

Rhetoric in the Language of Real Estate Marketing

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Abstract:

“Des. Res.”, “rarely available”, “viewing essential” – these are all part of the peculiar parlance of housing advertisements which contain a readily identifiable combination of euphemism, hyperbole and superlative. Of interest is whether the selling agent’s penchant for rhetoric is uniform across a single urban system or whether there are variations, even within a relatively limited geographical area. We are also interested in how the use of superlatives varies over the market cycle. For example, are estate agents more inclined to use hyperbole when the market is buoyant or when it is flat? This paper attempts to answer these questions by applying textual analysis to a unique dataset of 49,926 records of real estate transactions in the West of Scotland over the period 1999 to 2006. Our analysis has implications for our understanding of the agency behaviour of housing market professionals and endeavours to open up a new avenue of research into the market-impact of rhetoric in the language of selling.

Key words: real estate brokerage, textual analysis, marketing, estate agent, Aristotle.

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“Des. Res.”, “rarely available”, “viewing essential” – these are all part of the peculiar parlance of housing advertisements which contain a readily identifiable combination of euphemism, hyperbole and superlative. Of interest is whether the selling agent’s penchant for rhetoric is uniform across a single urban system or whether there are variations, even within a relatively limited geographical area. We are also interested in how the use of superlatives varies over the market cycle. For example, are estate agents more inclined to use hyperbole when the market is buoyant or when it is flat? This paper attempts to answer these questions by applying textual analysis to a unique dataset of 49,926 records of real estate transactions in the West of Scotland over the period 1999 to 2006. Our analysis has implications for our understanding of the agency behaviour of housing market professionals and endeavours to open up a new avenue of research into the market-impact of rhetoric in the language of selling.

1. Introduction

Analysis of the transactions process has traditionally focussed on buyer search behaviour (Yavas 1992), pricing strategies (Smith et al 2005; Levin and Pryce 2006), time on the market (Haurin 1988; Pryce and Gibb 2006), the bidding/bargaining process (Levin and Pryce 2006; Magnes and Otralo-Magne 2004) and broker behaviour in response to financial incentives (Munneke and Yavas 2001). Much of this literature assumes that the data disseminated about a property by agents is informative rather than manipulative or emotive. Agents, in economic models at least, are typically assumed to be dispassionate profit maximisers whose role as market intermediaries only serves to ease the dynamics of the market by mitigating information imperfections. Even when the suggestion is made that agents play a manipulative role in the market (as in Smith et al 2005), the strategic behaviour is assumed to operate via the advice they offer to buyers and sellers regarding price-setting or bidding. It is only relatively recently that the language used in property advertisements has been considered worthy of research. For example, Levitt and Syverson (2005) use property listing data from the United States to link

marketing descriptions to house prices. Even in this research, however, the use of language is tackled only as a peripheral issue and explored at a relatively superficial level.

Yet the notion of estate agents as information disseminators contrasts strongly with the common perception of them by the media and the general public. Indeed, the language that estate agents employ is perhaps the main factor that defines their popular characterisation. “Des. Res.”, “rarely available”, “viewing essential” – these are all part of the peculiar parlance of housing advertisements that contain a readily identifiable combination of euphemism, hyperbole and superlative. It is their use of language -- rather than their strategic pricing or market fixing behaviour – that also has played the biggest role in marking out estate agents as objects of ridicule. Many of the jokes about estate agents would be devoid of meaning if there were not an accepted set of assumptions about their manipulative use of language, as the following extracts from BBC News Online (2002) from humorous “dictionaries” of estate agent euphemism demonstrate:

<i>'Benefits From:</i>	Contains a feature you may expect to be the bare minimum for the extraordinary price you are paying. Example: "Benefits from roof, floors, walls".'	
<i>'Bijou:</i>	Would suit contortionist with growth hormone deficiency.'	(Ibid)
<i>'Compact:</i>	See Bijou, then divide by two.'	(Ibid)
<i>'Convenient For:</i>	A deceptive term with two possible definitions depending on the object of the phrase: Eg "Convenient For A40" means your garden doubles as the hard shoulder. Whereas "Convenient For local amenities" means you can run to the shops. If you are Paula Radcliffe.'	(Ibid)
<i>'In Need of Modernisation:</i>	In need of demolition.'	(Ibid)
<i>'Internal Viewing Recommended:</i>	Looks awful on the outside.'	

(Ibid)

‘Original Features: Water tank still contains cholera bacterium.’

(Ibid)

‘Studio: You can wash the dishes, watch the telly, and answer the front door without getting up from the toilet.’

(Ibid)

“Secluded location” It was in the middle-of-nowhere - barren and desolate. Suitable film set for Mad Max 5.’

(Houseweb, 2006)

The allegedly misleading use of language by estate agents leads, in turn, to them being characterised as dishonest and greedy, inviting an even less sympathetic view of the profession:

‘Question: How can you tell when an estate agent is lying?
Answer: His lips move.’

(Booth, 2006)

‘Question: Why won't a shark bite an estate agent?
Answer: Professional courtesy!’

(ibid)

It is beyond the scope of this study to verify the extent to which these prejudices about estate agents are justified. That would require a systematic comparison of estate agent descriptions with an independent physical assessments of each property and an evaluation of how the typical use of words in the estate agent descriptions contrasts with their meaning in everyday use. To some extent, however, the question of whether estate agents exaggerate property characteristics is irrelevant. This is because, in principle, consumers will simply adjust their interpretation and expectations. The humorous dictionary of estate-agent speak in the BBC Online article cited above represents an acknowledgement that this filtering process does indeed take place. Indeed, this phenomenon is at work among the British public as they seek homes. One does not actually expect a ‘stunning lounge’ to render one unconscious or an

‘exclusive neighbourhood’ to literally screen out undesirable people who want to move to the area. Rather, the hyperbole in estate agents forms a language in which words take on significance within the context of house-advertising language. We argue that there is an allegedly understood language of real estate, one that moves far beyond a mere description of the physical state of a property (or even a rather one-sided, optimistic version of the attributes). Instead, our house is ‘now seen as an expression of our taste and as an extension of our personality. It’s a sophisticated language, but one we all understand’ (Sweet, 1999, p. 15).

Our argument is that, if estate agents are consistent in their use of hyperbole and euphemism, there is no real need for concern. A handful of property viewing excursions will provide average house hunters with the Rosetta Stone they need to make the necessary translation of all subsequent property descriptions. If house sellers and house hunters are, in essence, speaking the same language then there is meaningful communication (although decoding the language is an interesting and sometimes illuminating exercise in and of itself).

The real question, then, is the extent to which the pattern of exaggeration and misrepresentation *varies*? Code-breaking becomes considerably more complex when the process of decoding is variable. This was the primary innovation of the Second World War code-making machines such as Enigma, and it is the principle that underpins modern encryption. So even if we could prove that estate agents are *guilty as charged* in terms of their alleged abuse of language, we would still be left with the more important question of whether the parlance of property peddling varies over time and space. Such a question presupposes that there may be processes in the evolution of estate agent practice within a city that might cause systematic variation to occur. Such processes might themselves emerge in response to

imperfect information in the market – not only for buyers and sellers, but for market professionals as well.

To identify changes in the use of language we must first have a way of categorizing the use of language. Our conceptual framework uses, as its starting point, Aristotle’s theory of Rhetoric. We employ a basic use of this theory, which divides the act of persuasion into three categories: 1) *ethos*, which is appeal based on the character of the speaker; 2) *logos* (appeal based on logic or reason); and 3) *pathos*, i.e. appeal based on emotion. We then apply this rhetorical theory to house ads. An examination of our dataset of house ads (as well as experience in observing the Glasgow housing market over several years) quickly shows that *ethos* does not play a significant role in the language of selling. For example, we found no examples of the type, “the trusted firm of John Smith Realtors brings this property to the market, etc.”¹ On the other hand, *pathos* occurs frequently in the language of house selling and covers those elements that aren't usefully describing a tangible, central feature of a property. The majority of property descriptions are in general dominated by the language of *logos*, though it is sometimes a matter of judgement whether a description amounts to *logos* or *pathos*. For example, references to “original features” might be construed as *logos*, but it also has elements of *pathos* in its link to historical appeal. Under *pathos*, we identify a number of sub-categories, based on types of emotional vulnerability and need that house-buyers could possess. We then examine the propensity for the use of different categories of rhetoric in the description of properties to vary over time and space.

The structure of the remainder of this paper is as follows. In section 2, we present a brief summary of the relevant literature. This is followed by an outline of our conceptual framework

¹ There is some reference to particular homebuilders, such as Bett, Cala, Miller, etc., but arguably this is strictly descriptive rather than status-seeking

(section 3) and methods (section 4). In section 5, we present our results (qualitative, bivariate and multiple regression) and in section 6 we offer some conclusions from our examination of the rhetoric of real estate.

2. Literature Review

As noted in the introduction, there has been very little attention in the academic literature to the language estate agents use in the course of selling properties. By and large, the role of estate agents is assumed to be neutral, though the assumption is typically implicit rather than explicit. In recent years, a number of housing economists have relaxed this assumption and investigated the possible perverse incentives faced by estate agents. This work, however, has focussed on agent effort, fees and advice and has tended to overlook the particular role of language. Sirmans et al (1995), for example, considered the possibility that estate agents have an incentive “to urge the seller to accept suboptimal offers” (p.230). However, they find no significant difference between the selling prices of properties that sold quickly compared with those that sold after the normal time on the market. This contrasts with the findings of Levitt and Syverson (2005), who compare the prices and selling-times of properties owned by estate agents with the selling price of properties owned by their clients. They find that homes owned by estate agents sell for around 4% more than other houses and are typically on the market for approximately ten days longer, suggesting that estate agents push harder for better prices on their own properties. Other authors also have compared the prices of properties sold by estate agents with those sold by owners. Elder et al (2000) found that real estate brokers have no independent effect on selling prices. In addition, it would appear that offering more commission does not lead to estate agents obtaining higher prices for houses (Munneke and Yavas 2000 compare selling times and prices of houses sold through full-commission agents and traditional agents).

To our knowledge, the only paper in these various strands of literature to have attempted any form of textual analysis of the language used by estate agents is the working paper by Levitt and Syverson (2005). Their primary concern, however, is the difference in selling time and sale price of properties owned by estate agents compared to properties owned by clients. Thus, the analysis of language is somewhat peripheral to this study. It consists of entering a number of words (such as “beautiful”, “appealing” and “wonderful”) as independent variables in a house price regression without a conceptual framework to justify the choice of words and a substantiation of the assumed causal mechanism. For example, it is not clear whether the negative coefficient associated with the use of the word “Amazing” (Table 3 of Levitt and Syverson, 2005) means that it is the use of that word in a property description that actually lowers the final selling price -- or whether it is simply a word associated with a particular type of property that would have sold for that lower price anyway. In other words, if the agent had not used that word, would it in fact have made any difference? To ascertain whether this is the case would require a more developed theory of language and an empirical methodology that controls for simultaneity bias.

The problem is analogous to the conflicting views presented in Smith et al (2005) and Levin and Pryce (2006) with regard to the cause of extreme bids in the Edinburgh housing market. Smith et al (2005) suggest that the institutional procedures adopted by market-making intermediaries contribute to divergence between asking price and selling price. Levin and Pryce (2006), on the other hand, acknowledge the possible attempts of estate agents to exploit the uncertainties of the market, but question whether these strategies have any real impact on the market as a whole, given that there exists a purely probabilistic explanation for the

existence of extreme bids in a booming market. As usual, social scientists are left with the problem that proof of causation cannot be ascertained from correlation alone.

In terms of identifying the role that realtor language plays in determining the marketing time and price, we believe that a more fundamental stage in the analysis has to be thoroughly established in order for subsequent attempts at causal reasoning to be meaningful. The preliminary stage to which we refer is a rigorous understanding of the use of language by estate agents and how it varies over time and across space. This is the missing element in the literature and is the area in which the current paper hopes to contribute. For example, if it can be shown that the incidence of particular hyperbole rises and falls with the market, given that house type is relatively constant over time, this cyclical aspect to marketing language will have to be factored in to any subsequent research on the impact that language has on market outcomes. Otherwise false conclusions will be drawn from the data. For example, what if the incidence of the word “stunning” increases as the market booms? A regression of price on the word “stunning” will yield a positive coefficient for the occurrence that word (as is the case in Levitt and Syverson, 2005) simply because prices also tend to rise during a boom. It may be that the use of that particular word has no effect whatsoever in individual transactions, but the positive correlation with the general level of prices reinforces the illusion that there is a causal process at work.

While the language of realtors appears to have thus far escaped serious textual analysis, there have been applications to the tangential topic of television property programmes. For example, Lorenzo-Dus (2006) conducted a textual analysis of 45 episodes of British primetime television property shows. Her goal was to examine the strategies utilised by the lifestyle media to persuade viewers to pursue specific lifestyles. Although the analysis cannot give us

direct insight into the parlance of estate agents, it does deepen our understanding of the ambient use of language that conditions and articulates the lifestyle aspirations underpinning housing demand. As a consequence, estate agents may themselves draw upon the language cues of property shows and the broader property media in their bid to persuade potential buyers that a particular property is worth viewing (or even worth paying more money for). So the role of the media is certainly key in establishing and refining the common terms of dialogue between estate agents and house buyers.

The discussion by Lorenzo-Dus about the nature of persuasion is of particular interest to our inquiry. Drawing on Pardo's (2001, p. 99) study of persuasion in relation to the discourse of globalization in Argentina, she highlights the common strategies used by those who attempt to persuade:

“Persuasion is in some respects a linguistic phenomenon (persuasion may be achieved in various ways that do not involve language). In relation to argumentation it is characterized by an increase in linguistic resources and strategies in general (hierarchical presentation of information, tonalization, evidentialness markers, etc.). Its communicative function is to try to convince another of something. Like any other language element it is necessarily linked to power and therefore it always entails some degree of it.” (Pardo 2001, p.99)

Summarising the work of van Dijk (1998) and Pardo (2001), Lorenzo-Dus explains that:

“*the* communicative goal of persuasive texts is to convince others of something. Persuasive discourse is also a form of power... [P]ower is connected to people's minds, specifically to our wanting to control the minds of others so that they may see things as we do and act as we want them to. Giving orders is one way to achieve power. Trying to convince others – persuading them – is a more complex and subtle, yet often more effective, alternative. Moreover, for persuasion to work, persuader and persuadee must agree that the implications of non-persuasion, as it were, are worse than those of persuasion. This agreement, which is grounded on an ‘implicit threat’ (van Dijk, 1998), therefore lends further support to Pardo's view above that persuasion and power are connected.” (Lorenzo-Dus, 2006, p.741).

So while it is not obvious how the act of persuasion required in the marketing role of estate agents could entail any direct “threat”, agents can in principle draw on the kind of implicit threat suggested by Lorenzo-Dus by emphasising, or at least hinting at, the negative implications of non-persuasion. They may, for example, claim that a property of a particular type is “rarely available”, that it is an opportunity “not to be missed”. More subtly, estate agents may select marketing phrases that draw on the lifestyle aspirations readily propagated in

the property media, with an implicit threat that failure to achieve particular set of lifestyle characteristics will reflect a failure to achieve in life *per se*, or will lead to “looser connections between material and symbolic choices, and lack of tangible identity markers” (Lorenzo-Dus 2006, p.758).

While the work of Lorenzo-Dus is potentially useful in helping us to understand the act of persuasion embodied in real-estate marketing, it is clear from even a cursory reading of estate agent advertising material that there are aspects to persuasion other than the deployment of implicit threats. In particular, there are other ways to appeal to emotion and that part of the act of persuasion may be to appeal to other aspects of a buyer’s faculties, such as their ability to reason or their capacity and desire to trust. A broader framework is therefore needed if we are to develop a meaningful categorisation of the words used by estate agents to market properties. It is to this task, and to the ancient writings of Aristotle, that we now turn.

3. Conceptual framework

We argued in the Introduction that the question of greatest interest was not whether the stereotyping of estate agents as duplicitous was justified, but the extent to which the pattern of rhetoric varies over time and space. Such a question presupposes that there may be processes in the evolution of estate agent practice within a city that might cause systematic variation to occur. Such processes might themselves emerge in response to imperfect information in the market – not only for buyers and sellers but for market professionals as well.

For example, agents may perceive that there are greater returns from hyperbole during particular phases of the market. If the goal is to catch the attention of potential buyers, this

becomes that much more difficult in the frenzy of rapid transactions. So agents have to shout all the louder to be heard when the market is hot. On the other hand, the use of rhetoric may be the estate agent's strategy of last resort to reinvigorate a stagnant submarket.

We may also find that local conventions emerge and persist in the language of selling. This would not be surprising given the tendency for this to occur in language generally. Differences in accents, pronunciation, idiom and terminology occur at small spatial scales in the wider population, so why not in real estate agency? It is possible, on the other hand, that realtors are a community unto themselves, one that imposes a certain uniformity in language, a tendency conceivably perpetuated by the use of the internet and international household mobility. In the same way that television has been blamed for the cross-fertilisation of regional accents (Stuart-Smith, Timmins and Pryce 2005), the explosion of web-based property advertising may have all but eradicated regional or even intra-urban variation in the language of selling houses. Yet, most moves are local moves, so conceivably differences in marketing language could still persist despite the innovations in communication technology. Local moves could foster and preserve a common dialect between estate agents and those in the surrounding community, one that is only comprehensible because of persistence in the spatial and cultural proximity of the parties involved in the majority of transactions.

Before we can explore any of these possible hypotheses, we need to devise an appropriate method of linguistic classification. How can one identify whether the propensity to use a particular category of language varies across space and time if there is no rationale for categorising language in the first place? Without categorization, there is no measurement of variation. In this paper we assume that property promotion entails an attempt to persuade potential buyers to view and bid for the property. This assumption is something of a tautology

as estate agency can be defined as the marketing of homes for sale, and promotion is one of the four 'Ps' of the "marketing mix" – Price, Product, Place and Promotion – the most common way of defining the activities of a marketer. The fact that the estate agent use of language is motivated by the desire to persuade (rather than simply disseminate) links it to the wider discussion on the analysis of *rhetoric* and indeed to Aristotle's seminal work on the subject. Aristotle decomposed the act of persuasion into three components: *ethos* (reliability of the speaker), *pathos* (the manipulation of the emotional predisposition of the audience) and *logos* (logical argument). Here, in the words of Aristotle, is the rationale for this classification:

"Of the modes of persuasion furnished by the spoken word there are three kinds. The first kind depends on the personal character of the speaker; the second on putting the audience into a certain frame of mind; the third on the proof, or apparent proof, provided by the words of the speech itself. Persuasion is achieved by the speaker's personal character when the speech is so spoken as to make us think him credible. We believe good men more fully and more readily than others: this is true generally whatever the question is, and absolutely true where exact certainty is impossible and opinions are divided. This kind of persuasion, like the others, should be achieved by what the speaker says, not by what people think of his character before he begins to speak. It is not true, as some writers assume in their treatises on rhetoric, that the personal goodness revealed by the speaker contributes nothing to his power of persuasion; on the contrary, his character may almost be called the most effective means of persuasion he possesses. Secondly, persuasion may come through the hearers, when the speech stirs their emotions. Our judgements when we are pleased and friendly are not the same as when we are pained and hostile. It is towards producing these effects, as we maintain, that present - day writers on rhetoric direct the whole of their efforts. [...] Thirdly, persuasion is effected through the speech itself when we have proved a truth or an apparent truth by means of the persuasive arguments suitable to the case in question." (Aristotle, 350 BC, p. 3-4).

Our approach, expounded in the pages that follow, is to apply this characterisation of the act of persuasion to around 49,926 written property descriptions published by estate agents in the West of Scotland. As noted in the introduction, we found no evidence of *ethos* in our data, though the use of the generic GSPC brand to market properties may represent an implicit attempt to construct a broader sense of trustworthiness and reliability. Moreover, *logos* – the listing of facts about the house – takes up the majority of words in these descriptions and there is little of interest or surprise in these particular aspects of the language of selling. Of far greater interest is the extent to which *pathos* is used and the different types of *pathos* that the agent employs. We extend Aristotle's classification, therefore, to include the following sub-categorisation of *pathos*: (i) *originality*, (ii) *ambience*, (iii) *prestige* and (iv) *excitement*. We

developed these categories on both our own knowledge of the Glasgow real estate market as well as an examination of many of the ad descriptions from the dataset. Our plan is not only to identify which words are words denoting *pathos*, but also to place every *pathos*-word into one of these four categories. This categorization process must be applied to each of the 49,926 published descriptions in our data. We can then measure the incidence of each category of *pathos* as the proportion of words in each property description that fall into each sub-category. Once this has been achieved we shall be able to consider how these proportions vary over time and space.

A description of each of the four subcategories of *pathos* is given below:

Pathos Type I: Originality: These are words and phrases that evoke feelings of uniqueness as well as the prospect of being able to break from the anonymity and uniformity that characterises mass production. Such language taps into the urge to assert one's personality and individuality, to be "more than a number". The *Pathos* Type I classification includes words such as: "character", "bespoke", "natural", "individual", "imaginative", "innovative", "original", "unique", "unusual", and "rare".

Pathos Type II: Ambience: This is language that taps into particular lifestyle fantasies and 'nesting' instincts. It includes words such as "bright", "fresh", "charming", "attractive décor", "deluxe", "fashionable", "elegant", "stylish", "pleasant", and "mature".

Pathos Type III: Prestige: This type of rhetoric appeals to our desire for respect, status and admiration. The agent is attempting to suggest that to live in this property and/or locality is a signal that the owner has achieved a certain status in society. This

suggests that with ownership will come the perception of success (see de Botton's 2004 "Status Anxiety"). The *Pathos* Type III classification includes words such as: "exclusive", "executive", "enviable", "prestigious", "up-market", and "successful".

Pathos Type IV: Excitement: Such words attempt to foster and exploit the excitement and giddiness that comes from the purchasing process itself – the "retail therapy" element of house purchase. So agents use superlative adjectives to evoke excitement about a property. However, the employment of these words may betray the difficulty of using more precise and informative description because, in actual fact, the property has little going for it. Examples of this kind of description include: "!", "amazing", "breathtaking", "deceptively", "fantastic", "generous", "immaculate", "incredible", "too many features to", "well", and "wow".

These sub-classifications lead to a further set of questions about the interplay of different types of rhetoric. Are there variations across space and time not only in the propensity to employ rhetoric, but also in the type of rhetoric used? For example, the use of *excitement*-inducing superlatives may be particularly susceptible to hyperbole because it is especially difficult to identify specific or objective criteria against which words such as "fantastic" and "amazing" can be judged. Consequently the incidence of *Excitement*-inducing superlatives may be more volatile than the other types of *pathos* terminology and more susceptible to particular market conditions. If this is so, their use of Type IV words will vary more over the market cycle than other forms of description.

Hypotheses:

The above discussion leads to the following hypotheses:

Hypothesis 1: The use of *pathos*, and particularly Type IV *pathos* (*excitement*), will increase as the wider urban housing market booms and during the selling season. This is due to the need to ‘shout louder’ during frenetic market activity.

Hypothesis 2: The use of *pathos*, and the type of *pathos*, will vary over space due to local conventions in language and selling practice (conventions that are, for example, perpetuated by the dominance of local moves).

Hypothesis 3: Type IV or *excitement*-inducing superlatives will be more volatile than the other types of *pathos* terminology and more susceptible to particular market conditions.

4. Methods

Our research methodology involved three components – qualitative, bivariate and multiple regression analysis – to examine the use of *pathos* rhetoric in real estate ads in the Glasgow area.

The qualitative analysis involved a detailed textual examination of a selection of descriptions with a view to framing the subsequent quantitative investigation of the three hypotheses. We employed a modified version of qualitative analysis of texts used primarily in the context of political persuasion in party manifestoes, political advertising, candidate statements and election news broadcasts. This means that we examined both words and phrases to look for trends and patterns. However, as with work by Ian Budge et al. (1987) on political party manifestoes, we attempted to go beyond merely counting words. We look at both how often the

word appears (to establish which words were the most common in language of real estate *pathos*) and how these words are used. Just as one can track and identify the construction of particular political themes around particular words and phrases (Oates 2006), one can find a real-estate rhetoric that is measurable across time and space. This qualitative analysis is aimed at discussing the meanings of the words within the context of the ads. While the quantitative analysis measures for the presence of the word, the qualitative element will attempt to uncover any trends that would be missed by quantitative analysis. For example, are some words now so ubiquitous that they are devoid of meaning? Are some used in surprising or unexpected ways? Are some frequently paired together? This widens and deepens our understanding of the *pathos* of real estate, while it is left to the quantitative analysis to do the task of weighing our *pathos* results in a way that holds the presence of *pathos* constant across a range of factors.

The bivariate and multiple regression analysis attempted to verify or falsify the three hypotheses presented above. The bivariate analysis involved the plotting of summary measures of *pathos* over time and across space to confirm whether variation does indeed occur. We computed the coefficient of variation of Type IV *pathos* and of the other subcategories of *pathos* to investigate whether Type IV *pathos* is indeed more volatile.

The disadvantage of bivariate analysis is that it does not attempt to hold constant other factors. We attempted to remedy this by applying multiple regression techniques. Because the dependent variable of interest – the incidence of *pathos* in the language of selling – is a proportion, it is bounded at zero and one and therefore violates one of the assumptions of ordinary least squares regression (OLS). There is nothing in the standard algorithm for OLS to tell it that the dependent variable is bounded and so it will potentially predict outside the zero-one range. The problem is a similar to that of modelling mortgage debt as a proportion of

house value (Hendershott and Pryce 2006) or the proportion of employees participating in pension plans (Papke and Wooldridge 1996), or in fact any situation when the dependent variable is continuous but restricted to the interval $[c, d]$.² One solution to the problem of modelling variables bounded between zero and one is to apply the log-odds transformation to the dependent variable ($\log[y/(1-y)]$) which allows OLS to be applied to the estimation of $\mathbf{x}\beta$.

According to Wooldridge (2002) this approach has two major drawbacks, however:

“First, it cannot be used directly if y takes on the boundary values, zero and one. While we can always use adjustments for the boundary values, such adjustments are necessarily arbitrary. Second, even if y is strictly inside the unit interval, β is difficult to interpret: without further assumptions, it is not possible to recover an estimate of $E(y|\mathbf{x})$, and with further assumptions, it is still nontrivial to estimate $E(y|\mathbf{x})$.” (Wooldridge, 2002, p.662).

Papke and Wooldridge (1996) and Wooldridge (2002) suggest modelling $E(y|\mathbf{x})$ as a logistic function, as in [4], which ensures that “predicted values for y are in $(0,1)$ and that the effect of any x_i on $E(y|\mathbf{x})$ diminishes as $\mathbf{x} \rightarrow \infty$.” (Wooldridge, 2002, p.662). The technique, labelled Fractional Logit Regression (FLR), has recently been used in the real estate literature by Hendershott and Pryce (2006) to model loan-to-value ratios and it is the method we apply here to investigate the determinants of the incidence of *pathos* in the language of selling.

One of the complications in using fractional logit is the interpretation of coefficients. Unlike ordinary least squares regression, the coefficients of the fractional logit model, or indeed any logit or probit regression, do not equate to the first partial derivatives and so derivation of the second derivatives would not be trivial (see Greene, 1993). Put another way, the reported coefficients do not hold constant the effects of other variables. Since *raison detre* of applying multiple regression was to be able to hold constant the impact of the other variables in the

² Where c and d do not equal 0 and 1 respectively, fractional logit estimation can be applied by transforming y to ensure that it lies in the $[0,1]$ range. Wooldridge (2002, p. 661) suggests the following simple transformation: $(y_2 - c)/(d - c)$.

model this seems to be a major drawback. However, one of the useful features of all logit models is that the exponent of the coefficient equals the proportionate change in odds caused by the variable in question – and this measure does indeed hold all other effects constant.

The *odds* of an event is the probability of an event occurring divided by the probability of the event *not* occurring:

$$\text{odds} = \frac{P(\text{event})}{P(\text{no event})} = \frac{P(\text{event})}{1 - P(\text{event})}$$

So in the case of the language of selling, the odds of *pathos* being used in the rhetoric of selling would equal the probability of *pathos* divided by the probability of no *pathos*. Suppose, for purposes of illustration, that houses marketed for sale during a market-slump have advertising descriptions that have a predicted probability of *pathos* of 2.6% (i.e. on average, 2.6% of words are *pathos* words in this hypothetical example). The odds of *pathos* for those adverts would be:

$$\begin{array}{l} \text{Odds on of} \\ \textit{Pathos} \text{ during a slump} \end{array} = \frac{0.026}{1-0.026} = \frac{0.026}{0.974} = 0.02669$$

Suppose that during a boom, the predicted probability of *pathos* rises to 6%, from which we can compute the odds of *pathos* during a boom:

$$\begin{array}{l} \text{Odds on of} \\ \textit{Pathos} \text{ during a boom} \end{array} = \frac{0.06}{1-0.06} = \frac{0.06}{0.94} = 0.06383$$

To calculate the proportionate change in odds of *pathos* due to moving from a slump to a boom, we divide the second figure by the first:

$$\begin{aligned} \text{Proport. Change in Odds} &= \frac{\text{odds after a unit change in the explanatory variable}}{\text{original odds}} \\ &= \text{Exp(B)} = 0.06383 / 0.02669 = \underline{\underline{2.3915}} \end{aligned}$$

If, as in the above example, the proportionate change in odds is greater than one, then as the explanatory variable (market buoyancy) increases, the odds of the outcome will increase (i.e. the explanatory variable in question has a positive effect on the dependent variable). The larger the value, the more sensitive the predicted probability is to unit changes in the variable. In this artificial example, we would be able to say that the odds of *pathos* more than double (increased by 239%) during a boom, holding all other factors in our model constant.

If the proportionate change in odds is less than one, then as the explanatory variable increases, the predicted probability declines (i.e. the variable has a *negative* effect on the dependent variable). The *smaller* the value of exponent of the coefficient, $\text{Exp}(B)$, the more sensitive the predicted probability is to unit changes in the variable. In our hypothetical example above, if $\text{Exp}(B) = 0.83$, we would have to concede that Hypothesis 1 is not confirmed by the evidence because the odds of *pathos* during a boom are only 83% of what they are during a slump, holding all other factors in our model constant.

Note, however, that “*a constant change in the odds does not correspond to a constant change ... in the probability*” (Long p. 82). For example, a doubling of the odds from 1/1000 to 2/1000 results in an $\text{Exp}(B)$ of 2, and this is true if we move from 1/10 to 2/10 or 1/1 to 2/1 etc. However, whilst the proportionate change in the odds is constant at 2 for these examples, the change in probability is not: the change in odds from 1/1000 to 2/1000 results in a change in probability of 0.001, whereas the change in odds from 1/10 to 2/10 results in a change in probability of 0.076 (Long, p. 82).

Note also that, as with all other multiple regression models, our model can only hold constant those factors that are adequately captured by the other explanatory variables in the model. There is an imperative, therefore, to include as many control variables as our data allows – that is, to include not only variables directly relating to our hypotheses, but also other variables that may have a role.

Data Description

Our analysis is based on information extracted from 49,926 property transactions in the Strathclyde region of Scotland. The data, supplied by GSPC (Glasgow Solicitors Property Centre – a consortium of estate agents in the West of Scotland) covers the period 1999-2006. The data includes the text used to describe each property sold by GSPC member firms, along with basic property attribute and location information. At the start of this period, the market was relatively stagnant and properties were taking more than 150 days on average to sell (see [Figure 1 below]). A boom period then ensued. By 2004, selling times had plummeted to around thirty days and annual house price inflation rose to over thirty percent in some areas. By 2005 the market had started to slow, but remained significantly more buoyant than it was in 1999.

First, let us consider an overall qualitative analysis of some of the descriptors we identifying as falling within the category of *pathos*. We examined the use of all the words that appeared most frequently in the database.

Table 1 provides basic summary information on our data. Variables that describe the textual composition of the property description were created using the PATHOS program (see

Appendix 1). This is a routine written in the Stata programming language that counts the number of times a word from each *pathos* category occurs in each description.

We can see from the information on Pathos_n in Table 1 that there were, on average, around two *pathos* words, and 0.4 Core *pathos* words used in each description. The average total number of words in each description was 32. Thus, the proportion of words in each description that are classified as *pathos* words (Pathos_p) and Core *pathos* words (Pathos_Core_p) was around 6% and 1% respectively. While *pathos* words only comprise a relatively small proportion of the words used – most of the property description is typically devoted to simply lists of attributes – there were relatively few properties (14%) that had a property description that did not include any *pathos* words (noPathos). In contrast, around 67% did not have Core *pathos* words (noCOREPathos).

Around half of the properties in the dataset are flats and half are houses of various types (6% are bungalows, 10% are detached, 8% are terraced). 12% of properties are made of stone, 16% have bay windows, 29% have a garage and 70% have a garden. Our data also include information on the location of the property, including the deprivation score (supplied by Communities Scotland) which ranges between 2.0 and 16.2, where the higher the score the greater the deprivation. We have also calculated the distance to the centre of Glasgow from each of the properties in the data – we find that on average properties are located 12.7 km from the city centre.

[Figure 1 Average Marketing Time Since 1999 TO GO HERE]

[Table 1 Descriptive Statistics TO GO HERE]

Qualitative Analysis

From the GSPC house descriptions, we identified the most popular words and word fragments that could be construed as denoting *pathos* (see Table 2). We examined every word that appeared more than 100 times in the data base. Each word was studied in a sample of the ads to look at how the words were used in context. This allowed us to consider in more detail which words and fragments seemed to have *pathos*-type resonance within the context of the description – and which ones seemed to be more banal ‘filler’ or rote phrases.

It is also interesting to note that many adjectives that could denote *pathos* are frequently used in conjunction with other words, such as ‘bright’ in ‘bright and spacious’ or ‘mature’ in ‘mature gardens.’ The table below defines which of these most common words appear to best denote *pathos* and displays these words in bold. In order for a word to qualify as the best sort of *pathos*, it needed to be used as a relatively flexible adjective instead of as part of a ‘canned’ phrase with little meaning. Although the authors had to be somewhat subjective about judging the relative *pathos* resonance of a word, we attempted to be as scientific as possible by eliminating words that have fallen into a sort of estate-agent jargon and identifying those with emotional content in the context of house ads. To qualify as true real-estate *pathos*, the word had to have an elusive and somewhat flexible meaning, to function beyond the somewhat dry and trite phrases (‘must view’ etc.) found in many ads.

[Table 2 Most common words in GSPC house ads: Where is the pathos? TO GO HERE]

Here, we see that ‘true’ *pathos* is smaller subset of the wide number of words that estate agents use in their house descriptions. In the thicket of hackneyed phrases, some language still seems to hold a truly emotive and somewhat original sense. It may be these particular words that can captivate the buyer. It is interesting to note that only a few brave estate agents venture into

unusual language. For example, in all of the ads, there is only one house that is described as having ‘tremendous’ proportions. Artistic references also are rare, although those who follow the debate over the relative merits of Glasgow architects Alexander ‘Greek’ Thomson and Charles Rennie Mackintosh may be interested to note that there are 20 references to Thomson in the ads and only two to Mackintosh (and one misspelled) in the 27,671 GSPC ads from the Glasgow Local Authority area.

One corollary of Table 2 is that in attempting to conceptualise the language of *pathos*, one is faced with a choice adopting either a broad definition of *pathos* (as demonstrated in the four categories of *pathos* set out in the Methods section above) or a narrow definition. This effectively leads us to an alternative way of categorising of *pathos* words as either “core” or “tertiary”. Core words include those listed in Table 2 as being unambiguously emotive ("Preferred", "Lovely", "Exceptional", "Prime", "Generous", "Outst", "Fant", "Excl", "Beautiful", "Charm", "Impress", "Sought after", "Superb", "Stun", "Del", "Magnif", "Pleas", "Unique", "Sunny", "Professional", "Enviably", "Prestig", "Splend", "Prestigious", "Smart", "Character", "Executive", and "Eleg"). Tertiary *pathos* words include those not part of the core, but potentially emotive nonetheless.

In terms of what would be the most appropriate measure for use in our quantitative analysis, there is a case for using a measure of *pathos* that is as broad as possible. This is because the incidence of *pathos* is generally so low that omission of a potentially relevant word could cause disproportionately large distortions in the regression results, while the inclusion of words that prove to be irrelevant (i.e. words that really just "fillers") would simply increase the white noise of the regressions and not actually cause bias or inconsistency. On the other hand, inclusion of “filler” words that comprise the relatively meaningless bulk of generic estate agent

speak could muddy the meaning of our dependent variable and lead to dampened estimates of the responsiveness of *pathos* language to market cycles and spatial variation. As a result, we present regression results based on both our broad definition of *pathos* (along with its four subcategories) and also our narrow definition (which recognises only the Core list words as being truly *pathos*).

Quantitative Analysis

Results of Bivariate and Graphical Analysis

Hypothesis 1:

Our claim in this first hypothesis was that the use of *pathos*, and particularly Type IV *pathos*, will increase as the wider urban housing market booms and during the selling season. This is due to the difficulty of catching consumer attention amid short selling times and the need to ‘shout louder’ during frenetic market activity.

To test this hypothesis, we need chose a measure of buoyancy, of which there are three that are immediately obvious and readily available in from our data: (i) prices; (ii) time-on-the-market; and (iii) number of GSPC sales. We plot the incidence of *pathos* against each of these in the following three graphs. The incidence of *pathos* is measured as the proportion of words in each new description of a house issued that quarter. In other words, in each quarter we use the descriptions of properties just coming onto the market in that quarter to ascertain the incidence of *pathos*. Time on the market and house price data are based on properties just leaving the market in each quarter. We have calculated the measurements in this way in an attempt to isolate the response of estate agents to the market (rather than the other way round). Because

time-on-the-market (TOM) falls as the market becomes more buoyant, we have plotted the inverse (1/TOM) to make the correlation (or lack of correlation) easier to identify. We would expect house prices and number of sales to rise as the market becomes more buoyant (see Stein 1995 for an explanation of why this is likely to be the case).

Note that there is no perfect correlation even among the measures of market buoyancy. It is therefore unlikely that the incidence of *pathos* will be perfectly correlated with any of these measures. Nevertheless, it is clear from these graphs that there is indeed a strong correlation between the incidence of *pathos* and market buoyancy. Generally, the incidence of *pathos* in the language of selling rose as the market boomed (2001-2004) and has declined as the market slowed (2005-2006). In a simple quarterly time-series linear regression of the incidence of *pathos* on each of these three measures of market buoyancy, we find the following R^2 results: $R^2 = 77.92\%$ for the house sales regression; $R^2 = 57.93\%$ for the time-on-the-market regression; and $R^2 = 59.48\%$ for the price regression. If we run a quarterly time-series multiple regression of the incidence of *pathos* on all three variables, the Adjusted R^2 comes out at 87.18%, with the following t-ratios: 4.50 for the price variable, -4.83 for the time on the market variable and 0.80 for the number of sales variable (based on White's standard errors; $n = 30$).

If we had to choose a single measure of market buoyancy from these three alternatives, we would do well to choose time-on-the market, partly because it had the highest t-ratio in the time-series multiple regression, and partly because it is free of the significant measurement issues associated with the other two indicators. House prices, for example, particularly at the level of individual transactions, are complicated by the heterogeneity of dwelling size, quality and location. Number of sales would also be problematic if analysed at the micro level because our data are drawn exclusively from properties that were sold through the GSPC

consortium of estate agents and so we would have to grapple with the possibility of the GSPC market share shifting over time in particular areas.

The results of these simple time-series graphs and regressions are useful, however, in that they provide an initial indicator of how estate agent rhetoric varies over time. Taken together, the results so far indicate that the incidence of *pathos* does indeed vary pro-cyclically (i.e. rises as the market rises and falls as the market falls). But what of the *type* of *pathos*? Does this also vary over time? To investigate we calculated the number of Type I, II, III and IV words as a proportion of the total number of *pathos* words in each description. We then calculated the average incidence of each of these types (as % of *pathos* words) for the whole of Strathclyde for each quarter. The results are presented in Figure 4 and suggest that, while the incidence of *pathos* words overall change procyclically over the course of the market cycle, the relative shares of *pathos* words that fall into each of our four categories do not change radically over time. There is some indication that the proportion of Type IV words does follow a pro-cyclical pattern, and that the proportions of Type II and Type III words converge as the market booms and then diverge as it slows. Note that if we were to plot each line on a separate graph the variation would look more pronounced. Nevertheless the relative ordering of the size of each of our four categories does not change (or only briefly in the case of Type II and Type III words).

[Figure 2 House Prices and the Incidence of Pathos in the Language of Selling TO GO HERE]

[Figure 3 Time on the Market and the Incidence of Pathos in New Descriptions TO GO HERE]

[Figure 4 Number of GSPC Sales and the Incidence of Pathos in New Descriptions TO GO HERE]

[Figure 5 Variation in the Type of Pathos Over Time TO GO HERE]

Hypothesis 2: The use of *pathos*, and the type of *pathos*, will vary over space due to spatial variations in market buoyancy and in language conventions and selling practice.

Examination of the two contour maps (one for 1999 and one for 2005 presented in [Figure 6 and [Figure 7 respectively) demonstrates unequivocally that there is significant spatial variation in the use of *pathos* across the Strathclyde conurbation. As expected, there has been an upward shift in the incidence of *pathos* right across the city over intervening period. Although there are notable differences between the two years in the relative elevation of different areas (such as the area to the north east of Bearsden), comparison of the maps also suggests a degree of persistence over time in the spatial patterns. The area to the south west of Barrhead, for example, appears to have above average levels of *pathos* in the language of property sales both in 1999 and in 2005. Similarly for the area to the south east of East Kilbride, and for Bearsden and Bishopbriggs.

The persistence over time in the spatial variation of the incidence of *pathos* is illustrated further in the cross-sections of the two *pathos* surfaces plotted in [Figure 8, drawn as the crow flies from Bearsden to Renfrew (i.e. Bearsden is located at zero metres on the horizontal axis). The variation across space in both periods is enormous, and although the two lines are certainly not parallel, there are a number of common peaks (at 2.4km, 4.2km and 5.5km from Bearsden) and troughs (at 1.8km, 4.0km, 4.8km, and 5.8km from Bearsden).

Similarly, there is evidence of both spatial variation and a degree of temporal inertia in that spatial variation in the *type* of *pathos*. In fact, the spatial variation is much more volatile across space and the inertia less pronounced. This can be seen from the maps in

[**Figure 9** and [Figure 10 (which plot the contours for Type IV as % of *pathos* words in 1999/2000 and 2004/2005³ respectively) and also from the cross-sections (from Bearsden to Renfrew) in [Figure 11. Note the different scale on the vertical axis of the cross-section graph compared to the previous cross-section graph– the first set of cross-sections vary by a factor of 5 (0.25 to 2.25), whereas the second set of cross-sections vary by a factor of 10 (0.1 to 1.0). In other words, the Type IV incidence of *pathos* as a proportion of all *pathos* words is twice as spatially volatile as the incidence of *pathos* generally. Also, the correlation between the two cross-sections in Figure 11 is less obvious suggesting a lower degree of temporal inertia.

[**Figure 6 Spatial Variation of Pathos as % of No. Words in Each Property Description (1999) TO GO HERE]**

[**Figure 7 Spatial Variation of Pathos as % of No. Words in Each Property Description (2005) TO GO HERE]**

[**Figure 8 Cross-Section of the Pathos Surfaces from Bearsden to Renfrew TO GO HERE]**

[**Figure 9 Spatial Variation of Type IV as % of No. of Pathos Words in 1999/2000 TO GO HERE]**

[**Figure 10 Spatial Variation of Type IV as % of No. of Pathos Words in 2004/2005 TO GO HERE]**

[**Figure 11 Cross-Section of the Type IV as % Pathos Surfaces from Bearsden to Renfrew TO GO HERE]**

³ Years had to be combined for the Type IV analysis because only observations could be included where the incidence of *pathos* was greater than zero.

Hypothesis 3: *Excitement*-inducing superlatives will be more volatile than the other types of *pathos* terminology and more susceptible to particular market conditions.

To investigate Hypothesis 3 we calculated the average Type IV *pathos* incidence in each quarter of our data (30 quarters in total) and then did the same for the incidence of non-Type IV *pathos*. The crucial question was whether the variation in the quarterly average was greater for the incidence of Type IV *pathos* words than for the incidence of other types of *pathos*. This amounted to testing for the equality of variances of these incidences over time. We applied three tests: Levene's robust test statistic for the equality of variances plus Brown and Forsythe's two tests (the W_50 test and the W_10 test) that replace the mean in Levene's formula with the median and the 10 percent trimmed mean respectively. The results for these tests are reported in Table 3 along with the average incidence for each quarter and the coefficient of variation. The null of equal variances was rejected in all three tests at the 5% significance level (the Levene test rejected it at the 1% significance level). These results confirmed that the difference in the standard deviations of the incidence of Type IV ($sd = .0059$) and other *pathos* types ($sd = .0034$) over time was not due to sampling variation alone, but real difference in fact.

We also report the Coefficient of Variation which measures the standard deviations as a proportion of the mean (which allows us to compare the variation of variables measured in different units). For Type IV *pathos*, the Coefficient of Variation results reveal that the standard deviation was 16.55% of the mean; whereas for other types of *pathos*, the standard deviation over time was only 12.56% of the mean, which again confirms our hypothesis that there is greater variability in Type IV *pathos*.

[Table 3 Variation in the Average Incidence of Type IV Pathos vs Other Types of Pathos]

Results of Fractional Logit Multiple Regression Analysis

How do we know whether the rise and fall in the incidence of *pathos* across space is caused by local conventions in language or by other factors? It is conceivable, for example, that variation in property type would be the main driver of spatial variation in the incidence of *pathos* since property types are both spatially fixed and spatially clustered. In other words, if we were able to hold property attributes constant, would we detect any significant degree of spatial clustering of *pathos* in the language of selling?

A similar question could be raised with regard to the hypothesis that the incidence of *pathos* will vary over time due to changes in the buoyancy of the market. Although the make-up of the housing stock will have changed very little over the course of seven years, it is possible that the mix of property types that come onto the market varies between phases of the business cycle. So the question is whether we would be able to identify any significant cyclical variation of the incidence of *pathos* if we were able to hold property attributes and other factors constant?

The corollary of this line of questioning is to use multiple regression analysis. This will allow us to estimate the impact of the variables of interest while holding everything else constant. Our model includes a number of control variables including deprivation scores, distance to city centre, length of description, housing attribute measures (number of rooms, flats, bungalows, detached, terraced, stone, bay window, conservatory, garage garden) along with house price bands. The house price bands are included in an attempt to hold constant any unmeasured

location and attribute effects. One would expect the incidence of *pathos* to rise the larger and the more elaborate the house simply because there is more to say about the property and because exceptional properties do indeed exist so hyperbole is justified in those cases. Because the threshold for expensive properties shifts significantly over the time period considered, we had to find a way of defining the price bands that incorporated this movement. Our approach allocates each property in the sample to one of five bands based on its relative selling price at the time of sale:

- Price band 1 (the reference category) includes those properties whose selling price was in the lowest two deciles in the year that it sold
- Price band 2 includes those properties whose selling price was between the second and fourth decile in the year that it was sold.
- Price band 3 includes those properties whose selling price was between the fourth and sixth decile in the year that it was sold.
- Price band 4 includes those properties whose selling price was between the sixth and eighth decile in the year that it was sold.
- Price band 5 includes those properties whose selling price was in the top two deciles in the year that it was sold.

As discussed in the methods section, the fact that the dependent variable is bounded between zero and one makes Ordinary Least Squares inappropriate and so the regressions reported in Table 4 are computed using the Fraction Logit methodology. Regression [1] estimates the sensitivity of the incidence of *pathos* (all types) to a range of independent variables.

Regressions [2], [3], [4] and [5] applies the Fractional Logit estimation to each of the four subcategories. Regression [6] uses as its dependent variable a narrower definition of *pathos* which we have labeled “*Core Pathos Words*”.

The two determinants we are most interested in are *average time on the market* (calculated as the average number of months a property is on the market each postcode sector for each quarter) and the *average pathos in the area* (calculated as the average incidence of *pathos* in each postcode sector). The first of these tries to capture the effect described in Hypothesis 1. If our theory is right and the incidence of *pathos* falls as market activity slows, then we would expect an increase in selling time to be associated with a fall in the odds of *pathos* words being used in the marketing of properties. And this indeed appears to be the case, though the effect is relatively small (though highly statistically significant: $|t| = 10$): if time-on-the-market rises by one month, the odds of *pathos* are 98% of what they were before that rise in selling time. The effect is much stronger when we use the narrow definition of *pathos* (regression [6]) – the odds of Core Pathos are only 95.8% of what they were before a rise of one month in selling duration. So our hypothesis appears to be confirmed by the Fractional Logit Model for all *pathos* words and core *pathos* words, and also appears to hold true for Type I, Type III and Type IV *pathos* (regressions [2], [4] and [5]). For Types I and II, the effect is not significantly different from zero ($|t| < 2$), however, while the largest and most significant effect is for Type III *pathos* (regression [4]).

We attempted to capture the impact of spatial variation due to local conventions by including the average incidence of *pathos* in the locality (the second independent variable in Table 4). If Hypothesis 2 is valid, we would expect the odds of *pathos* to rise with the average *pathos* in the locality. Conversely, if there is no spatial effect, this correlation will be weak or non-

existent. In the event, we found a strong spatial effect, particularly for *pathos* as a whole (regression [1]) and for Core Pathos words (regression [6]) where the odds of *pathos* being used in a particular property description rose by 12.6% ($|t| = 34.1$) and 19.9% ($|t| = 24.3$) respectively for every 1% rise in the average level of *pathos* in the area.

Hypothesis 3 suggests that Type IV *pathos* will be more sensitive to local market conditions than other types of *pathos*. The Fractional Logit models did not provide strong evidence for this, however. In the Type IV regression, the coefficient for average time-on-the-market was not significantly greater than the coefficients estimated for the other *pathos* types. In fact, the largest effect was actually for Type III *pathos* (percentage change in odds in regression [4] = 95%; $|t| = 11.6$, compared with percentage change in odds in regression [5] of 98%; $|t| = 8.0$). So it seems that, when other factors are held constant, there is no significant evidence to support Hypothesis 3.

[“Table 4 Fractional Logit Regressions for the Incidence of Pathos” TO GO HERE]

While the remaining variables in the regressions were included primarily as control variables, it is worth looking briefly at some of the coefficients of these variables as they reveal further insights into the factors that make the incidence of *pathos* vary.

Notice, for example, that the coefficients on the price band dummies are generally as anticipated – that is, they are greater, the higher the price band. In regression [1], for example, we find that properties in price band 2 have a 12.8% higher odds of *pathos* than price band 1 (the reference category), while the odds are 19.4% higher for price band 3, 22.0% higher for price band 4 and 27.4% higher for price band 5 (all with $|t| > 10$). Interestingly, the effect is noticeably less pronounced for Type IV *pathos* where even price band 5 properties only have a 11.9% higher odds of *pathos* than price band 1 properties. The opposite is true for Type I *pathos* the odds of which are 250.2% higher for price band 5 properties than for price band 1 properties, and also for Core Pathos where the odds are 146% higher for price band 5 properties than for price band 1 properties.

The effects run in opposite directions for a number other variables, depending on the type of *pathos* being considered. For example, the odds of Type III *pathos* for flats are only 77.4% of the odds for houses. In contrast, the odds of Type IV *pathos* are actually 8.3% higher for flats. Perhaps this is because flats are more homogenous than houses and so agents are more likely to feel they have to resort to hyperbole. The odds of Type I and Core *pathos* are increased by 8.0% and 2.7% respectively for every extra room, but for all other types of *pathos*, the odds tend to fall as the number of rooms rises (a similar pattern occurs for the effect of stone construction, though the coefficient is not significantly different to zero for the Core regression).

Conclusion

Much has been written that focuses on, or assumes, the *logos* of house selling – the role of estate agents as impartial disseminators of information on the practical features of houses for sale. This article has focused on another crucial aspect of marketing – the strategy of tapping into the emotional aspect of the house-buying decision, the *pathos of purchasing*.

Our research has uncovered convincing evidence that the verbal construction of house ads varies depending on certain factors in the housing market. This is an important finding because we have argued in this paper that it is not so much the peculiar use of language in real estate marketing that is cause for concern but the variation over time and space in the deployment of euphemistic dialect.

We tested three hypotheses. We found that boom markets and hectic selling seasons did indeed lead to a greater use of emotive language, due to the possible need to ‘shout louder’ in a more frantic marketplace: as house prices rose and selling times plummeted, the relative percentage of *pathos*-linked words in house ads rose right across the region (though the effect was found to be relatively modest when considered in the more controlled environment of multiple regression analysis).

We also found strong evidence to support our second hypothesis, that the use of *pathos* in ad language would vary across geographical space. Individual areas such as Bearsden, for example, appeared to rely more on the emotive words than other parts of the city. The persistence over time (even after property attributes have been controlled for) in geographical

patterns of language, appeared to lend support to our notion that there exist local conventions in estate agent dialect.

Crucially, we have argued that these variations over time and space in the rhetoric of selling have the potential to hinder the attempts of house-buyers to decipher the euphemism of estate agent advertisements, particularly if they are moving between areas. This has implications for information dissemination and the efficiency of local housing markets, and invites further research into these ramifications.

Finally, in pursuit of understanding more about the emotional links to house-buying, we looked at whether excitement-inducing superlatives would be more volatile than other *pathos*-type language – or more susceptible to market conditions. The bivariate analysis appeared to confirm this volatility, though the effect was not evident when investigated in the controlled modelling framework.

More generally, our results also emphasise the importance of considering the emotional issues associated with the real estate process. If there is more emotion expressed in the house ads, it is possible that the process may itself be linked to the psychological needs of the buyers (as opposed to rational buying decisions). What we hoped to achieve with this study is a way to link the powerful emotional and economic decisions in buying homes, using the qualitative and quantitative analysis of language. While studies of the housing markets have brought many answers to the puzzles of real estate markets, the acknowledged emotional side is somewhat harder to quantify and remains relatively unexplored for economists. With this study, we hope to show a type of methodology and blending of research methods that can suggest ways to illuminate and better understand housing markets.

Hopefully our analysis will pave the way for a new avenue of research into the extent that marketing language shapes market outcomes in the housing sector. For example, it would in principle be possible to utilise our Fractional Logit estimates to construct a ‘constant quality’ measure of the incidence of *pathos* over time and space. This measure would provide the robust measure needed for the investigations into the impact of marketing language on selling time, sale prices, and bid-offer spreads. Also, it is hoped that our conceptualization and categorization of marketing rhetoric will contribute to a more considered theoretical framework for this field of enquiry.

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Appendix 1 PATHOS Program

The following Stata program counts the occurrences of words (from a specified list) in the observations of a text variable, such as property descriptions.

```

*-----
*PATHOS © Gwilym Pryce 2006
*Stata program written to count the occurrence of particular words.
*-----
capture program drop PATHOS
program PATHOS
*-----
version 9.0
*-----
syntax [varlist] [if] [in] [, npathos(real 1) occurrences(real 1) description(string)]
*-----
foreach var of varlist `varlist' {
local i = 1 // index for PATHOS
local m = `occurrences' -1
capture drop `description'1
gen `description'1 = `description'
gen `var'_all = 0
while `i' <= `npathos' {
local j = 1 // index for occurrence number
local x`i' = `var'[`i']
display "====="
display "*First run index to get first occurrence"
}
}

```

```

display "======"
gen `var'`i'`o`j' = index(`description'`j', "`x`i'")
recode `var'`i'`o`j' (0=0) (1/max=1)
label variable `var'`i'`o`j' "Occurrence `j' of `var' `i': `x`i' "
tab `var'`i'`o`j'
replace `var'_all = `var'_all + `var'`i'`o`j'
forvalues h = 1(1)`m' {
    local j = `j' +1
    local k = `j' - 1
    display "======"
    display "*Then delete first occurrence and re-run index"
    display "======"
    capture drop `description'`j'
    gen `description'`j' = substr(`description'`k', "`x`i'", "#", 1)
    gen `var'`i'`o`j' = index(`description'`j', "`x`i'")
    recode `var'`i'`o`j' (0=0) (1/max=1)
    label variable `var'`i'`o`j' "Occurrence `j' of `var' `i': `x`i' "
    tab `var'`i'`o`j'
    replace `var'_all = `var'_all + `var'`i'`o`j'
}
local i = `i' +1
}
}
*-----
end
*-----

```

Having run the above syntax, we were then able to run the following command:

```
PATHOS [varlist], npathos([n1]) occurrences([n2]) description([s1])
```

where *varlist* is the variable(s) which contains as its observations the words we were interested in, *n1* is the number of words in our word list, *n2* is the upper limit on the number of occurrences we were interested in searching for in any one description, and *s1* is the name of the string variable containing the text descriptions.

For example, suppose we have a list of four ($n1 = 4$) words and/or phrases (e.g. “sought after”, “exclusive”, “fabulous” and “beautiful”) entered as the first four observations of a variable we have called “**Xwords**” and we want to know how many times at least one of these words occurs in each observation of “**Advert**” – a variable in the same dataset as **Xwords** that lists, say, 50,000 property descriptions. Suppose also that we are fairly sure that no one word in **Xwords** will occur more than two or three times in any single property description, but to be

certain, we want the program to count up to five occurrences ($n2 = 5$) in any one description.

We would then enter the following command,

```
PATHOS Xwords, npathos(4) occurrences(5) description(Advert)
```

One thing to note is that the Xwords variable – the list of words we are interested in – must be created in such a way that each of its rows contains only one of the words (or phrases) we are interested in. Spaces can be included after and before each word entered in this list if we want the program to search for whole words (rather than combinations of letters within words). Note that the search procedure is case sensitive, so if we wanted the search process to be blind to whether a word contains capital or lowercase letters (which was indeed the case), we can transform the *varlist* and *s1* variables so that they are in lower case (we used the `gen x2 = lower(x1)` Stata command to achieve this, where *x1* is the original string variable with observations that contain a mixture of upper and lower case letters, and *x2* is the transformed variable which is entirely made up of lower case strings). A useful way to enter the word lists is to use the `input` command. So, in the above example, we might have created the Xwords variable by first opening up the dataset which contains the Adverts variable, and then entered the following syntax:

```
input str25 Adverts  
"sought after"  
"exclusive"  
"fabulous"  
"beautiful "  
end
```

which creates a new variable in the same dataset as the Adverts variable. This new variable has just four rows. Note that we included a space after the fourth word to ensure that the program does not search for longer words like “beautifully”.

Appendix 2: Word Lists

We searched for 181 *pathos* words in total. We also searched for different subsets of this list, including our four subcategories of *pathos* (Types I, II, III and IV) plus the narrower definition which we labelled *Core Pathos Words*:

Pathos Type I: Originality

"architect", "authentic", "bespoke", "character", "commissioned", "crafted", "custom", "designer", "earliest", "hand carved", "hand made", "hand-carved", "hand-made", "imaginative", "individ", "inimitable", "innov", "irreplaceable", "natural", "one of a kind", "one off", "one-of-a-kind", "one-off", "orig", "purp b", "purp-b", "purpose b", "purpose-b", "rare", "specially", "tailor made", "tailor-made", "to order", "to-order", "unique", "unusual".

Pathos Type II: Ambience

"atr", "att", "beaut", "bright", "buzz", "charm", "chic", "del", "eleg", "fashionable", "fresh", "latest", "lovely", "lux", "mature", "picturesque", "pleas", "smart", "striking", "stylish", "sunny", "taste", "trendy", "ambien",

Type III: Prestige

"cachet", "choice", "class", "des", "elite", "enviable", "estab", "excl", "executive", "first class", "first rate", "first-class", "first-rate", "high regard", "high-class", "high-regard", "kudos", "pop", "preferred", "prestig", "prestigious", "prime", "professional", "reputation", "seldom", "select", "sought after", "status", "successful", "up market", "up-market"

Type IV: Excitement

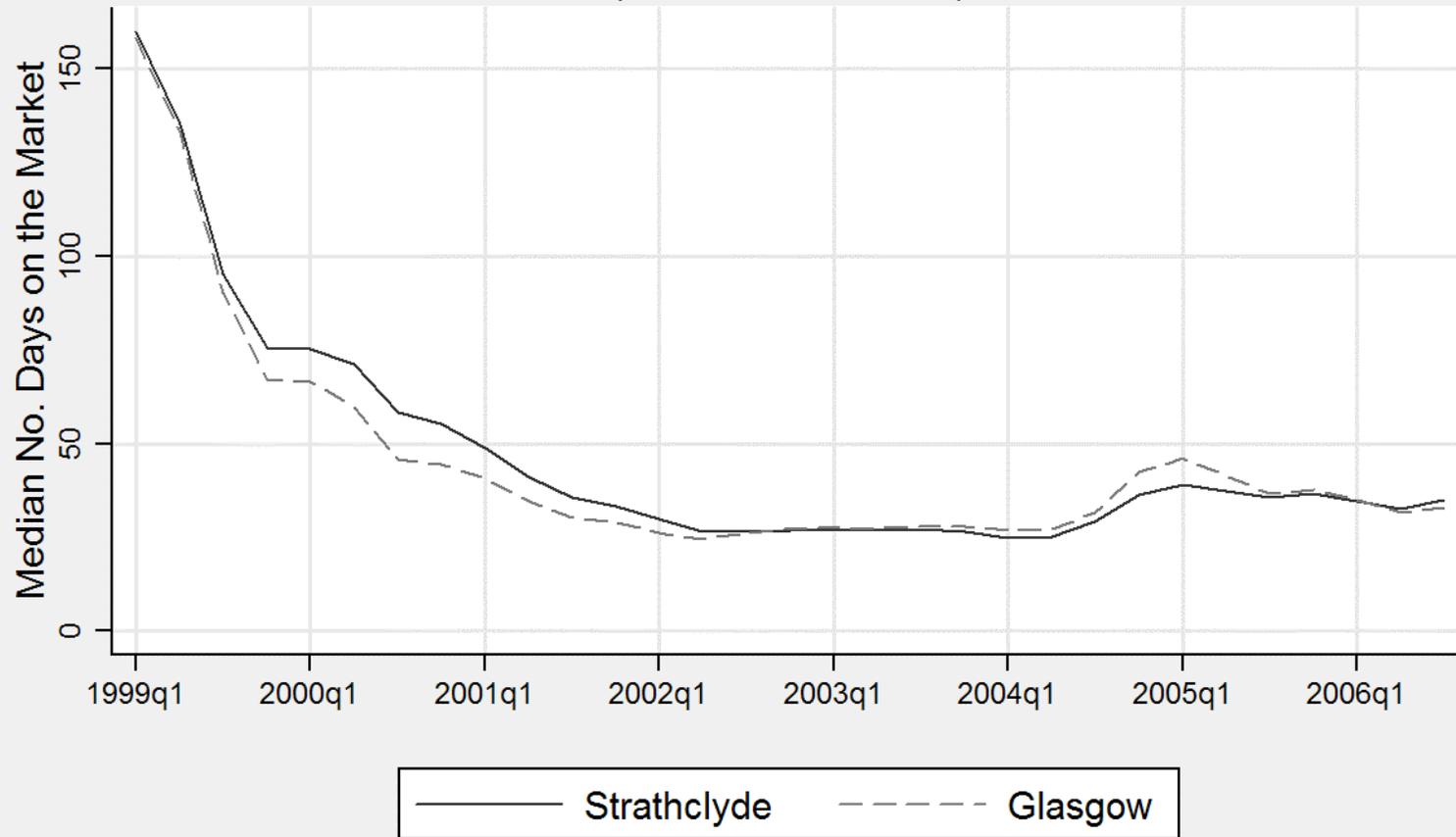
!", "abs", "actually", "amaz", "appeal", "apprec", "astonish", "beyond", "breathtak'g ", "breathtaking ", "brill", "b'thtak", "categorically", "clearly", "dazzling", "decep", "definitely", "dream", "enjoy", "esp", "essent", "exceed", "exceptional", "excit", "exq", "extr", "fab", "fant", "flex", "for sure", "generous", "glorious", "good deal of", "great", "h. stand", "handsome", "high", "ideal", "idyl", "immac", "immed", "imp", "incontestably", "increasing", "incred", "indeed", "indisputably", "indubitably", "jaw dropping", "jaw-dropping", "knockout", "knock-out", "mag", "marv", "most", "much", "must", "oft", "o'standing", "outst", "particularly", "perfect", "positively", "quality", "really", "remark", "requested", "sensation", "seriously ", "splend", "stun", "sup", "surely", "terrif", "too many features to", "trem", "triumph", "true", "truly", "unbelievable", "undeniably", "undoubtedly", "unquestionably", "vastly", "versatile", "very", "well", "without doubt", "wonderful", "wow".

Core Pathos Words

"preferred", "lovely", "exceptional", "prime", "generous", "outst", "fant", "excl", "beautiful ",
"charm", "impress", "sought after", "superb", "stun", "del", "magnif", "pleas", "unique",
"sunny", "professional", "enviable", "prestig", "splend", "prestigious", "smart", "character",
"executive", "eleg"

Figure 1 Average Marketing Time Since 1999

Time-to-Sale in Strathclyde & Glasgow (Lowess Smoothed)



(Source: GSPC Sales Data 1999q1 to 2006q3)

Figure 2 House Prices and the Incidence of Pathos in the Language of Selling

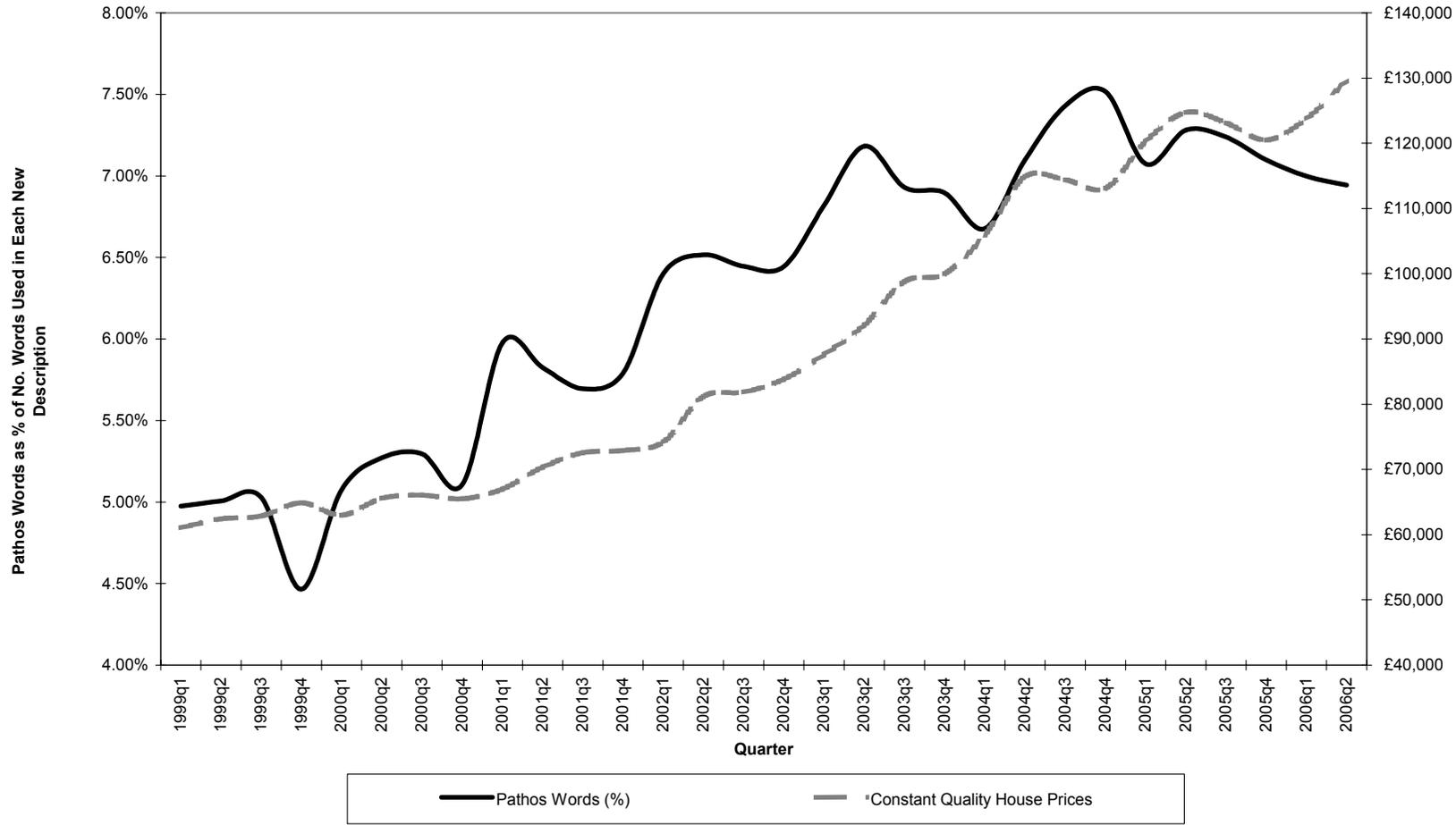


Figure 3 Time on the Market and the Incidence of Pathos in New Descriptions

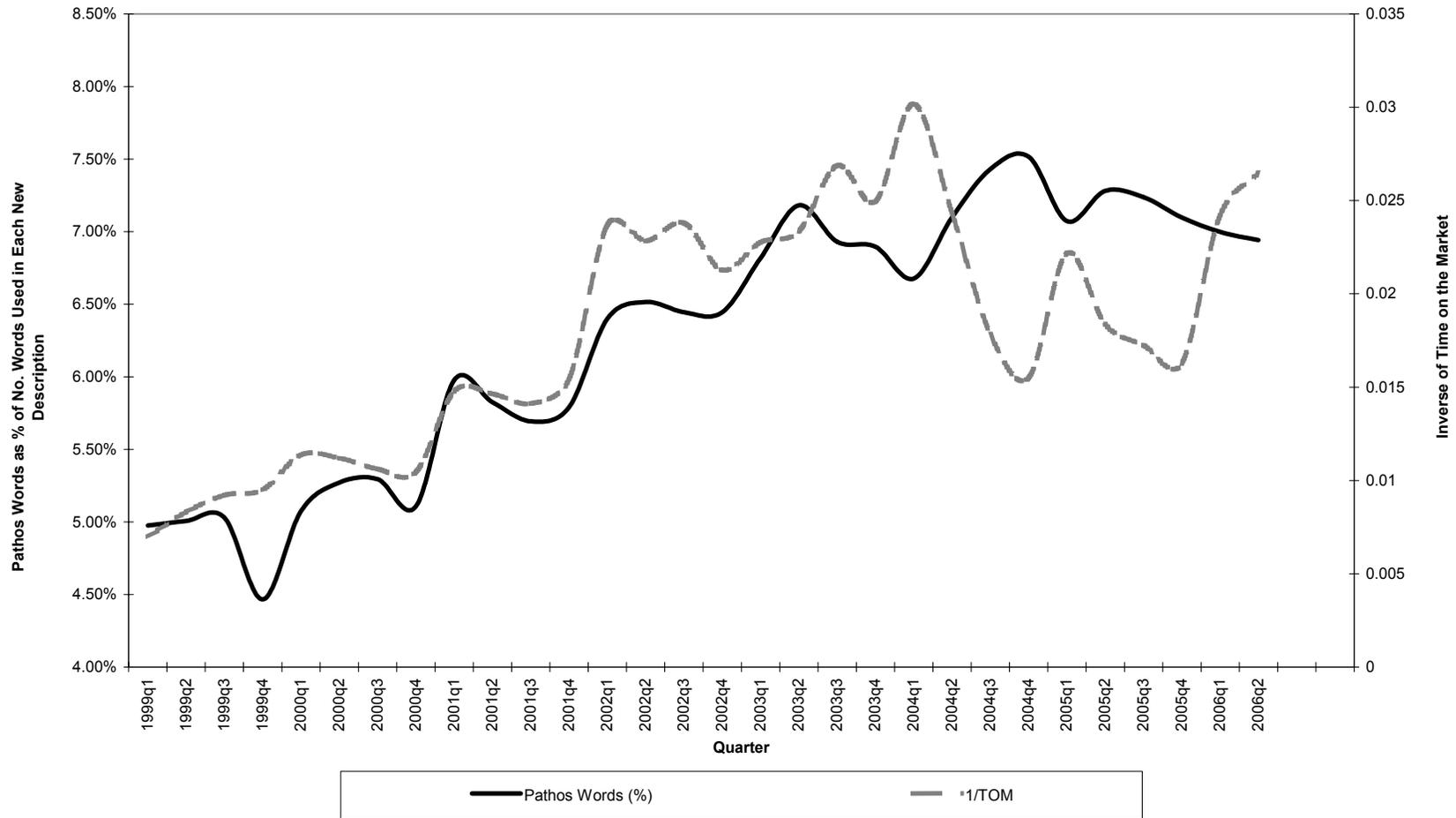


Figure 4 Number of GSPC Sales and the Incidence of Pathos in New Descriptions



Figure 5 Variation in the Type of Pathos Over Time

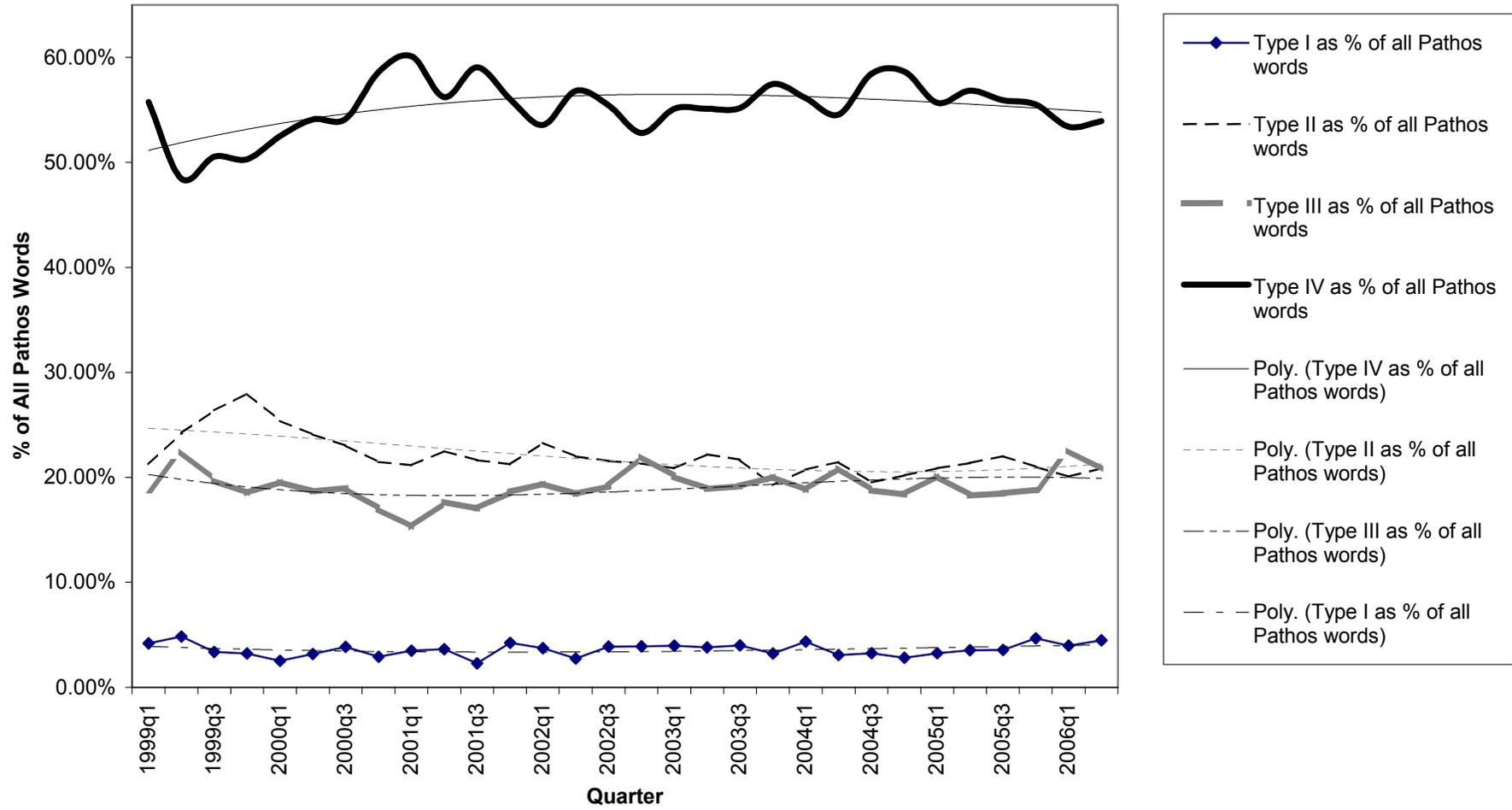


Figure 6 Spatial Variation of Pathos as % of No. Words in Each Property Description (1999)

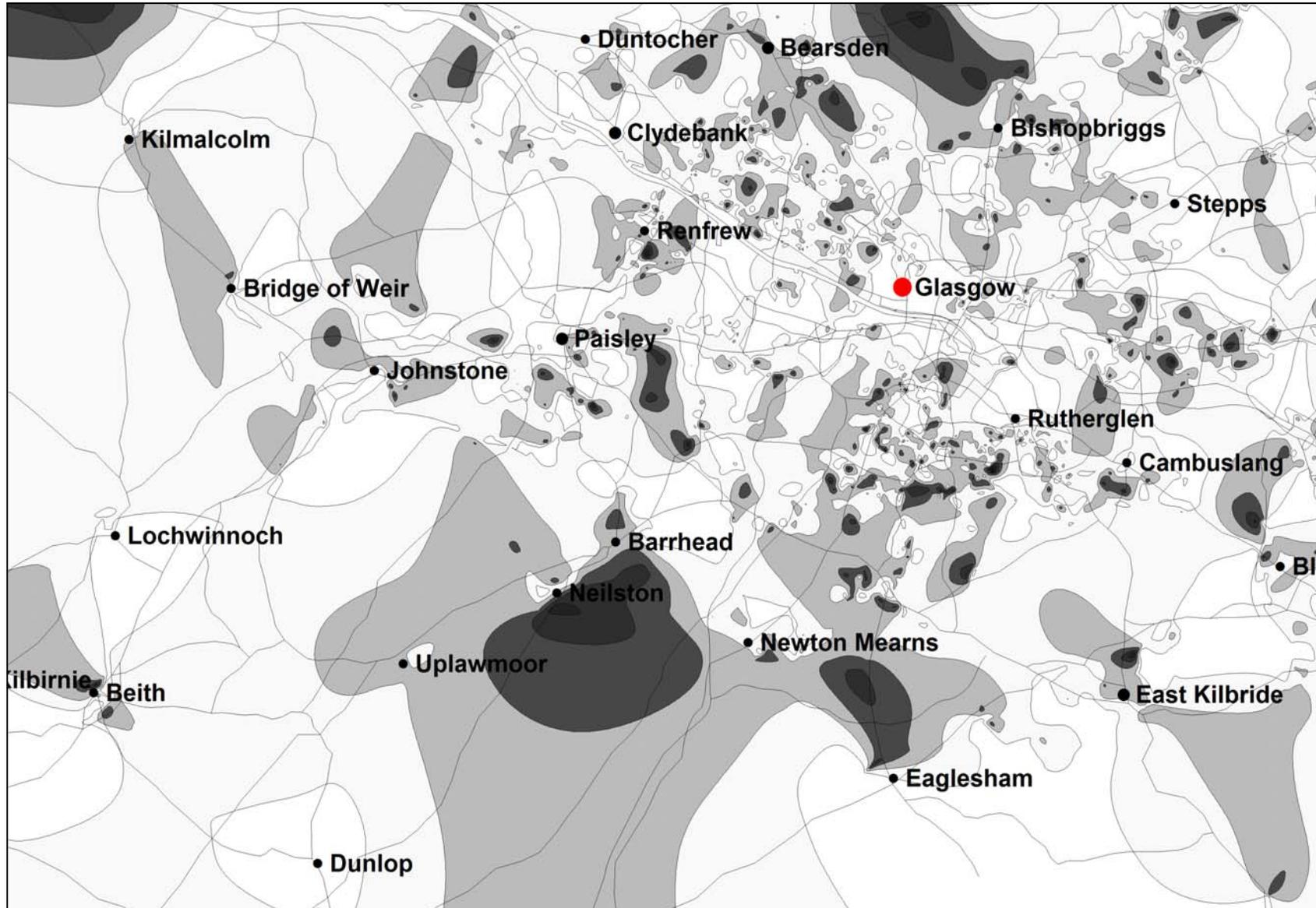


Figure 7 Spatial Variation of Pathos as % of No. Words in Each Property Description (2005)

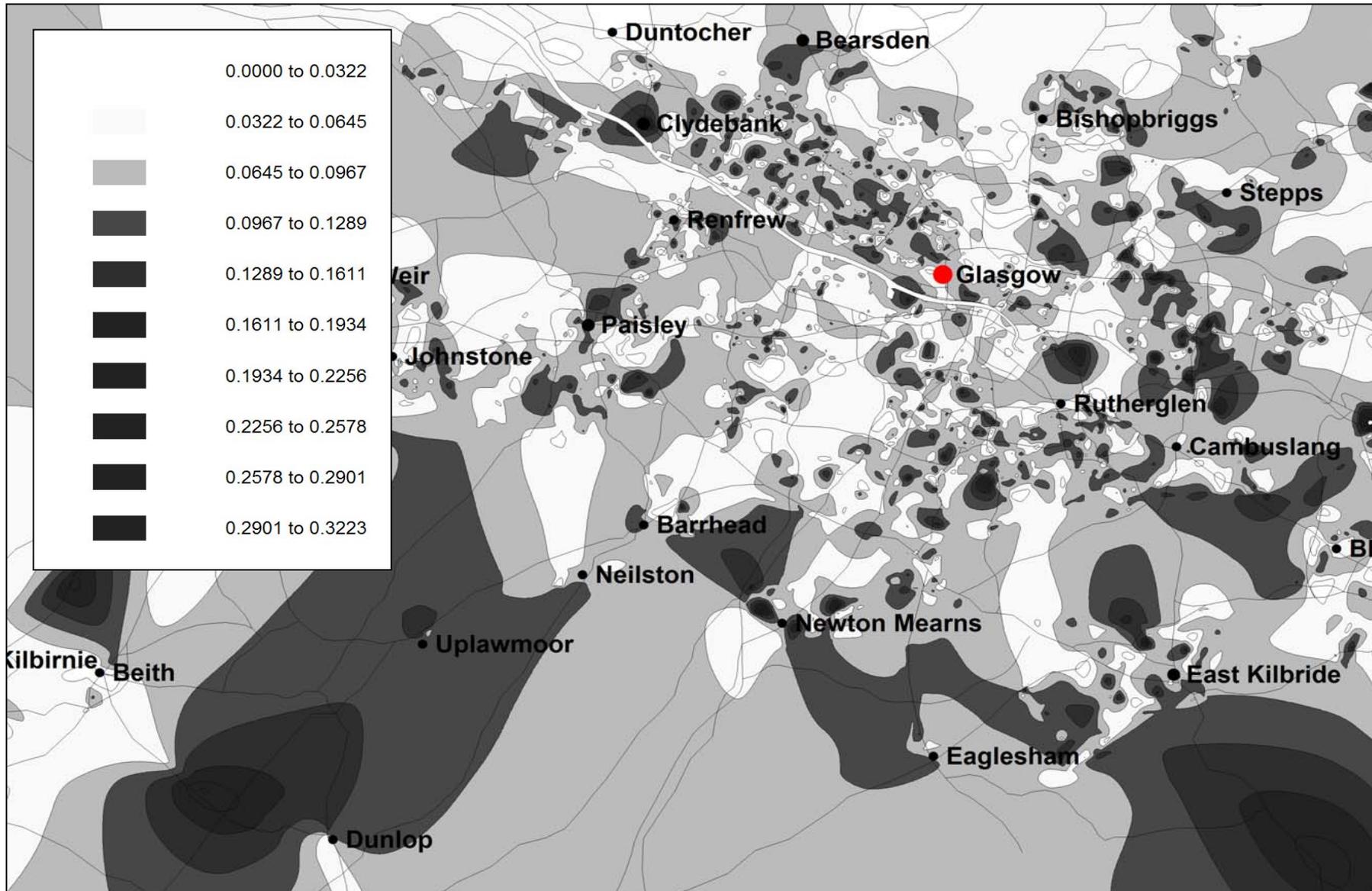


Figure 8 Cross-Section of the Pathos Surfaces from Bearsden to Renfrew

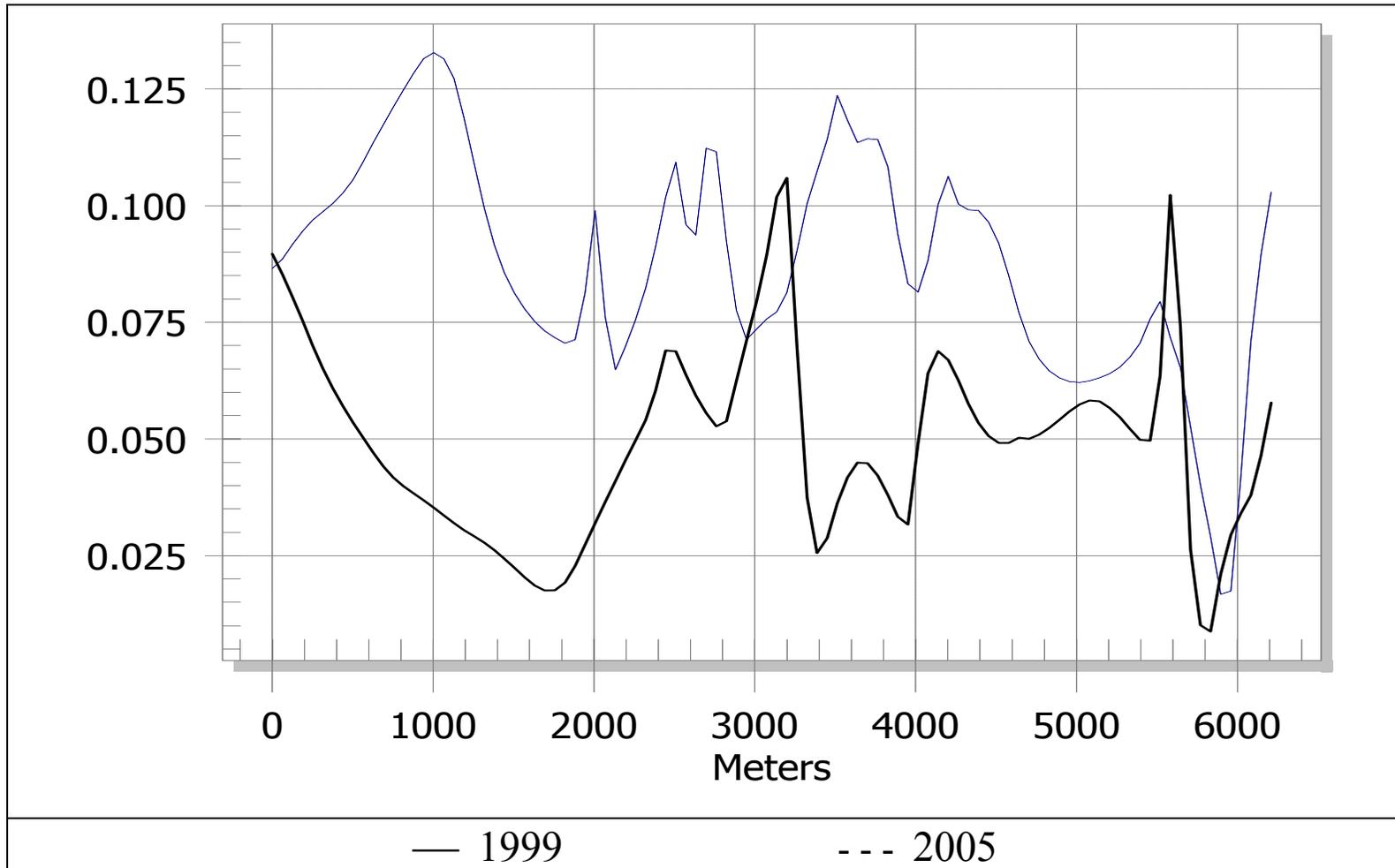


Figure 9 Spatial Variation of Type IV as % of No. of Pathos Words in 1999/2000

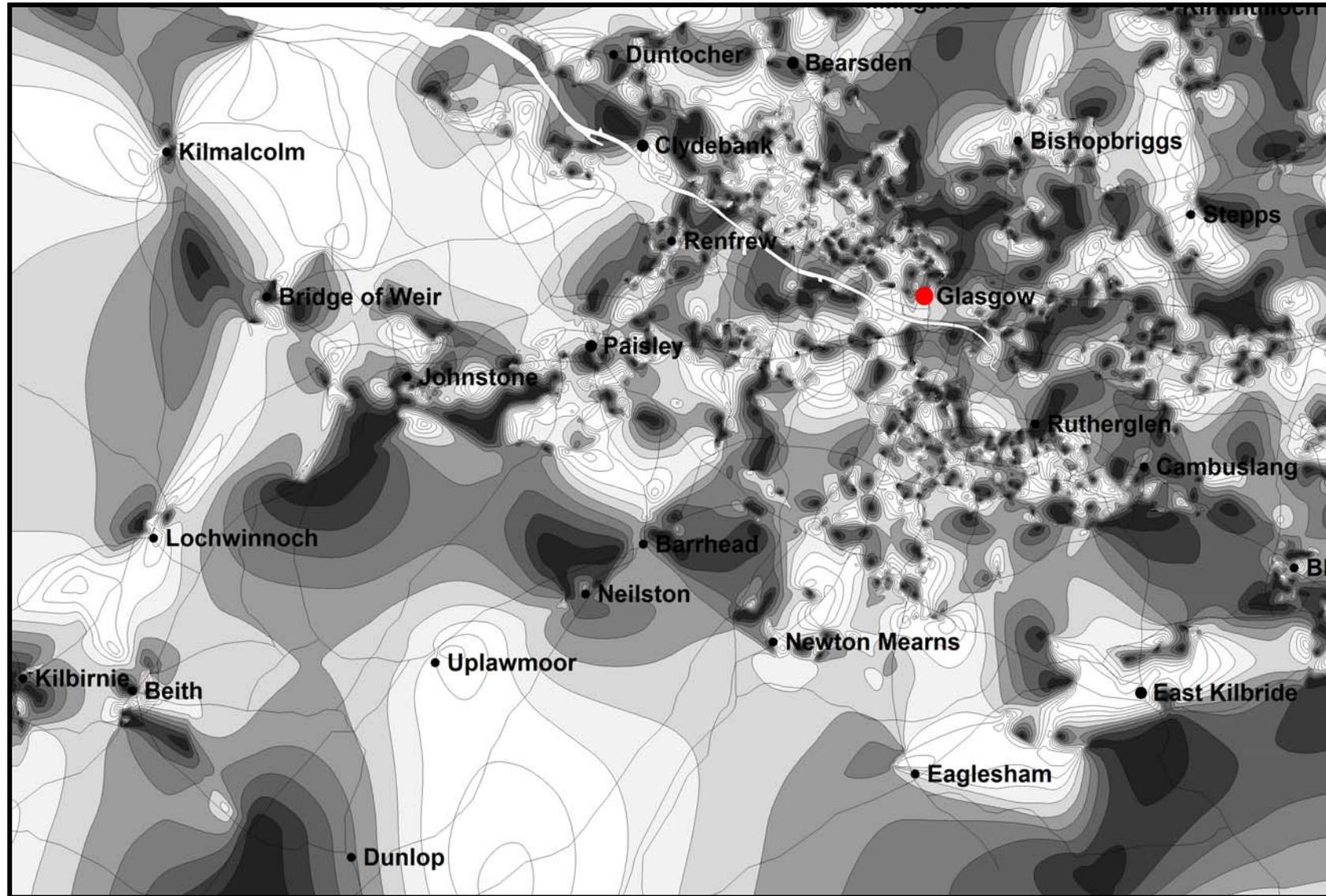


Figure 10 Spatial Variation of Type IV as % of No. of Pathos Words in 2004/2005

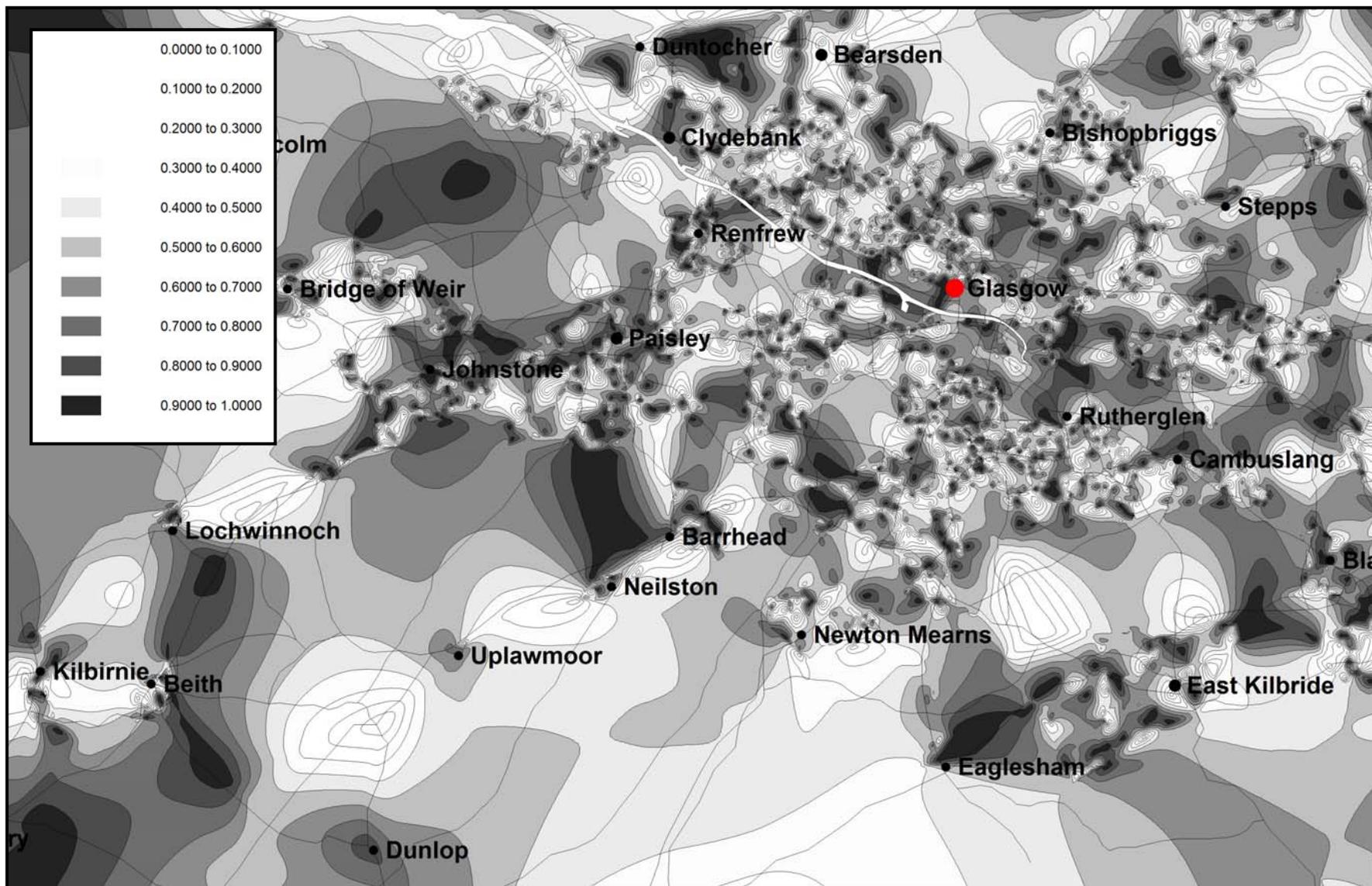


Figure 11 Cross-Section of the Type IV as % Pathos Surfaces from Bearsden to Renfrew

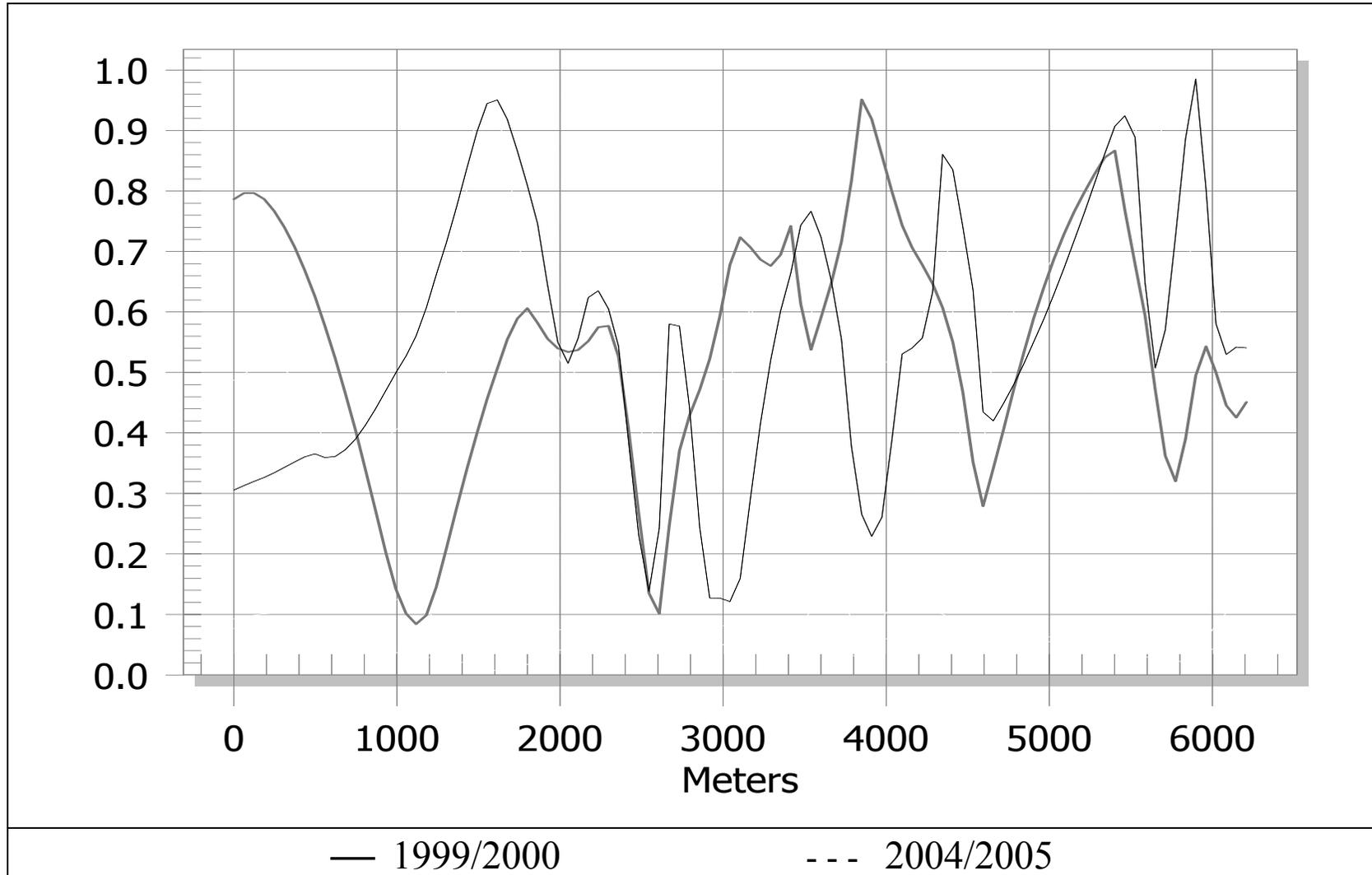


Table 1 Descriptive Statistics

Continuous Variables and Proportions:						
Variable	Description	mean	median	min	max	n
Pathos_n	Number of pathos words in each description	2.08	2.00	0.00	11.00	49,926
Pathos_Core_n	Number of Core pathos words in each description	0.41	0.00	0.00	6.00	49,926
Type_I_n	Number of Type I pathos words in each description	0.08	0.00	0.00	3.00	49,926
Type_II_n	Number of Type II pathos words in each description	0.44	0.00	0.00	5.00	49,926
Type_III_n	Number of Type III pathos words in each description	0.39	0.00	0.00	4.00	49,926
Type_IV_n	Number of Type IV pathos words in each description	1.18	1.00	0.00	9.00	49,926
Pathos_p	Proportion of all words in each description that are pathos words	0.06	0.06	0.00	0.50	49,926
Pathos_Core_p	Proportion of all words in each description that are Core pathos words	0.01	0.00	0.00	0.19	49,926
Type_I_p_P	Proportion of pathos words in each description that are Type I	0.04	0.00	0.00	1.00	42,778
Type_II_p_P	Proportion of pathos words in each description that are Type II	0.22	0.00	0.00	1.00	42,778
Type_III_p_P	Proportion of pathos words in each description that are Type III	0.19	0.00	0.00	1.00	42,778
Type_IV_p_P	Proportion of pathos words in each description that are Type IV	0.55	0.50	0.00	2.00	42,778
dscrptn_wordcount	Word count for each description	31.61	32.00	1.00	51.00	49,926
dscrptn_charcount	Character count for each description	196.66	205.00	2.00	244.00	49,926
tom	Time on the market (in days)	70.66	35.00	-79.00	2917.00	49,919
deprivtn	Deprivation score	5.78	4.48	2.03	16.24	49,926
cbd_glas_km	Distance to City Centre (km)	12.73	8.06	0.32	519.64	49,926
allrooms	Number of rooms (bedrooms + public rooms)	3.53	3.00	0.00	24.00	49,926
Binary Variables:						
Variable	Description	% of cases that = 1				n
noPathos	= 1 if no pathos words the property description; = 0 otherwise	14.3%				49,926
noCOREPathos	= 1 if no Core pathos words in the property description; = 0 otherwise	67.2%				49,926
flat_all	= 1 if the property is a flat; = 0 otherwise	48.7%				49,926
bung_ALL	= 1 if the property is a bungalow; = 0 otherwise	6.2%				49,926
detached	= 1 if the property is detached; = 0 otherwise	10.4%				49,926
terraced	= 1 if the property is terraced; = 0 otherwise	8.3%				49,926
stone	= 1 if the property is constructed of stone; = 0 otherwise	12.2%				49,926
stone_flat	= 1 if the property is a flat constructed of stone; = 0 otherwise	9.8%				49,926
bay	= 1 if the property has a bay window; = 0 otherwise	16.0%				49,926
conservy	= 1 if the property has a conservatory; = 0 otherwise	2.7%				49,926
garage_d	= 1 if the property has a garage; = 0 otherwise	28.8%				49,926
parking	= 1 if the property has parking facilities; = 0 otherwise	12.1%				49,926
garden_d	= 1 if the property has a garden; = 0 otherwise	70.3%				49,926

Table 2 Most common words in GSPC house ads: Where is the pathos?

<i>Word/ word string</i>	<i>Word count</i>	<i>Comment</i>
!	1372	Used in a variety of contexts (<i>pathos</i> and <i>logos</i>) but seems to be somewhat random. For example: "Upgrading a must!" and "Fantastic views over golf course!".
Abs	248	Generic estate-agent speak with little emotive resonance.
Appeal	481	Used as a modifier in less meaningful phrases.
Apprec	685	Descended into estate-agent speak, little emotive resonance, "must view to appreciate" would appear to be filler.
Att	7025	Word string possibly too flexible – included in too broad a range of words (e.g. attic, flatted).
Beaut	3422	Used frequently in the phrase "beautifully appointed", which is not a particularly emotive phrase.
Beautiful	457	Pathos -- when not part of phrase "beautifully appointed"
Bright	3134	Generic estate-agent speak, so little emotive value. Typically used in phrases like "bright and spacious" and "bright lounge".
Character	106	Pathos
Charm	410	Pathos – indeed what makes a bathroom "charming"?
Class	138	Generic estate-agent speak, little emotive resonance; typically found phrases like "first class order throughout." The interpretation of "first-class" could be quite broad so not a core pathos word.
Decep	612	Used a lot, but what does it really mean? If it indicates "better than it seems" as in the phrase "deceptively spacious" than it is the opposite of pathos. Again, essentially meaningless.
Del	1101	Pathos
Des	2658	Word string possibly too flexible, e.g. "resides" etc.
Eleg	101	Pathos
Enjoy	1674	Generic estate-agent speak, little emotive resonance.
Enviable	199	Pathos
Essent	2811	Typically used in "viewing essential," no emotional meaning.
Estab	579	It is unclear what this is signalling. This is generally found in the phrase "established neighbourhood."
Exceptional	342	Pathos.
Excl	305	Pathos, as in "exclusive"
Executive	102	Pathos
Extr	5408	Usually just lists extras, essentially meaningless as all homes offer something "extra".
Fab	1540	Generic estate-agent speak, little emotive resonance.
Fant	225	Pathos, as in "fantastic"
Flex	726	This appears to have little meaning – it is not clear what "flexible" means. Arguably any home bigger than one room has "flexible" layout.
Fresh	971	Possibly descriptive (i.e. <i>logos</i>) as opposed to pathos –freshly decorated, which tells buyers about the physical condition (as opposed to more ephemeral qualities of the property).
Generous	1988	Pathos, interesting use in place of "large"
Great	487	Often used in phrases like, "Greatly reduced". Also used as a modifier in less meaningful phrases. "Greatly reduced" does sound a signal, but it is one of a bargain and possibly <i>logos</i> .
Handsome	126	Generally just used to describe buildings.
High	4052	Possibly too many meanings, high floor etc to capture the emotive use of this word which seems only to occur in a minority of cases.
Ideal	5045	Usually in phrase "ideal for first-time buyer" – which is not really an emotive phrase
Imaginative	145	Double edged, as "imaginative" can signal something non-standard that can hold lower market value
Immac	3556	This seems to denote clean, tidy. Hence perhaps closer to <i>logos</i> than <i>pathos</i> .
Immed	267	"Immediately available" signals a buyer keen to sell – and perhaps at a lower price. This is perhaps more typically <i>logos</i> than <i>pathos</i> .
Imp	2647	Generic estate-agent speak with little emotive resonance.
Impress	1664	Pathos

Individ	242	Double edged, as “individ” can signal something non-standard that can hold lower market value. “Unique” can also have this meaning, but perhaps less so.
Lovely	570	Pathos. Interesting to note that this word is popular while more extreme words such as “opulent” or “lavish” are not. This word is generally used to describe gardens.
Lux	1540	Possibly more of a <i>logos</i> word, as relatively common phrases “luxury bathroom” or “luxury kitchen” abound. Arguably this is used to describe more expensive fittings.
Mag	871	Word string possibly too flexible – included in too broad a range of words (Magnet, magazine etc).
Magnif	637	Pathos
Mature	952	Perhaps more descriptive (<i>logos</i>) than emotive (<i>pathos</i>). This generally refers to gardens.
Most	1173	Generic estate-agent speak, little emotive resonance.
Much	1257	Generic estate-agent speak, little emotive resonance.
Must	1129	Generic estate-agent speak as in “must view”, little emotive resonance.
Of	783	Word string possibly too flexible – included in too broad a range of words (loft etc).
Orig	792	Bridges <i>pathos</i> and <i>logos</i> – although the notion of “original features” is emotion, it is also valuable in today’s mark.
Outst	587	Pathos, generally used to describe views from the property.
Pleas	871	Pathos
Pop	7692	Essentially meaningless and so not particularly potent as a <i>pathos</i> word.
Preferred	550	Pathos. Usually refers to “preferred” first floor but not always, so the word is just a signal that we are supposed to value this attribute of a flat, sometimes used in a strange way
Prestig	172	Pathos
Prestigious	149	Pathos
Prime	1141	Pathos, often used to discuss position/location
Professional	221	Pathos
Quality	1393	Descended into estate-agent speak, little emotive resonance.
Rare	1917	Descended into estate-agent speak, little emotive resonance. Generally part of phrase “rarely available” but this is clearly over-used.
Seldom	1410	Descended into estate-agent speak, little emotive resonance. Generally part of phrase “seldom available” but this is clearly over-used.
Smart	140	Pathos
Sought after	3933	Pathos
Splend	161	Pathos
Stun	1390	Pathos
Stylish	930	Descended into estate-agent speak, little emotive resonance. The word seems dated.
Sunny	230	Pathos
Sup	3137	Better to use “superb”.
Superb	2863	Pathos
Taste	581	Descended into estate-agent speak, little emotive resonance, usually in phrase “tastefully decorated,” although this could mean a very wide range of tastes.
Trem	1328	Doesn’t work as it’s in “extremely”, only one use of “tremendous”
True	293	Used as a modifier in less meaningful phrases.
Truly	298	Generic estate-agent speak, little emotive resonance.
Unique	292	Pathos
Versatile	142	Double edged, as “versatile” can signal something non-standard that can hold lower market value. As with “flexible”, it’s a bit meaningless.
Very	1315	Generic estate-agent speak, little emotive resonance.
Well	9484	Possibly too many uses and too vague to count as <i>pathos</i>

Highlighted cells indicate that the word has been evaluated as “Core” *pathos*.

Table 3 Variation in the Average Incidence of Type IV Pathos vs Other Types of Pathos

Quarter	Pathos Type IV	All other Pathos Types
1999q1	0.0277	0.0220
1999q2	0.0251	0.0250
1999q3	0.0260	0.0243
1999q4	0.0230	0.0216
2000q1	0.0274	0.0234
2000q2	0.0290	0.0237
2000q3	0.0287	0.0242
2000q4	0.0300	0.0211
2001q1	0.0363	0.0235
2001q2	0.0332	0.0250
2001q3	0.0337	0.0233
2001q4	0.0342	0.0237
2002q1	0.0354	0.0286
2002q2	0.0374	0.0278
2002q3	0.0360	0.0285
2002q4	0.0351	0.0294
2003q1	0.0384	0.0298
2003q2	0.0407	0.0312
2003q3	0.0393	0.0300
2003q4	0.0400	0.0290
2004q1	0.0384	0.0284
2004q2	0.0398	0.0312
2004q3	0.0439	0.0304
2004q4	0.0457	0.0295
2005q1	0.0402	0.0305
2005q2	0.0421	0.0307
2005q3	0.0417	0.0307
2005q4	0.0402	0.0308
2006q1	0.0392	0.0308
2006q2	0.0389	0.0305
2006q3	0.0381	0.0318
Summary Statistics:		
Mean of all quarterly means:	0.0356	0.0274
Standard deviation of means:	0.0059	0.0034
Coefficient of Variation for the quarterly means:	16.55%	12.56%
Equality of Variances Test:		
Levenes Test	F=7.151 df(1, 60) sig. = .0096	
Brown & Forsyth W50 Test	F=4.973 df(1, 60) sig. = .0295	
Brown & Forsyth W10 Test	F= 6.620 df(1, 60) sig. = .0126	

Table 4 Fractional Logit Regressions for the Incidence of Pathos

<i>Independent Variables:</i>	<i>Dependent Variable *</i>					
	Pathos (all)	Type I	Type II	Type III	Type IV	Core
	[1]	[2]	[3]	[4]	[5]	[6]
Average Time-on-the-market (months)	0.980 § (-9.995) †	0.990 (-1.083)	1.002 (0.695)	0.950 (-11.569)	0.980 (-8.017)	0.958 (-9.056)
Average Pathos in the area	1.126 (34.086)	1.041 (2.446)	1.116 (15.797)	1.144 (18.152)	1.118 (22.829)	1.199 (24.266)
deprivtn	1.004 (2.902)	0.987 (-1.781)	1.007 (2.190)	0.986 (-4.527)	1.011 (5.319)	1.002 (0.685)
cbd_glas_km	0.998 (-4.613)	1.004 (4.279)	1.001 (2.201)	0.996 (-5.865)	0.998 (-4.728)	1.002 (4.054)
dscrptn_charcount	1.006 (42.915)	1.010 (11.937)	1.003 (12.861)	1.003 (12.859)	1.007 (37.070)	1.009 (28.835)
allrooms	0.977 (-6.605)	1.080 (4.193)	0.943 (-8.176)	0.967 (-4.634)	0.987 (-2.762)	1.027 (3.730)
flat_all	0.988 (-1.259)	1.123 (2.024)	0.958 (-2.196)	0.774 (-13.002)	1.083 (6.143)	1.093 (4.070)
bung_ALL	1.048 (3.302)	1.652 (8.732)	1.097 (3.153)	1.140 (4.871)	0.937 (-3.117)	1.004 (0.157)
detached	0.926 (-5.746)	0.774 (-4.557)	0.912 (-3.306)	0.868 (-5.527)	0.984 (-0.850)	0.898 (-4.350)
terraced	0.956 (-3.377)	0.826 (-2.583)	1.000 (0.008)	0.826 (-7.233)	1.006 (0.340)	0.866 (-4.419)
stone	0.857 (-7.203)	1.483 (5.177)	0.905 (-2.200)	0.925 (-1.935)	0.757 (-8.465)	0.924 (-1.838)
stone_flat	0.874 (-5.414)	0.569 (-5.594)	0.767 (-5.048)	0.676 (-7.666)	1.068 (1.816)	0.920 (-1.649)
bay	0.934 (-7.262)	0.966 (-0.688)	0.983 (-0.836)	0.947 (-2.704)	0.915 (-6.993)	0.961 (-1.974)

conservy	1.068 (3.519)	1.196 (2.338)	1.190 (4.703)	0.919 (-2.137)	1.059 (2.130)	1.259 (6.799)
garage_d	0.986 (-1.617)	0.862 (-3.392)	1.054 (2.940)	1.064 (3.743)	0.943 (-4.847)	1.062 (3.254)
parking	0.901 (-10.254)	0.882 (-2.105)	1.041 (1.960)	0.888 (-5.288)	0.861 (-10.910)	0.972 (-1.221)
garden_d	0.968 (-3.592)	1.075 (1.353)	0.870 (-7.517)	1.205 (9.064)	0.947 (-4.612)	0.864 (-7.321)
Price band 2	1.128 (10.791)	1.407 (4.631)	1.200 (7.608)	1.198 (7.494)	1.070 (4.651)	1.297 (8.893)
Price band 3	1.194 (15.923)	1.718 (7.405)	1.363 (13.041)	1.231 (8.589)	1.103 (6.707)	1.601 (16.493)
Price band 4	1.220 (17.121)	2.192 (10.988)	1.427 (14.544)	1.289 (10.350)	1.092 (5.645)	1.896 (22.574)
Price band 5	1.274 (17.926)	3.500 (16.308)	1.441 (12.717)	1.306 (9.277)	1.119 (6.157)	2.459 (28.827)
Intercept	0.010 (-112.188)	0.000 (-41.259)	0.004 (-70.311)	0.003 (-69.364)	0.005 (-95.767)	0.000 (-87.616)
<i>N</i>	49,926	49,926	49,926	49,926	49,926	49,926
Log likelihood	-8,962	-681	-2,960	-2,622	-6,081	-2,686
Chi ²	6,637	1,679	1,281	3,288	3,532	5,951

‡ The dependent variable measures the number of pathos words as a proportion of all words (or all pathos words) used in the marketing description.

† Figures in brackets are t-ratios based on Papke and Wooldridge (1996) robust standard errors.

§ Coefficients are in exponential form to measure the proportionate change in odds of pathos due to a unit increase in the explanatory variable, holding all other variables constant.