As has already been mentioned, one of the key drivers of high contents premiums in these areas is the risk of theft. An obvious solution to the problem of high premium contents cover could be to strip out theft cover. This is not a new solution - such policies have been tried in the past, (and indeed may still even be available) but to date have not sold well.

Rather than pursue this line, it was considered whether there was any scope for a catastrophe protection cover that would include theft risk. The idea of this would be that the policy would pay out in the event that a household suffered a severe financial loss through any peril covered by a normal household policy. The simplest method of doing this would be to provide a policy that had a large minimum claim size. It should be noted that this is not the same as a policy having a large excess - once the loss reached the minimum amount it would be paid in full.

Suppose that for a typical household contents policy, claims were as follows:-



Producing a policy that had a £5,000 minimum claim could reduce claims to 30% of their previous level. The distribution of claims by cause of loss would be broadly similar, with a much higher level of fire claims and a corresponding reduction in “other” claims (of which the main component is accidental damage). If a contents policy was priced assuming claims of £70, then on this basis a “disasters only” policy would have an expected claims cost of just £20. However, an expense ratio of 30% is not unusual in the household market, and assuming that for such low premium business most costs are actually variable costs, the premium to the customer would reduce from £100 to somewhere around the £50 mark. This is obviously more affordable, but the running expenses of the policy have become a ridiculous proportion of the premium paid.

In isolation, this does not seem sensible. However, the previous calculation assumes that the product is being sold on a stand-alone basis. A combination of the catastrophe only cover with an insure with rent scheme could see some success. As stated, the risk premium for a catastrophic loss on those figures would be £20 per household, and there is very little risk of fraud. The expenses of such a policy could be kept extremely low if it were to be a virtually standard feature of the rent agreement. This would then mean that there would be few people with absolutely no contents cover, and that the cost to the policyholders could conceivably be as little as 50p per week.

It is, however, questionable whether this type of policy would actually meet customers needs. Most households would struggle if hit by a loss of over £1,000 (or even a few hundred pounds), which would not be covered by this sort of policy. There would be the need to make available (and indeed to encourage the purchase of) optional extra cover that would cope with non-catastrophic claims. If an individual chose not to join the insure with rent scheme, but instead obtained insurance from another provider, then any compulsory element would mean that they would be paying for insurance cover that they would not fully benefit from. However, this solution would at least start to address some of the very worst cases, and would possibly give a viable scheme that could begin to tackle the key problems that have caused the problem in the first place.

Using an arrangement tied in to rent agreements does give a reasonably economic distribution channel; rent is already payable in instalments, and so the scheme would allow customers to pay by their desired payment methods. The premiums at the sort of level discussed will be more affordable, and it would be possible to arrange some insurance without the additional up front cost of having to make security improvements.

3.7 Conclusion

All the evidence gathered suggests that there is no systematic red-lining being undertaken within the insurance industry despite the increased information now available about the risks of flood, subsidence and theft.

Buildings insurance is purchased by home owners, and while there is undoubtedly a far greater diversity of prices than has previously been the case, there does not seem to be

a significant problem in terms of the affordability of buildings insurance, particularly when taken in the context of the costs of home ownership as a whole. It also seems likely that were the situation to worsen, with mainstream companies backing out of areas that were perceived as being high risk for flood or subsidence, there would still be sufficient capacity within the insurance market to keep premiums at an affordable level.

There is a far more serious problem when it comes to contents insurance in high risk areas, particularly when considering householders who are tenants rather than owner occupiers. This is not a new problem, as a figure of 20% to 25% uninsured has been quoted for many years. Developing a profitable product, that can be distributed in a cost effective manner, and yet is still affordable, is extremely challenging. There is, however, a very large potential market for insurers who come up with a workable proposition.

4. Concluding Remarks

In its 1997 paper, the working party expressed a concern that in the continuing absence of major natural perils losses insurers were increasingly tempted to view their household accounts as a source of virtually guaranteed profits. Given the extreme competitive pressures in other business classes, particularly private motor, the profits on household business have provided a welcome contribution to operating results.

Significant windstorm, tornado and flood losses during the past year have, however, reminded UK insurers that household business results are potentially more volatile than those of previous years. Whilst these weather events were some of the most significant this decade, each ultimately involved far smaller insured losses than was at first feared. Some credibility has been lost by those organisations, within and outside of the insurance industry, who in the race to provide the media with cost estimates in the aftermath of an event, vastly over-estimated the insured losses. There is some suspicion that high loss estimates were attractive to those attempting to talk up premium rates on the back of these events.

The increasing use of proprietary risk assessment systems has again been an area of attention for the working party. Its conclusion remains broadly unchanged - such systems can provide a valuable tool when used in conjunction with an insurer's own claims data, but they are only a tool, and are fallible. They should not be used as a "black box", indeed they reinforce the responsibility of pricing actuaries to understand the quality of the information that they place reliance upon, and the limits of accuracy of the results that it may be used to produce.

There has been much speculation concerning whether such systems will enable household business to be premium rated at the unit postcode or even individual risk (full address) level, allowing separately for each of the risk factors affecting a particular property. Whilst such an approach may seem actuarially appealing, insurers are increasingly realising that there is a trade-off between the potential profit improvements from refined rating structures and the costs of obtaining reliable rating information at a corresponding level of geographical detail. The point at which the cost of the data required to rate more effectively exceeds the benefits of doing so may not be far away.

Given this cost constraint, and the potential problems of implementing a unit postcode level rating structure through block policies or through brokers, it does not seem likely that sophisticated rating will cause severe problems as regards the availability and affordability of buildings insurance. There is more concern, however, in relation to contents insurance. Balancing the social need for individuals to be insured against large losses with the insurers desire to make an adequate return is going to require the development of a cheap and efficient distribution system into the geographical areas having insurance affordability problems. At present, the most likely approach would seem to be a variant of existing “insure with rent” schemes, but while there remains no obligation on landlords to provide such schemes these problems seem likely to persist. Household insurers might be advised to ensure that, when domestic theft claim frequencies turn upwards once more, as they surely will, then the issue of non-affordability does not become a source of discomfort to them.

SOURCES

¹ Industry data is taken from the ABI statistical bulletin, which is available to member companies on <http://www.abi.org.uk>

² Institute of Hydrology home page was found on <http://www.nwl.ac.uk/ih/>

³ <http://www.bbc.co.uk/weather>

⁴ BYE P AND HORNER M (1998) *Easter Floods 1998 : Preliminary Assessment by the Independent Review Team Report to the Board of the Environment Agency*

⁵ EQECAT Catastrophe Management *The 1997/98 Winter Storms*

⁶ WHYLEY C, MCCORMICK J AND KEMPSON E (1998) *Paying for Peace of Mind - Access to home contents insurance for low income households* Polisy Study Institute Report no 852

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