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**The price, quality and distribution of mortgage payment  
protection insurance: A hedonic pricing approach**

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**Abstract**

Mortgage payment protection insurance (hereafter MPPI) provides varying combinations of accident, sickness and unemployment insurance and is used to protect the mortgage payments of policyholders in the event of a fall in income. Recently the provision of this service in the UK has been heavily criticised for providing poor value for money and for being associated with unhelpful sales techniques especially when sold jointly with a mortgage. Consequently in 2009 the Competition Commission ruled that MPPI should not be sold jointly with lending. In this study we examine whether this prohibition was justified and specifically does the form of distribution, either jointly with the mortgage or independently influence the premium levels. This research question is examined using a hedonic pricing approach with details and premiums of 281 MPPI policies. We conclude that the premiums of policies sold independently are lower than those policies distributed jointly for a given set of benefits and conditions. These findings support to the prohibition of the joint sale of the MPPI with mortgages.

***JEL Classification:*** G21 - Banks; Other Depository Institutions; Micro Finance Institutions; Mortgages

***Keywords:*** Mortgage Payment Protection Insurance, Mortgage Credit Insurance, Insurance premium setting, joint pricing.

# **The price, quality and distribution of mortgage payment protection insurance: A hedonic pricing approach**

## **1. Introduction**

Mortgage payment protection insurance (hereafter MPPI) provides varying combinations of accident, sickness and unemployment insurance and is used to protect the mortgage payments of policyholders in the event of a reduction in income. The provision of this insurance service has long been a UK policy priority to compliment the system of state income support for mortgagors (Department for Environment, Transport and the Regions 2000). Nonetheless this product has been heavily criticised for providing poor value for money and for being associated with unhelpful sales techniques especially when sold jointly with a mortgage (see Office of Fair Trading, 2006 and Competition Commission, 2007, 2008, 2009). As a result of these criticisms in 2009 the Competition Commission ruled that MPPI should not be sold jointly with lending. In this study we investigate if this far reaching decision to prohibit the joint sale of MPPI with mortgages sales is justified and specifically if MPPI policies sold jointly are more expensive than policies sold independently for a given set of benefits and conditions.

MPPI is a highly complex service combining a number of different types of insurance and characteristics which vary across providers. In this study we allow for this complexity by using the hedonic regression technique formalised by Rosen (1974) as a method of deriving monetary values for the attributes of composite goods. We report that MPPI policies sold independently have lower premiums than policies distributed jointly. While independently and jointly distributed polices do possess different policy characteristics these difference in premiums are viewed to be robust. It is therefore concluded that the Competition Commission 2009 prohibition of joint MPPI and mortgage sales is justified.

In this study we consider payment protection insurance jointly sold with mortgages (MPPI) distinctly from other payment protection insurances sold with credit card and unsecured debt. This separate assessment of the MPPI market is advocated as the MPPI market is commonly viewed to be distinct from other payment protection insurance markets. The OFT (2006) reported the MPPI market has a large number of both joint and independent suppliers, good compliance with regulations and relative to other forms of payment protection insurance MPPI customers are more likely to shop around for this insurance service. The Competition Commission (2009) further reported that unlike unsecured lending and credit card payment protection insurance where no relationship between premiums and policy quality is observed, a weak relationship between the premium price and policy quality does exist for MPPI.

Our investigation is important for two reasons. One, wider incentives exist for firms jointly supplying MPPI to provide better quality policies. Two, the costs of reducing the take up of MPPI are high for both individuals and government.

There are clear economic incentives for firms jointly distributing MPPI policies with mortgages to offer higher quality policies than firms which independently distribute these policies. MPPI provides mortgage repayments in the event of a policyholder suffering a fall in income due to unemployment, critical illness or accident. In the event of a successful claim both the policyholder and firm jointly providing a mortgage loan with MPPI are beneficiaries of these payouts. The MPPI policyholder benefits from a payout in that their mortgage payments are made, they will not default on their mortgage and will not face the repossession of their home. The mortgage provider jointly distributing MPPI will also benefit through guaranteed mortgage repayments. Therefore a firm jointly distributing MPPI with mortgage lending will benefit from a policy with more inclusive coverage, greater quality and higher payouts in the case of a successful claim. Conversely an independent supplier of MPPI is not a recipient in the case of a

successful claim and has no incentives to offer a higher quality MPPI policy. Subsequently providing MPPI jointly should lead to higher quality policies than providing MPPI independently.

Secondly, while only a small proportion of households default on their mortgage debt, the costs of this outcome are high. For lenders mortgage default increases provisions for bad and doubtful debts. For government, mortgage default can result in the re-housing the homeless and payment of housing support. For mortgagors, default and repossession can significantly increase the incidence of mental illness (Pevalin 2009) and cause emotional costs akin to marital breakdown or job loss (Taylor *et al* 2007). Subsequently developing methods to reduce mortgage default is socially and economically advantageous. It is considered the prohibition of joint sales of MPPI jointly with lending may reduce the uptake of this form of private insurance potentially creating wider social and economic costs.

To examine the research question of whether the form of distribution of MPPI either jointly with mortgages or independently influences the level of premiums, this study is organised into six sections. After this introduction an overview of pertinent academic and regulatory literatures is provided. In section three, an overview of the development and scale of the UK MPPI market is provided. Section four outlines the form of the analysis and data. The empirical results are reported in section five. Lastly, a summary of the research, policy implications and conclusions are provided in section five.

## **2. Literatures examining mortgage payment protection insurance (MPPI) markets.**

In this section we consider prior academic literatures concerning MPPI and past regulatory literatures. Academic literatures examine a range of areas including the perceived quality and historically low take-up of MPPI policies primarily in the UK and

the USA. The regulatory literature examining this insurance service are extensive and considers competition, welfare provision and consumer protection concerns.

### 2.1 *Academic Assessments of Mortgage Payment Protection Insurance Markets*

The perceived quality and costs of MPPI services has been repeatedly considered using postal surveys. Burchardt and Hill (1998) reports MPPI is very expensive, limited in coverage and has regressive elements. Considering the effectiveness of this form of insurance in avoiding mortgage default, Ford and England (2000) report a third of MPPI policy holders developed mortgage arrears compared to half of the recipients of government supplied income support for mortgage interest. A latter study reported 20 per cent of MPPI policyholders developed mortgage arrears (Ford and Quilgars 2001).

Employing survey evidence past studies have also considered MPPI policy coverage. For example, Ford *et al* (2004) reports that as most MPPI policies are undertaken with a mortgage contract and that policy coverage includes a random element. Similarly, Diaz-Serrano (2005) notes that mortgagors with unstable work histories and ill health problems are precluded from many MPPI policies.

Explanations of the low level of MPPI take up have also been forwarded. Using a survey, Pryce and Keoghan (2001) indicated that premium size has a limited influence on credit insurance purchase decisions. In common with subsequent work, such as Ford *et al* (2004), Pryce and Keoghan also report past experience of unemployment and risk perceptions are strong determinants of MPPI take up. Ford *et al* (2004) also reports the propensity to take up MPPI is closely related to the level of savings held by a household and the age of the mortgagor.

US assessments of payment protection insurance have been more limited and have also considered this insurance provided for unsecured lending. Early survey evidence indicated most customers do not perceive sales to be coercive yet felt obliged to

purchase payment protection insurance (Polden, 1983) through assumptive sales approaches. Other US contributions have emphasised the limited competitiveness of MPPI markets and overpriced policies (Allen and Chan, 1998) and requirements to re-examine the legal treatment of mortgage payment protection policies generally (Spahr and Escolas, 1986). Distinctly and through examination of US mortgage applications Ross and Tootell (2004) consider the role of private mortgage insurance in lending decision making. These authors report that holding private mortgage insurance raises the level of mortgage application acceptance for all groups and critically for areas where racial and social characteristics might otherwise lead to discrimination or 'redlining'. This process enables banks to satisfy legislative demands not to discriminate in mortgage lending, yet may also result in many households holding private mortgage insurance to enable lending to occur.

## *2.2 Regulatory Assessments of Mortgage Payment Protection Insurance Markets*

Competition concerns within the UK MPPI market have recently come to a head with the Competition Commission (2009) ruling to prohibit joint sales of MPPI with mortgages. Specifically this ruling stated joint sales of payment protection insurance with a loan products (unsecured lending, credit card debt and mortgages) are to be prohibited, single premium insurance policies should not be employed, greater customer information provision is required and that payment protection insurance should be unbundled from other financial services. This blanket prohibition has subsequently lead to the Financial Services Authority (hereafter FSA) to issue a consultation document on assessing compensation for customers miss-sold payment protection insurance with lending (FSA 2010). The potential claims from this miss-selling incident are expected to be substantial for the industry.

This investigation was prompted by claims of miss-selling and excessive prices, following the joint sales of payment protection insurance within a range of lending markets<sup>1</sup>. This decision came after repeated US and UK regulatory criticism of payment protection markets generally during the last 30 years. In the USA, the ‘packing’ of credit insurance within credit services such as home and consumer loans (Federal Trade Commission, 2001) has been criticised, even involving Senate hearings in the 1970s. In the UK, the provision of payment protection insurance has been repeatedly examined by the Financial Services Authority (hereafter FSA, [FSA 2005, 2006, 2007a, 2007b]), the Office of Fair Trading (OFT 2006) and the Competition Commission (2009).

Despite these concerns sustainable home ownership is a long term UK policy priority (Department of Environment, Transport and the Regions 2000) and MPPI has been widely advocated as an essential aid to achieve this goal. A wider discussion of the policy importance of MPPI and the considerable problems of the perceived high cost and low quality of cover offered by these policies is provided by Department for Environment, Transport and the Regions (2000).

### **3. The UK Market for Mortgage Payment Protection Insurance**

It has been argued the development of an effective government or private welfare insurance ‘safety net’ such as that provided by MPPI, is essential for a range of reasons. Since the 1970s UK home ownership has become more diverse in socio-economic terms with the proportion of borrowers from lower income households, unskilled workers and older people rising (Ford 2004); a movement supported by a range of UK government policies including the right to buy (Ford and England 2000). These changes occurred concurrently with the re-regulation of the UK mortgage market, leading to a major growth in the variety and range of mortgages often with non-standard features (Scanlon

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*et al* 2008). While these shifts have had positive outcomes in reducing the number of households which could not access credit and by reducing discriminatory practices, such as not lending to single persons and women, this change has reduced the quality of UK mortgage lending overall (Stephens and Quilgars 2008).

Exacerbating these concerns for the UK is the propensity of mortgagors to choose variable or short term fixed rate mortgage contracts rather than longer term fixed rate contracts. This has resulted in UK mortgagors facing more uncertainty in the nominal profile of mortgage payments (Miles 2005). Further in the low inflation environment with low earnings growth observed in recent years, high mortgage costs relative to income have persisted extending these risks over prolonged periods (Stephens *et al* 2008). These changes, also experienced to a degree in other nations (Weller and Sabitini 2008), involve an increasing proportion of mortgagors prone to shocks in their income and employment.

When faced with loss of employment through unemployment, illness and accidents, mortgagors have a range of safety nets. Initially savings may be accumulated by individuals and within families to accommodate unfortunate circumstances. Many mortgage contracts also allow mortgagors to ‘overpay’ on mortgages; effectively building up balances of re-payments which can be deferred at a later point. Employers making individuals redundant are obliged in many cases to make redundancy payments assisting in short term financial problems. Government has also forwarded a range of schemes including income support for mortgage payments and more recently housing tax credits (see Stephens *et al* 2008) to assist unemployed mortgagors. In addition individuals can also purchase a range of insurance policies including critical illness insurance, permanent health insurance, unemployment insurance, which may assist indirectly in mortgage repayment in cases of unemployment. Lastly, mortgage payment protection insurance

(MPPI), the subject of this study, provides cover for mortgage payments directly in cases of accident, sickness or unemployment.

The market for MPPI has developed in response to changes in government support for mortgagors. The UK government has supported mortgagors claiming unemployment benefits (national assistance, supplementary benefit, income support and job seekers allowance) since 1948 (Ford and Quilgars, 2001). Prior to 1987 mortgagors in receipt of these subsistence benefits would receive payment of full mortgage interest payments (Ford and England 2000). Historically mortgage lenders collaborated with this system and exercised forbearance by not initiating home repossession from recipients of this state welfare, an agreement given semi-legal status in 1991 (Ford and Quilgars 2001). This welfare safety net was curtailed in 1987 and 1995, more recently extended in 2009 and reduced in 2010, when the level of interest supported was limited to the Bank of England lending rate.

Since 1995 new mortgagors under the age of 60 received no state support for the first 39 weeks of receiving state unemployment benefits and full interest thereafter only for mortgage loans of £100,000 and below. This change reflected wider concerns with this system. A high proportion of claimants found state support did not fully cover the interest payments on the particular mortgage contracts they had opted for, and many incurred mortgage arrears despite this state support (Ford and Quilgars 2001). Further the incumbent government viewed income support for mortgage interest “*exacerbated unemployment, bailed out poor lending, failed to cover everyone in need and discourage the growth of private finance*” (Pryce 2002). Appraised of these concerns and conscious of the growing costs of these welfare payments, repeated UK governments have indicated individuals should protect themselves through MPPI in the first instance (Ford and England 2000) rather than rely on state support.

While MPPI has been offered in the UK since the late 1970s, its take up has been historically low. Providing a 39 week gap between a claim and payment of income support of mortgage interest in 1995 was expected to provide incentives for mortgagors to adopt MPPI. These changes would be facilitated by lenders and insurers who would offer appropriate MPPI policies. Following these changes it was hoped around 55% of new mortgagors would adopt mortgage payment protection insurance by 2004 (Department for Environment, Transport and the Regions 2000). The development of mortgage payment protection insurance was therefore premised as a method of managing a gap in income support for mortgagors created by the state. In January 2009, this benefits 'gap' was reduced from 39 to 13 weeks and the level of mortgage loans supported raised to £200,000.

In spite of these problems the MPPI market is substantial accounting for £607m for first mortgages and £251m for second mortgages and secured lending in 2007 (Competition Commission 2009). As detailed in Table 1, the number of MPPI policies in force has been reducing in recent years. The take up of mortgage payment protection insurance on all new mortgage contracts has also fallen from a high point of 24% in 2003 to 18% in 2007. The level of claims has also fallen despite a slight increase in the proportion of claims which are paid by insurance companies.

**Table 1. The UK Mortgage Payment Protection Market (MPPI) (ABI Statistics)<sup>2</sup>**

	2001	2002	2003	2004	2005	2006	2007
MPPI policies sold or provided free	697,100	875,000	926,100	708,800	545,500	508,300	377,900
MPPI policies in force	2,456,900	2,570,300	2,716,800	2,492,600	2,469,200	2,295,400	2,086,800
Percentage of total MMPI policies which offer accident sickness and unemployment cover	83	86	88	87	81	77	77
Percentage of total which offer accident and sickness cover	4	4	5	7	10	13	15
Percentage of total which offer unemployment cover	14	9	7	7	9	10	9
Take up of MPPI policies as a percentage of all mortgages	22	23	24	22	21	20	18
Percentage of policies provided jointly mortgage lending	80	80	75	77	75	71	73
Percentage of policies provided independently	5	6	6	1	1	2	1
Percentage of policies provided by intermediaries	15	14	19	22	23	26	26
Cost of MPPI £ per £100 monthly mortgage payment	5.24	5.11	4.95	5	5.15	5.2	5.15
Total number of MPPI claims	91,376	117,663	94,819	90,884	86,920	75,577	61,838
Percentage of MPPI policies subject to a claim	3.7	4.6	3.5	3.6	3.5	3.3	3
The percentage of claims accepted	87	88	88	89	89	89	90
Total claims paid	134,068	154,096	175,120	119,291	104,331	99,811	91,718
Average length of claim accident and sickness (days)	209	199	178	196	185	174	159
Average length of claim unemployment (days)	157	164	170	186	130	178	167

<sup>2</sup> The Association of British Insurer statistics on mortgage payment protection insurance do diverge from other commentators. For example the Competition Commission (2008) estimated in 2007 involving 1,174,842 first mortgage and 225,664 second mortgage payment protection policies are in force, and the degree of take up for mortgage payment protection is 31% of first mortgage customers purchasing credit insurance and 72% of second mortgage customers. Distinctly Ford and Quilgars (2001) using survey evidence indicate the ABI statistics tend to exaggerate the level of mortgage payment protection insurance take up.

A further feature of the MPPI is the very high proportion of MPPI policies that are provided at point of sale with the mortgage contract (estimates vary for example from 88% [Ford *et al* 2004] to 95% [OFT 2006]). The Association of British Insurers (hereafter ABI) statistics report the percentage of MPPI policies provided jointly with mortgage lending has fallen from 80% in 2001/2002 to 73% in 2007. These sales include distribution by both mortgage providers (50% of sales, Ford *et al* 2004) and through mortgage brokers and intermediaries (estimates vary between 36% [Ford *et al* 2004] and 21% [OFT 2006]). The ABI Statistics in Table 1 indicate the percentage of MPPI policies provided by intermediaries has risen to between 2001 and 2007 from 15% to 26% of all MPPI policies. Ford and Quilgars (2000) indicate MPPI sales through mortgage brokers and intermediaries poses problems as such sales are often made without provision of appropriate advice and with customer provided with little choice of MPPI policies. The proportion of sales which are undertaken independently of the mortgage sale accounts are low (from 1% [ABI statistics for 2007 reported in Table 1] to 10% of sales [Ford *et al* 2004]). In light of the very high proportion of MPPI sales undertaken jointly with a mortgage, we would expect at a minimum the prohibition of joint sales would severely disrupt this market and at worst permanently reduce the take-up of MPPI in the UK.

#### **4. Data and Forms of Analysis**

##### *4.1 The data employed and characteristics of Mortgage Payment Protection Policies*

The data for this study was provided by the FSA comparison web site on payments protection insurance and includes information on 281 MPPI policies provided by 67 financial services firms, which issued credit insurance either independently or jointly with a mortgage loan.. This data is distinct from past studies of MPPI (e.g. Burchardt and Hill 1998, Ford and England 2000, Ford and Quilgars 2001, Ford *et al* 2004, Pryce and Keoghan 2001) by considering actual MPPI policy details and premiums rather than

perceptions of costs derived from survey evidence. It is believed, at the time of writing that this is the first study of the MPPI market to use such policy data.

The cross-sectional dataset allows an assessment of the cost and quality differences between the MPPI policies provided jointly by mortgage lenders and independently. A high proportion of the products considered are designed for independent rather joint distribution. This information was accessed in August 2010 and provides information for providing a MPPI policy for monthly mortgage payments of £500, £1,000, £1,500, and £2,000 borrowed by a 20, 40 and 60 year old employed person working 40 hours per week (data for £500 borrowed by a 20 year old was unavailable). This data covers the majority of the supplies and policies offered in the MPPI market when collected. The quality of a MPPI depends fundamentally on the terms and conditions under which benefits are payable. The main relevant terms and conditions are explained in Table 2.

The origination of these MPPI policies are also overwhelmingly written and sold as block policies. Only a limited amount of this business is sold at an individual level where the policy is written for an individual's circumstances and concerns. As block policy origination aims to provide profitable policies for a wide range of customers, restrictive clauses are included to exclude individuals with different economic and individual risks and minimise adverse selection. Policyholders have distinct probabilities to certain illnesses, accidents and unemployment insurance firms to use a range of sorting devices to separate risk groups (Borenstein 1989) and when block policies are sold, exclude many higher risk customers. As incentives exist for low risk customers to distinguish themselves and gain a lower premium this discrimination will persist. These moral hazards can be even more acute for unemployment insurance as the individual can influence the prospect of finding new employment and the probability of losing their job (Chiu and Karni 1998). Attempts to amend for these quality problems have included the

use of benchmark products and regulation of MPPI sales through the mortgage code; a voluntary code adopted by many UK mortgage lenders between 1997 and 2004 (Ford and Quilgars 2001).

#### 4.2 *The Testing Framework*

The testing framework is divided into two parts. Initially descriptive statistics of the dataset are considered and differences between independent and joint distribution are considered for MPPI costs and policy characteristics. Where appropriate, differences between policies which are jointly and independently distributed are tested using a T Test. These results are displayed in Table 3.

Secondly the costs of the different policy characteristics and restrictions are quantified using a hedonic regression based approach. Hedonic regression techniques (Rosen 1974) are employed as a method of deriving monetary values for the attributes of composite goods. Composite or differentiated goods can be described by a vector of different characteristics; characteristics for MPPI policies are detailed in Table 2. Rosen showed that the implicit value of characteristics can be estimated by determining how the market price of products is affected by the vector of characteristics associated with the product. Essentially, in a competitive market, the price of a product is a function of its characteristics:

$$P(\mathbf{A}) = P(a_1, a_2, \dots, a_n) \quad (1)$$

This form of model is generally assessed by standard regression techniques. There is no strong theoretical basis for choosing a particular functional form (see Halverson and Pollakowsji (1981) and Rosen (1974)). However, the log-linear form has a

number of advantages and is well established in the literature (Malpezzi 2002) so we adopt it here:

$$\ln P = \beta_0 + \beta_1 a_1 + \beta_2 a_2 + \dots + \beta_n a_n + \varepsilon \quad (2)$$

Where  $\ln$  is the natural logarithm of price,  $\beta_i$  are the coefficients of the hedonic regression and  $\varepsilon$  is the error term.

In total five forms of the hedonic regression model (2) are considered. Initially the model is estimated separately for jointly distributed policies, independently distributed policies and for both types of policy combined. Then the relative costs of policies which are jointly or independently distributed is considered by estimating (2) for all policies using a dummy variable in the regression to denote independently distributed policies. This procedure allows comparison with ‘all policies’ to determine whether independent policies are indeed cheaper than jointly distributed policies, taking account of their policy characteristics. Finally equation (2) is estimated for all policies whilst constraining the coefficients in the regression to be equal to the corresponding coefficients when only independent policies are included whilst also using a dummy variable to denote for independent policies. This procedure allows direct measurement of the premium savings available if policies with the same features as those currently sold jointly were instead purchased in a competitive market.



**Table 2: Explanation of Policy Characteristics, Measurement and Expected Relationship with Premium Size**

Condition	Explanation, Measurement and Expected Relationship with Premium		
Benefit Coverage	The monthly mortgage payment to be covered in the case of a claim	Amount in £s	+ve
Age	The age of the policyholder	Age in years	+ve
Maximum monthly mortgage payments	The maximum number of monthly payments that a policyholder can receive if they make a claim.	Number in Months	+ve
Waiting Period	Some policies do not pay benefits immediately. The waiting period is the period the policyholder has to wait before making a claim and may due to the cause of the claim.	Period in days	-ve
Back to day one cover	This feature concerns whether the insurer backdates claims to the first day of accident, sickness or unemployment. For example, if a policyholder falls ill on 1 <sup>st</sup> January and the policy has a waiting period of 30 days the policy would normally start to pay out on 31 <sup>st</sup> January. If the policy has back to day one cover the payments will be backdated to the 1 <sup>st</sup> January.	Period in days	-ve
Pre-existing conditions excluded	Some policies do not cover medical conditions that a policyholder already has when they take out the policy until a certain period has elapsed. This is known as the pre-existing conditions period.	Dummy Y=1, N=0	+ve
Portability	Policies are portable if they can be taken with the policyholder if they move their mortgage to another lender. It is undesirable cancel a policy on moving lenders as the policyholder may lose cover for pre-existing medical conditions as well as facing the problem that premiums may have increased.	Period in days	-ve
Additional Benefits	Some policies offer additional benefits such as critical illness cover.	Dummy Y=1, N=0	+ve
Backache	Backache is problematic for insurers because it is difficult to determine whether a claimant is genuinely suffering from the complaint. Often cover is restricted to cases where closely defined medical evidence is provided. Typical restrictions might be ‘You will not receive monthly benefit for any disability or unemployment caused by or resulting from any of the following: - backache or related conditions unless there is supporting medical evidence. Such evidence may be a report from an appropriate specialist or from your doctor, in both cases an MRI, CT scan or equivalent may be required.’	Discrete Variable No restriction =2, Restricted = 1, No cover = 0	+ve
Stress	Stress is problematic for insurers because it is difficult to determine whether a claimant is genuinely suffering from the complaint. Often cover is restricted to cases where closely defined medical evidence is provided. For example, typical restrictions might be ‘You will not receive monthly benefit for any disability or unemployment caused by or resulting from any of the following: - stress, anxiety, depression, mental or nervous disorder or any condition of a psychoneurotic origin unless certified by and under the continuing care of a consultant psychiatric specialist’	Discrete Variable No restriction =2, Restricted = 1 No cover = 0	+ve

Table 2 also considers the way the various policy features are quantified and the sign of their expected coefficient in the regression; the expected relationship between the policy characteristic and premium size. The expected influence of these policy conditions for the pricing of MPPI premiums vary in terms of the costs or benefits of including these characteristics. A positive relationship between premiums and benefit coverage, age, maximum payments, back to day one cover, portability and acceptance of backache and stress is predicted as these will contribute to the costs of the policy. A negative relationship between premiums and the waiting periods for both unemployment and accidents and sickness are predicted, as premiums should decline as waiting periods are raised.

## **5. Results**

### *5.1 Descriptive Assessment*

The descriptive assessment of the MPPI policy data is provided in Table 3. This table records premium costs rise with the level of cover. Further the age of MPPI policyholders also influences the premium costs for policies sold independently, with younger applicants paying less for MPPI policies probably reflecting a smaller chance of suffering illness. It is surprising that this age effect is not observed for the jointly sold policies possibly reflecting a lower emphasis placed by firms on this effect as mortgages are generally less likely to be taken out by older people. At ages 20 and 40 the cost of policies sold independently tends to be less (often at statistically significant levels) than that of those sold jointly.

**Table 3: Cost of monthly MPPI cover and policy characteristics and restrictions**

<b>Panel A Cost of monthly MPPI cover</b>								
Averages Monthly MPPI cost £'s		Independent distribution (252 policies)		Joint distribution (20 policies)		Total (272 policies)		T test
Full time employee/ Age		Mean	St dev.	Mean	St dev.	Mean	St dev.	
£2000 cover	20 years	99.98	36.00	117.33	24.13	101.26	35.52	-2.12*
	40 years	106.98	31.51	117.24	24.79	107.70	33.16	-1.39
	60 years	127.45	50.86	116.83	24.20	126.67	31.16	0.92
£1500 cover	20 years	66.48	29.87	84.51	17.95	67.99	29.47	-3.25**
	40 years	73.53	25.23	84.34	18.25	74.41	24.89	-2.26*
	60 years	102.83	40.08	84.31	18.80	101.28	39.07	2.50*
£1000 cover	20 years	44.13	19.89	55.70	12.55	45.15	19.62	- 3.13**
	40 years	49.02	16.75	55.54	12.54	49.53	16.53	-2.08*
	60 years	68.59	26.60	55.50	12.67	67.44	25.94	2.75*
£500 cover	20 years	-	-			-	-	
	40 years	22.13	9.98	28.38	6.20	22.59	9.88	-3.21**
	60 years	34.35	13.27	27.81	6.43	33.80	12.95	2.71**

  

<b>Panel B Policy characteristics and restrictions</b>			
Employed Full Time	Independent	Joint	Total
Maximum number of monthly mortgage payments	15.19	12.44	14.96
Waiting period accident and sickness days before payments made (days).	79.17	47.49	76.63
Waiting period unemployment before payments made	77.43	47.49	75.04
Percentage of policies with back to day one cover	39.8%	33.6%	39.2%
Period for which pre-existing conditions excluded	16.92	13.98	16.71
Percentage of policies that exclude pre-existing conditions	1.62%	10.4%	2.38%
Percentage of policies which are portable and can be moved to different mortgages	93.8%	33.2%	88.9%
Percentage of policies with additional benefits	74.1%	54.7%	72.5%
Coverage of backache	99.6%	99.0%	99.6%
Restricted coverage of backache	12.0%	87.9%	18.1%
Coverage of stress	100.0%	100.0%	100.0%
Restricted Coverage of stress	7.0%	84.2%	13.3%
Number of Observations	3394	298	3692

\*\*\* denotes statistically significant at 1%, \*\* denotes statistically significant at 5%, \* denotes 10% significance

The quality of MPPI policies in our study is reported in Panel B of Table 3. Neither set of jointly or independently distributed policies provides a dominant set of benefits. It can, however, be seen that the quality of benefits provided does, to some

extent, reflect the priorities of the institution that sold it. The policies sold jointly, on average, provide a higher maximum number of monthly mortgage payments and independently sold policies have substantially longer waiting periods. Little difference is observed between jointly and independently distributed MPPI policies for provision of cover to back to day one of the initial claim and for the period for which pre-existing conditions are excluded. Independently sold policies are far more likely to be portable than jointly sold policies. This potentially reflects the relatively greater desire of firms distributing MPPI policies jointly to retain mortgagors. Independently sold policies are also more likely to offer additional benefits and are much less likely to place restrictions on claims due to backache and stress.

## 5.2 *Results of the Hedonic Pricing Model*

Table 4 reports the hedonic regression model results, for all observations, jointly and independently distributed policies and further models to examine the influence of distribution on MPPI premiums. Table 4 Panel A shows the results of the hedonic regressions for the independent policies. The market for these policies can be classified as competitive so the theoretical analysis of Rosen (1974) will be applicable. The regression is highly satisfactory with all coefficients being significant and having the expected signs. The overall equation is significant at a very high level and has an R squared statistic of almost 70%.

Table 4 Panel B shows the results of the hedonic regression for the jointly sold policies. The market for these policies may not be fully competitive so the theoretical analysis of Rosen (1974) may not be totally applicable. Nonetheless the regression is satisfactory in many respects in that most of the coefficients are significant and have the expected signs. The exception to this is the sign for age which is negative albeit not

significant. The overall equation is significant at a very high level and has an R squared statistic of over 90%.

Table 4 Panel C shows the results of the hedonic regression for all the policies. A priori the market for the jointly sold policies may not be fully competitive so the theoretical analysis of Rosen (1974) may not be fully applicable. Nonetheless the regression still has coefficients with the expected signs and generally a very high level of significance. The overall equation is significant at a very high level and has an R squared statistic of just over 70%.

Table 4 Panel D shows the results of the hedonic regression for all the policies with a dummy for policies that are sold independently. This allows comparison with Panel C to see if independent policies are indeed cheaper than jointly distributed policies, when taking account of their policy characteristics. The dummy for independent policies is negative and highly significant showing that these policies are indeed cheaper for a given set of policy characteristics than jointly distributed policies.

Table 4 Panel E shows the results of the hedonic regression for all the policies with a dummy for policies that are sold independently and with the regression coefficients for policy features constrained to be equal to those found in the hedonic regression for independently sold policies. This allows a direct measure of the premium savings available if policies with the same features as those currently sold jointly were instead purchased in a competitive market. The dummy for independent policies is negative and highly significant showing that policies with a given set of features would be cheaper in a competitive market.

**Table 4 Hedonic Regression model – Semi Log Coefficients**

	Panel A		Panel B		Panel C		Panel D		Panel E	
	Independent Policies		Joint Policies		All Policies		All Policies with Dummy for independent policies		All Policies constrained to equal coefficients. Dummy for independent policies	
	B	Std. Error	B	Std. Error	B	Std. Error	B	Std. Error	B	Std. Error
Constant	1.708	0.048***	2.460	0.104***	1.794	0.045***	1.937	0.051***	1.904	0.021***
Dummy (where applicable)							-0.169	0.029***	-0.197	0.022***
Benefit Coverage	0.001	0.000***	0.001	0.000***	0.001	0.000***	0.001	0.000***	0.001	N.A.
Age	0.010	0.000***	-0.001	0.001	0.010	0.000***	0.010	0.000***	0.010	N.A.
Max No. of Payments	0.036	0.001***	0.044	0.004***	0.036	0.001***	0.036	0.001***	0.036	N.A.
Waiting Period Accident and sickness	-0.001	0.000***	-0.004	0.001***	-0.001	0.000***	-0.001	0.000***	-0.001	N.A.
Waiting Period Unemployment	-0.001	0.000***	Collinear with Waiting Period Accident and Sickness		-0.001	0.000***	-0.001	0.000***	-0.001	N.A.
Back to day one cover	0.033	0.016*	-0.109	0.027***	0.011	0.015	0.025	0.015	0.033	N.A.
Pre-existing period exclusion period	-0.000	0.000*	-0.000	0.000**	-0.000	0.000*	-0.000	0.000***	-0.000	N.A.
Portability	0.210	0.027***	0.041	0.025	0.113	0.020***	0.176	0.022***	0.210	N.A.
Coverage of Backache	0.102	0.020***	0.136	0.030***	0.160	0.017***	0.114	0.018***	0.102	N.A.
Coverage of Stress – suppressed – collinear with coverage of Backache										
R-Squared	0.699***		0.903***		0.702***		0.704***		N.A.	

\*\*\* denotes statistically significant at 1%, \*\* denotes statistically significant at 5%, \* denotes 10% significance

## 5. Conclusions

This study uses a hedonic pricing model to investigate the interactions between the premiums, policy quality and distribution of mortgage protection insurance (MPPI). This study addressed the research question of whether MPPI policies are relatively expensive when these policies are distributed jointly with mortgages relative to being distributed independently of mortgage sales. In this concluding section we consider a brief summary of the study findings, the pertinence of policy responses and recommendations for further work.

We report that MPPI policies sold independently tend to have lower premiums in the age range where people are likely to be taking out mortgages. Policy characteristics and conditions vary between policies sold jointly and those sold independently. One group of policies is not dominant in this respect but the conditions reflect the circumstances of the institutions providing them. Hedonic analysis of the independently sold policies indicates that their premiums reflect the quality of the policy in terms of its coverage and conditions. Comparisons between policies sold jointly and independently indicate that the policies sold jointly are clearly more expensive for a given set of benefits and conditions suggesting uncompetitive premium levels.

In light of this discussion the recent Competition Commission 2009 prohibition of joint sales of MPPI policies with mortgages may be justified on terms of premium costs. While our analysis supports the conclusions of the Competition Commission (2009) regarding the excessive premiums of jointly sold MPPI policies we do consider MPPI maybe a special case, due to its social and economic importance. The policy challenge is whether housing and economic policy are subsidiary to the competition concerns raised by the Competition Commission. Clearly the prohibition of joint MPPI sales will at least disrupt a market aimed at providing a private insurance ‘safety net’ for mortgagors; a form of insurance advocated and promoted by successive governments. Should we view

competition law as one of many economic concerns, including monetary stability and fiscal prudence which are collectively important for the preservation of the economic order, or alternatively consider competition issues as a specific legal problem. Clearly further research is required to assess the longer term influence of this prohibition. Questions needing further assessment include, has the MPPI declined and take-up of this form of insurance continued its current decline, have alternative forms of insurance either privately or publically, and if MPPI sales are increasingly undertaken through mortgage brokers and intermediaries will the current levels of policy quality and premium costs improve or decline.

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