

The Price Setting Behaviour of Portuguese Firms Evidence from Survey Data¹

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Preliminary version

Abstract

This paper reports the results of a survey conducted by the Banco de Portugal between May and September 2004 on a sample of 1173 Portuguese firms. Its main purpose was to investigate the price setting in Portugal and in particular the reasons that explain the rigidity observed in price data. Firms were asked about a number of features of their pricing behaviour such as the frequencies of their price reviews and price changes, the speed and magnitude of price adjustments as well as the reasons that led them to change their prices infrequently.

The main results are the following:

- For the total of firms responding to the survey, there were no significant differences between the share of firms following state-dependent rules and the share of those that are mostly time-dependent price setters. However, state-dependent rules seem to be predominant in manufacturing while in services the bulk of firms set their price on a time-dependent basis;
- As expected, price changes are less frequent than price reviews. The frequency of price changes seems to be higher in manufacturing than in services – a result that was also found using the micro data underlying the Portuguese price indices;

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- Survey data confirmed that price increases are more frequent than price decreases. Price increases accounted for about 70 percent of total changes – a figure that is higher than the 60 percent found in the micro-data. This share was particularly high both in services and for those firms that sell their product mostly to final consumers – our best proxy for the behaviour of consumer prices;
- Survey results also revealed that the magnitude of price decreases was on average almost one percentage point higher than that of price increases (4.4 percent against 3.5 percent, respectively);
- Time lags in price adjustments were found to be considerable, varying between 5 and 7 months. However, there was no clear evidence that prices move faster upwards than downwards though firms seem to respond faster to cost shocks than to demand shocks;
- Finally, the existence of “implicit contracts” between firms and their customers was apparently the main reason for the rigidity observed in prices. Coordination failure, high fixed costs, cost-based pricing, explicit contracts and procyclical elasticity of demand were other valid explanations.

1. Introduction

In economic literature it is now widely agreed that the way monetary policy is conducted can influence the level of economic activity. The central assumption to obtain real effects from monetary policy is that prices are not fully flexible, remaining fixed for at least very short periods. The degree of price stickiness affects the responsiveness of inflation and output to changes in official interest rates. In this context, a better understanding about the degree and causes of price persistence is critical for the design of optimal monetary policy. This has motivated a renewed interest on this field of research.

In this paper, it is followed a methodology similar to that proposed by Blinder *et al* (1998), who were the first to implement the large-scale interview method to test different theories of price stickiness. This approach was also followed by Hall *et al* (2000) for the UK, Apel *et al* (2001) for Sweden. More recently, in the context of the Inflation Persistence Network of the Eurosystem, a number of national studies following identical methodology were undertaken for several euro area countries. This is the case of Fabiani *et al* (2004) for Italy, Fougier *et al* (2004) for France, Baumgartner *et al* (2004) for Austria, Aucremanne and Druant (2004) for Belgium and Hoerberichts and Stokman (2004) for the Netherlands.

The results presented in this paper are based on a survey conducted by the Banco de Portugal between May and September 2004 on a sample of 1173 Portuguese firms, mostly from manufacturing. Its main purpose was to investigate the price setting in Portugal and in particular the reasons that explain the rigidity observed in price data. Firms were asked about a number of features of their pricing behaviour such as the frequencies of their price reviews and price changes, the speed and magnitude of price adjustments as well as the reasons that led them to change their prices infrequently.

2. Survey and sample design

The survey was conducted by the Banco de Portugal between May and September 2004 on the basis of a sample covering Manufacturing (NACE – classification of economic activities – 15 to 37, excluding 30); Energy (NACE 40 and 41); Transport, Storage and Communication (NACE 60 to 64); Education (NACE 80); and Healthcare excluding social work (NACE 85, excluding 853). Some sectors were not included in the survey mostly because of the difficulty in identifying a main product in many firms in those sectors. A total of 2494 firms were

contacted to participate in the survey. The Banco de Portugal Central Balance-Sheet Database (CB)² was the primary source for firm collection.

Given the dominance, in terms of number, of smaller firms in Portugal, a pure random selection of firms would run the risk of an overrepresentation of these firms. To overcome this problem, it was decided to select firms using stratified random sampling. The whole population of firms for the above-mentioned sectors was firstly gathered in two groups according to number of employees: one group containing firms with 20 or more employees but less than 50, and another group including firms with 50 or more employees. It was decided that 40 percent of firms would be drawn from the first group while the remaining 60 percent would be drawn from the second. A crosstabulation of these two groups with the selected sector breakdown gave rise to 62 mutually exclusive strata.

The selection of firms in each stratum was made by stages. The relative frequency of each stratum in the Ministry of Employment Personnel Database (PD)³ – the best proxy of the population of Portuguese firms – was used as a benchmark to determine the number of firms to be drawn from the CB 2002. After doing this, firms were drawn randomly in each stratum. For those strata where the number of available firms in the CB 2002 was less than the benchmark, it was used successively the CB 2001, the CB 2000 and finally the PD 2000 databases until the sample was fully completed. At the end, the sample included 2102 firms from Manufacturing, 10 from Energy and 382 from Services (Table 1). The firms included in the sample accounted for about 17 percent of total employment.

The survey was organised in six sections containing a total of 31 questions (see Annex 1 for an English version of the survey). For the sake of comparability, a large share of these questions was taken from other similar surveys. However, this opportunity was also seized to ask firms about other aspects of their price-setting behaviour. For instance, this was the case

² The Central Balance-Sheet Database was created in 1987 and it is based on an annual survey conducted by the Banco de Portugal. It gathers an important body of economic and financial information on those firms, which are willing to co-operate with this Office. The data are collected through the completion of an annual questionnaire submitted to firms.

³ The Personnel Database was created in 1982 and it is based on an annual survey conducted by the Portuguese Ministry of Employment. It is the most complete survey made to Portuguese firms and covers all establishments with wage earners. Answering this survey is mandatory. The survey collects detailed information on both wages and the characteristics of each individual employee (regular wages, subsidies, hours worked, date of admission, age, gender, schooling, qualification level,...) as well as basic information about the establishment and the firm (size, ownership, location, ...). By law, this information is sent to the statistical department of the Ministry of Employment, it is supplied to the employer association, and is made available to every worker in a public space of each establishment. This last requirement facilitates the work of the Ministry of Employment that monitor compliance of firms with the law (e.g. illegal work).

of questions on price setting in foreigner countries. It was made an attempt to phrase the questions as much as possible in non-technical language that can be understood by a non-economist. The structure of the survey was the following. Section 1 collected some general information about the characteristics of the market where firms operate such as their main market, destination of sales, degree of competition and the kind of relationship with customers. In section 2, firms were asked about their general price-setting behaviour, in particular whether they were mostly price-makers or price-takers, the frequency of their price reviews and price changes, the information set they use for setting prices or whether they follow mostly time-dependent or state-dependent pricing rules. Section 3 investigated the possible presence of asymmetries in price adjustments, both in terms of the nature of shocks and in the speed of adjustment. The main theories of price stickiness were outlined in section 4 and firms were asked to rank them in terms of importance. Section 5, which was answered only by those firms where exports accounted for a non-negligible share of sales, analysed the extent to which pricing behaviour was dependent on the market where firms operated. Finally, section 6 asked firms about the frequency of their wage changes in an attempt though very timid to bring together information on price setting with information on wage setting.

After the sample had been selected and a first draft of the survey had been designed, in the end of May a pilot survey was carried out on a sample of 20 firms. This pilot survey provided a very useful mechanism for an *ex-ante* assessment of firms' reaction to the survey. Following the analysis of responses and after contacting some of the surveyed firms by phone, a number of questions were either reformulated or even eliminated in order to make the survey shorter and simpler. The pilot survey was also very helpful in terms of choosing the best way to contact firms.

In July 2004, a revised version of the survey was sent by traditional mail for the whole sample of 2494 firms⁴. It was accompanied by a cover letter that made clear *inter alia* that the survey should be answered by someone well informed with firms' price setting. These were typically firms' top managers. Firms were allowed to answer within fifteen working days either by traditional mail or through a specially created website. A reminder was sent to those firms that had not responded by middle-August⁵. At the end, 1173 valid questionnaires were received⁶. A response rate of almost 50 percent was rather pleasant given that it was the first time most firms faced such kind of survey and some questions were not particularly easy to respond.

⁴ Firms that participated in the pilot survey were not included in the final sample because the questionnaire they received had some considerable differences vis-à-vis the final draft.

⁵ A help desk was created to support firms, either by phone or email.

⁶ The number of firms that sent their questionnaires was a somewhat higher but some questionnaires had to be eliminated from the analysis because some inconsistencies were identified.

The final sample of 1173 firms kept essentially the same structure as the initial sample of 2494 firms, since there were only minor differences in response rates across sectors and between larger and smaller firms.

3. Main market characteristics

Firms' price-setting behaviour is certainly affected by the characteristics of the market where they operate. Among those characteristics is the location of their main market, i.e. whether it is domestic or foreign, the degree of competition they face and the kind of relationship they have with their customers.

The survey was focused in firms' main product, either a good or a service, referred to as the product with the highest turnover in 2003⁷. This could have been a very restrictive limitation to the survey if firms' main product was not representative of their total turnover. Fortunately, this was not the case. Indeed, the main product accounted on average by about 78 percent of total turnover considering all the firms responding to the survey (Chart 1). This high percentage was broadly expected since our sample excluded a number of sectors where a main product was deemed difficult to identify. Analysing the results by sector and firm size, the figures were higher in services (86 percent) than in manufacturing (77 percent) and for smaller firms (82 percent) than for larger ones (76 percent).

Regarding firms' main market, the domestic market was referred to as the main one by about 70 percent of the firms responding to the survey (Chart 2). The location of firms' main market is important because price-setting strategies might be different in domestic and foreign markets. As expected, that share was higher in services and for smaller firms. The higher degree of openness found in manufacturing and among larger firms was consistent with the results obtained when exporting-firms were asked about the percentage of their turnover that was due to exports (Chart 3). This percentage was higher in manufacturing (50 percent) than in services (45 percent) and also among larger firms (54 percent vis-à-vis 37 percent for smaller firms).

Reflecting the larger share of manufacturing in our sample, the bulk of firms responding (84 percent) of the survey sell their main product mostly to other firms (Chart 4). This suggests

⁷ The focus on a particular year is in line with Apel *et al* (2001) for Sweden, Fabiani *et al* (2004) for Italy and Fougier *et al* (2004) for France but contrasts with Aucremanne and Druant (2004) for Belgium where no reference is made to a particular year.

that the type of price-setting behaviour that is under analysis in this study refers predominantly to producer prices and less to price-setting strategies at the consumer level.

The kind of relationship that firms have with their customers, i.e. whether it is long-standing or only occasional, can have a bear on their price strategies. Hall *et al* (1997) show that firms with longer standing relationships with customers tend to review prices less frequently. The reasoning behind this behaviour might be that the presence of a significant number of longer-term customers could act as a kind of implicit contract leading firms to stabilize their prices. Regarding the firms that respond to the survey, 84 percent of them revealed that the kind of relationship they have with their customers was essentially long-term (Chart 5)⁸. This figure was higher in manufacturing (85 percent) than in services (75 percent). Firms that responded to survey also reported that their sales to longer-term customers represented the bulk of their total sales (75 percent). This share was higher in manufacturing and for larger firms (Chart 6).

The degree of competition that firms face is another important variable affecting price-setting decisions. The existence of some autonomy for setting prices, even limited, is only possible if firms have some market power. In principle, one would expect that the lower the degree of competition, i.e. as firms get closer to pure monopolistic conditions, the higher is the room for not adjusting prices instantaneously when marginal costs change. The survey contains a number of questions that try to capture the degree of competition faced by firms. For instance, questions 6 and 7 asked firms, respectively, about the number of competitors they have in the Portuguese market and about their market share. Even though the coverage of our sample has a bias towards larger firms, in general firms that responded to the survey seem to have a limited market power: 45 percent of the firms have more than 20 competitors in their main market and 46 percent have a market share of less than 5 percent (Charts 7 and 8). As expected, the degree of competition is somewhat weaker for larger firms irrespective of which of the two proxies is used. This finding was congruent with the evidence coming from the question on the elasticity of demand (question 22). When firms were asked about what would happen to the quantities they sold if they decided to increase the price of their main product by 10 percent, 69 percent responded that the quantities would fall by more than 10 percent (Chart 9). Even though most of the firms responding to the survey seem to have limited market power they still possess a certain degree of autonomy that allows them to set their own price. Indeed, 65 percent of respondents considered themselves as mainly price setters (Chart 10).

⁸ This share is higher (87 percent) for those firms that sell their product mainly to other firms. For firms that sell their main product mostly to consumers that share is significantly lower (63 percent).

4. General information on price setting

Before analysing more in-depth the main features of price-setting behaviour it was considered important to have some idea about how relevant price was for firms' competitiveness. According to our results, firms considered the price as the second most important factor for their competitiveness (Table 2). Quality emerged as the highest-ranked factor, a feature that is immutable across the different sectors and firm sizes. Two other results should be singled out. All the six factors of competitiveness that were considered in the survey received high mean ranks, which seems to suggest that firms have a number of variables further than the price that they can manage in order to create some product differentiation.

Another important characteristic of firms' price-setting behaviour is the possible presence of some form of price discrimination. To investigate this, firms were asked if the price of their main product is the same for all customers or if they discriminate their price either according to the quantity sold or on a case-by-case basis⁹. The evidence does not seem to support the presence of uniform price setting: only 24 percent of the responding firms reported that they charge the same price for all their customers (Chart 11). The remaining firms discriminate their prices either according to the quantity they sold (42 percent) or on a case-by-case basis (34 percent). However, the results differ substantially between manufacturing and services. In manufacturing, only 20 percent of the firms reported that they charge the same price for all their customers whereas in services the proportion of firms charging the same price is 49 percent.

5. Measuring price stickiness

5.1. The frequency of price reviews and the frequency of price changes

The literature traditionally distinguishes between two theories of price setting: time-dependent rules and state-dependent rules. Under time-dependent rules, prices are reviewed at discrete time intervals. Those intervals may be fixed as in Taylor (1980) or stochastic like in Calvo (1983). As opposed to time-dependent rules, in state-dependent rules there is no regularity in price reviews and firms decide to review their prices only when there is a sufficiently large shift in market conditions.

⁹ In principle, it is in firms' own interest to discriminate their prices as much as they can in order to extract a higher share of their customers' surplus.

Even though both theories have implicit the presence of a certain degree of price stickiness, presumably more in time-dependent rules, they have different policy implications. Under time-dependent rules, prices are reviewed at discrete time intervals whose length usually depends on the inflation rate: when inflation is high firms' relative prices are falling quickly and, in order to avoid a fall in profits, they tend to review prices more frequently (i.e. prices become less sticky). In this context, other things being equal a monetary shock in a high inflation environment is likely to have a smaller and a less persistent impact on economic activity. Under state-dependent rules the level of inflation is downgraded in terms of importance and what matters the most is the nature and size of shocks affecting market conditions.

To test the importance of both rules, firms were asked whether their prices were reviewed at a well-defined frequency or in response to market conditions (question 18)¹⁰. The survey also included a "hybrid option" in order to consider those situations where firms review their prices at a specific frequency as a rule, for instance at the end of every year, but they also conduct additionally reviews in response to particular events. The percentage of firms following state-dependent rules was not very different from that of firms using time-dependent rules (Chart 12). However, differences between manufacturing and services were far from being negligible. In services, time-dependent rules had a clear dominance as opposed to manufacturing where most firms follow state-dependent rules. It is also interesting to note that only about one quarter of firms reported that they follow a mixed strategy.

Those firms that follow time-dependent rules, either strictly or only when there are no large shifts in market conditions, were asked to mention the normal frequency of their price reviews (question 19). If the costs incurred by firms to collect the relevant information to assess whether the current price is out of line were negligible one would expect firms to conduct price reviews very frequently. However, the results show that only a small fraction of firms (4.5 percent) responded that they review at least once a week. This indicates that price reviews are not costless: firms may fear that the possible gains resulting from reviewing prices for instance every day or every week could be large enough when compared to the costs they have to bear. Indeed, the size of these costs seems to be such that 46 percent of firms adopting time-dependent rules review their prices no more than once a year (Chart 13). Comparing the results across sectors, the evidence shows that price reviews seem to be more

¹⁰ While price reviews can be made at regular time intervals this is not typically the case for price changes. In principle, a price change comes after a price review but prices do not necessarily change every time a price review takes place. For this reason, it makes more sense to formulate this question in terms of price reviews than in terms of price changes.

frequent in manufacturing than in services. All in all, the majority of firms, most notably in services, review their prices only once a year.

Having analysed the frequency of price reviews the next step was to ask firms how often they actually changed their prices (question 20). Comparing the results for firms that responded both to the question on price reviews and the question on price changes, the evidence showed that, as expected, price changes are less frequent than price reviews: almost three quarters of firms responding to the survey reported that they change their prices no more than once a year (Table 3). The frequency of price changes seems to be higher in manufacturing than in services – a result that was also found in Dias *et al* (2004) using the Portuguese micro-datasets. This question was extended to those firms adopting state-dependent rules and even though the results did not change significantly the bias towards lower frequencies was smaller (Chart 14). Although the bulk of firms responding to the survey (52 percent) change their price just once in a year they do not seem to have a particular month when they do so. Indeed, only 25 percent of firms answered that they change their price in a specific month of the year (January in most of these cases)¹¹. This contrasts with results on wage adjustments. The fraction of firms adjusting their wages only once in a year is considerably higher (83 percent) as well as the percentage of firms (57 percent) reporting that they change their wages in a particular month of the year (Chart 15).

Dias *et al* (2004) concluded *inter alia* that price increases only accounted for around 60 percent of total price changes and that the magnitude of price increases was broadly similar to the magnitude of price decreases. These two findings were common to both consumer and price indices. Their results also showed that consumer prices seem to change more frequently than producer prices, something that was valid both for price increases and price decreases. Survey data confirmed that price increases are more frequent than price decreases – about one half of firms have not decreased their prices in recent times. Price increases accounted for about 70 percent of total changes (Chart 16), i.e. higher than the 60 percent share found in Dias *et al* but in line with the result obtained by Fougier *et al* (2004) for France. This share was particularly high both in services and for those firms that sell their product mostly to final consumers (our best proxy for the behaviour of consumer prices). Survey results also revealed that the magnitude of price decreases was on average almost one percentage point higher than that of price increases (4.4 percent against 3.5 percent, respectively). Differences across sectors were not significant but smaller firms seem to be more aggressive in terms of the magnitudes of their price changes (Charts 17 and 18).

¹¹ This percentage increases to 32 percent when only firms that follow time-dependent rules are considered.

5.2. The speed of price changes

The analysis of the frequencies of price changes provides an important indication of the degree of price stickiness. However, as Blinder *et al* (1998) pointed out this may not be sufficient to conclude for the presence of price stickiness: infrequent price changes maybe the result of infrequent cost and demand shocks. Against this background, in the survey, firms were asked to report the time, which on average elapses between a significant shock (positive or negative) to either demand or cost and the corresponding price change (question 25). The respondents had 6 options available: 1-less than one week; 2-from one week to one month; 3-from 1 month to 3 months; 4-from 3 to 6 months; 5-from 6 months to 1 year; 6 – the price remain unchanged. Table 4 reports the mean duration of response for the four situations. The results suggest the time lags in price adjustments are considerable, varying between 5 and 7 months. There is no clear evidence that prices move faster upwards than downwards. However, firms seem to respond faster to cost shocks than to demand shocks. Moreover, the speed of price adjustment is considerably higher in manufacturing than in services and also in smaller firms than in larger ones.

6. The main theories of price stickiness

The process of adjusting prices is normally divided in two stages: the “price reviewing stage” and the “price changing stage”. Under the first, firms estimate an “optimal” price using all the information they considered relevant. Having done this, firms are then able to check whether the deviation of their current price from the optimal price is significantly enough to warrant a price change.

Sources of price stickiness may be present at both stages. The results from the last section suggested that firms review their prices at discrete intervals and not continuously, which points to the presence of some kind of stickiness at this first stage. Once the price review has been made, firms decide whether they want to change their price or not. The results also showed that they change their prices less frequently than they review them. This could happen either because the evidence coming from the price review does not support the need for a price change or because once firms decide to incur the informational costs of reviewing the prices, they recognise that there are extra costs associated with a price change that could possible outweigh their benefits. In this section, it is analysed the possible origin of these costs.

We followed the same method proposed by Blinder *et al* (1998) who were the first to implement the large-scale interview method to test different theories of price stickiness. This approach was also followed by Hall *et al* (2000) for the UK, Apel *et al* (2001) for Sweden. More recently, in the context of the Inflation Persistence Network of the Eurosystem, a number of national studies following identical methodology were undertaken for several euro area countries. This is the case of Fabiani *et al* (2004) for Italy, Fougier *et al* (2004) for France, Baumgartner *et al* (2004) for Austria, Aucremanne and Druant (2004) for Belgium and Hoerberichts and Stokman (2004) for the Netherlands. In our survey we asked firms the following question (question 26): “Firms sometimes decide to postpone price changes or to change their price only slightly. This is generally due to various factors. Some of them are listed below. Please indicate their importance in your company.” The list contained 12 theories of price stickiness, all explained in a language that could be broadly understandable¹². The respondents were asked to indicate their degree of agreement with the chain of reasoning underlying each option in a scale ranging from 1 (“unimportant”) to 4 (“very important”). The theories were not mutually exclusive: firms could, and they did it in many cases, agree with several of them.

Table 5 ranks the theories by mean scores. In addition, it also shows the p-value corresponding to the test of the hypothesis that each theory’s mean rank is significantly different from the theory ranked just below. The results of this test show that only in four cases the differences in rankings are not statistically different. The accept rate in column 4, calculated as the percentage of firms that considered each theory as “important” or “very important”, provides an alternative way to rank the theories. Except for two pairs of options, the rankings do not change.

The results suggest that the “implicit contracts” theory is the most important explanation for infrequent price adjustments. This theory was formulated as “the preference of customers for stable prices (a reason why) changing prices frequently could threaten customer relations”. The mean rank attached to this theory was surprisingly high given the traditional magnitude of mean ranks in similar studies, which in a comparable scale do not normally exceed 3. The “coordination failure” and the “high fixed costs” theories were the next two theories in the ranking, with similar (non-statistically different) mean ranks. The first theory refers to the fact that it may not be in a firm’s interest to change their price if their main competitors do not

¹² A detailed description of these theories can be found in Blinder *et al* (1998) or Hall *et al* (2000).

change their prices, while the second refers to the constraint that the presence of high fixed costs puts on firm's decision to reduce its price.

“Cost-based pricing”, “explicit contracts” and “procyclical elasticity of demand” complete the group of theories with mean ranks exceeding the neutral rank of 2.5. If marginal costs do not change by much there are no reasons to change prices frequently. This is the main assumption behind the cost-based pricing theory. The existence of explicit (written) contracts implies that prices can only change when the contracts are renegotiated. Finally, if firms' elasticity of demand is procyclical (i.e. their mark-up is countercyclical) their demand curve becomes less elastic as it shifts down, which means that when demand decreases firms lose firstly their “less loyal” customers and retain those that are less sensitive to price, implying that the price can be kept basically unchanged.

Below the top group of theories, there is a group with mean ranks between 2 and 2.5 that might be considered as having limited relevance for explaining the inertia observed in prices. There are three theories in this group: “time lag in price adjustments”, “temporary shocks” and “judging quality by price”. Under the first, firms recognise that there are lags in price adjustments, coming for instance from bureaucratic delays in the decision of changing prices, while the second refers to the fact that firms may decide not to change their price in response to a shock if they considered it as having a temporary nature. Finally, some firms may feel reluctant to decrease their price for fear that their customers will think their product has declined in quality. This “quality signal” might be relevant in some market segments such as luxury goods.

The last three theories in the ranking (“menu costs”, “pricing threshold” and “costly information”) do not seem to be good explanations for price stickiness. Their accept rate did not exceed 30 percent. The theory of menu costs, which is cited frequently in textbooks as an important explanation for price rigidity, obtained a relatively modest mean rank in this beauty contest. Apparently, physical menu costs, i.e. the amount of resources needed to implement a price change, are not so important in deterring firms from adjusting their prices more regularly. Some firms may want to quote their prices according to certain thresholds (for example, pricing at 4.99 euros instead of 5 euros) if they believe that increasing their prices above these thresholds will lead to a disproportionately fall in demand. This “pricing threshold” theory implies that demand curve is not continuous and firms may delay a price adjustment until new events justify a change to the next price threshold. Finally, the theory labelled as “costly information” focuses on the costs of collecting the relevant information to decide whether the current price is right or not. These costs typically occur in the price

reviewing stage. The costly information theory received the worst rank in the contest of theories, which seems to suggest that the main sources of price stickiness are not in the first but in the second stage of price setting. According to the survey results, the main reason for the rigidity observed in prices is the presence of implicit contracts between firms and their customers. Coordination failure, high fixed costs, cost-based pricing, explicit contracts and procyclical elasticity of demand are also relevant sources of price stickiness.

7. The factors driving price changes

The survey also asked firms to rank a list of factors in terms of their importance both for a price increase decision and for a price decrease decision (questions 23 and 24). The aim of these questions was to investigate for the presence of asymmetries in firms' response to a number of different shocks. The results suggest that cost factors, in particular the price of raw materials and wage costs, are the main factors driving price increase decisions (Table 6). Wage costs are the predominant driving force behind price changes in services. Regarding price decreases, even though the price of raw materials remains the main factor for price decreases, the importance of demand fluctuations and competitors' price becomes higher, while wage costs lose some of their relevance (Table 7).

8. Main conclusions

(To be completed)

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SURVEY ON PRICE-SETTING BEHAVIOUR

The questions concern the **main product** sold by your company (either a good or a service). You can choose, for instance, the product with the highest turnover in 2003 or any other product that you considered as a reference of your main activity. The answers should be referred to this product and, unless otherwise stated, they should be also referred to 2003. The Banco de Portugal guarantees the strict **confidentiality** of your answers, which will be only used for economic research. The Banco de Portugal is very grateful for your collaboration.

Company name: _____
Company economic classification (5-digit code): _____ Fiscal Number: _____
Person that answers the survey: _____
Phone Number: _____ E-mail: _____ Date: _____

General Information

1. What is your main product? _____
2. The percentage that your main product represents in the total turnover is about:
 - 2.1. _____
3. What is your main market (*choose only one option*)?
 - 3.1. Portugal.....
 - 3.2. Other euro area countries ¹³
 - 3.3. United Kingdom
 - 3.4. United States
 - 3.5. Other countries
4. If you sell your product abroad, what percentage of your turnover is due to exports?
 - 4.1. _____
 - 4.2. I don't wish to answer or I don't have enough information to do so.....
5. What is the main destination of your sales (*choose only one option*)?
 - 5.1. Wholesalers
 - 5.2. Retailers
 - 5.3. Companies of your own group
 - 5.4. Other companies (private and public)
 - 5.5. Public Administration (State, Municipalities,...)
 - 5.6. Directly to consumers (via your own stores or through catalogues or Internet).....
 - 5.7. Others channels, please specify _____
6. In the Portuguese market, how many competitors do you have?
 - 6.1. We don't have any main competitor
 - 6.2. Less than 5
 - 6.3. Between 5 and 20
 - 6.4. More than 20
7. What is the market share of your main product in Portugal (*choose only one option*)?
 - 7.1. Less than 5%
 - 7.2. 6%-20%.....
 - 7.3. 21%-50%.....
 - 7.4. 51%-99%.....
 - 7.5. 100%.....
8. The kind of relationship that you have with your customers is essentially (*choose only one option*):
 - 8.1. Long-term (more than 1 year)
 - 8.2. Short-term (less than 1 year)
9. The percentage of your sales that goes to long-term customers is approximately

¹³ Germany, Spain, Greece, Italy, Luxembourg, Netherlands, Belgium, Ireland, Finland, France and Austria.

10. What is the importance of the following factors for the competitiveness of your product? [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

	1	2	3	4	0
10.1. The price	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.2. The quality.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.3. The degree your product is different from your competitors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.4. The delivery period	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.5. The presence of a long-term relationship	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.6. The after-sales service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10.7. Other factors, please specify.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

General information on price setting

11. The price of your main product (choose only one option):

11.1. Is the same for all customers	<input type="checkbox"/>
11.2. Depends on the quantity sold but according to a uniform price list	<input type="checkbox"/>
11.3. Is decided case by case.	<input type="checkbox"/>

12. Is there any particular month (or months) where the price of your main product is most likely changed?

12.1. No.	<input type="checkbox"/>
12.2. Yes. Which?	<input type="checkbox"/>

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13. How many times did the price of your main product change in 2002 and 2003?

Number of times	2002	2003
	<input type="checkbox"/>	<input type="checkbox"/>

14. Taking as a reference, for instance, the last changes in price (increases or reductions), indicate (approximately) the percentage of them that implied a price increase (suggestion: consider for instance the last ten price changes)

%

15. Taking as a reference, for instance, the same price changes considered in the last question, indicate the most frequent size of your price changes:

	Up to 2%	From 2 to 5%	From 5 to 8%	More than 8%
For price increases [choose only one option].....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
For price reductions [choose only one option].....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

16. Which of the following situations describes better the way your price is normally set (choose only one option):

16.1. The price is set by our company.	<input type="checkbox"/>
16.2. The price is set by an external entity (Government, regulatory body,)	<input type="checkbox"/>
16.3. The price is set by our main customer(s)	<input type="checkbox"/>
16.4. The price is set by our main competitor(s)	<input type="checkbox"/>
16.5. Other, please specify.....	<input type="checkbox"/>

17. Does your company usually sets formal contracts that fix the price for a stated period?

17.1. No	<input type="checkbox"/>
Yes. The percentage that these contracts represent in total sales is	
17.2. Less than 10%	<input type="checkbox"/>
17.3. 11-25%	<input type="checkbox"/>
17.4. 26-50%	<input type="checkbox"/>
17.5. 51-90%	<input type="checkbox"/>
17.6. Almost all (>90%)	<input type="checkbox"/>

18. The price in your company is reviewed, without necessarily being changed (choose only one option):

18.1. At a well-defined frequency (annually, quarterly...) (If yes, go to question 19)	<input type="checkbox"/>
18.2. Generally at a defined frequency, but sometimes also in reaction to market conditions (changes in the price of raw materials or in demand conditions) (If yes, go to question 19)	<input type="checkbox"/>
18.3. Without any defined frequency, being reviewed in reaction to market conditions (changes in the price of raw materials or in demand conditions) (If yes, go to question 20)	<input type="checkbox"/>
18.4. None of these cases applies to my company (If yes, go to question 20)	<input type="checkbox"/>

19. [Answer to this question if you chose options 18.1 or 18.2 in the previous question]. At what frequency the price in your company is normally reviewed, without necessarily being changed? (Consider a price review as an assessment of all information relevant for price determination)

- 19.1. Daily
- 19.2. Once a week
- 19.3. Once a month
- 19.4. Quarterly
- 19.5. Two times a year
- 19.6. Once a year
- 19.7. Less than once a year

20. On average, at what frequency is the price actually changed?

- 20.1. Daily
- 20.2. Once a week
- 20.3. Once a month
- 20.4. Quarterly
- 20.5. Two times a year
- 20.6. Once a year
- 20.7. Less than once a year

21. Which information do you most take into account when calculating the price of your main product (choose only one option)?

- 21.1. Information regarding the current and past behaviour of all variables relevant for profit maximization (demand, costs, the price of main competitors,)
- 21.2. Information regarding the recent behaviour of all variables relevant for profit maximization as well as their future prospects
- 21.3. We basically apply an indexation rule over one or more variables relevant for profit maximization (e.g. consumer price inflation, wage growth,)

22. Keeping everything else constant, including the price of your competitors, if you decide to increase the price of your main product for instance by 10% by what percentage do you think the quantities sold by your company would fall?

- 22.1. More than 20%
- 22.2. Between 10 and 20%
- 22.3. About 10%
- 22.4. Less than 10%
- 22.5. Quantities remain unchanged

Reasons for changing prices

23. What is the importance of the factors listed below in terms of a price increase decision? [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0-I can't evaluate]

- | | 1 | 2 | 3 | 4 | 0 |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 23.1. An increase in the price of raw materials | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23.2. An increase in wage costs (including taxes) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23.3. An increase in demand | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23.4. An increase in our competitors' price | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23.5. An increase in financing costs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23.6. Other, please specify | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

24. What is the importance of the factors listed below in terms of a price decrease decision? [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

- | | 1 | 2 | 3 | 4 | 0 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 24.1. A decrease in the price of raw materials | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24.2. A decrease in wage costs (including taxes) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24.3. A decrease in demand | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24.4. A decrease in our competitors' price | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24.5. A decrease in financing costs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24.6. Other, please specify | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

25. Companies sometimes differ in the speed that their prices respond to changes in demand and costs: [Use the following options: 1 - Less than 1 week; 2 - From 1 week to 1 month; 3 - From 1 to 3 months; 4 - From 3 to 6 months; 5 - From 6 months to 1 year; 6 - The price remains unchanged]

- | | 1 | 2 | 3 | 4 | 5 | 6 |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 25.1. After a significant increase in demand, how much time on average elapses before you raise your prices? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25.2. After a significant increase in production costs, how much time on average elapses before you raise your prices? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25.3. After a significant fall in demand, how much time on average elapses before you reduce your prices? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25.4. After a significant decline in production costs, how much time on average elapses costs before you reduce your prices? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Reasons to postpone price changes

26. Companies sometimes decide to postpone price changes or to change their price only slightly. This is generally due to various factors. Some of them are listed below. Please indicate their importance in your company. [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

	1	2	3	4	0
26.1. The risk that our competitors do not change their prices.....					
26.2. The fact that the next price adjustment can only occur after a certain period of time					
26.3. The risk that we subsequently have to readjust our prices in the opposite direction					
26.4. The existence of written contracts specifying that prices can only be changed when the contract is renegotiated					
26.5. The preference for maintaining prices at a certain psychological threshold (ex. 199 euros) ..					
26.6. The costs implied by price changes (ex. changing price lists).....					
26.7. The preference of our customers for stable prices. Changing prices frequently could threaten customer relations.					
26.8. The costs involved in collecting the relevant information for price decisions.....					
26.9. An important part of our costs is fixed hampering price decreases when, for instance, market conditions are less favourable.					
26.10. There is a risk that customers may interpret a reduction in price as a reduction in quality....					
26.11. The variable costs in our company do not change by much with market conditions, making our price quite stable					
26.12. Our type of customers changes over the business cycle. During a recession we lose the least loyal customers and retain the most loyal ones. As the latter are less sensitive to price changes, the price can be kept basically unchanged during a recession.					

27. Some products are characterised by having a short duration (sometimes less than 1 year). This is the case for instance of those products that change collections seasonally, such as clothing or footwear, or products that change their models regularly, such as house appliances or computers. For some of these products the price may be kept unchanged during the (relatively short) lifetime of each collection or model. Is this situation valid for your main product?

27.1. Yes	<input type="checkbox"/>
27.2. No	<input type="checkbox"/>

Information regarding price behaviour in international markets

(only to be filled out by companies operating in international markets)

28. What is the importance of the following factors in discriminating your price between markets? [Use the following options: 1-unimportant; 2-of minor importance; 3-important; 4-very important; 0- I can't evaluate]

	1	2	3	4	0
28.1. Exchange rate changes.....					
28.2. The country tax system					
28.3. Structural market conditions (tastes, standard of living, ..)					
28.4. Cyclical fluctuations in country demand					
28.5. Market rules.....					
28.6. Transportation costs.....					
28.7. Other factors, please specify					

29. If a significant share of your sales (at least 20 percent) goes to one single country outside the euro area, if the euro appreciates by 5 percent vis-à-vis the currency of that country how would you change the price in that market of your main product (choose only one option)?

29.1. The price would increase more than 5%	<input type="checkbox"/>
29.2. The price would increase less than 5%	<input type="checkbox"/>
29.3. The price would increase by 5%	<input type="checkbox"/>
29.4. The price would remain basically unchanged	<input type="checkbox"/>

Information on wage setting

30. On average, at what frequency wages are normally changed in your company?

30.1. More than 2 times a year	<input type="checkbox"/>
30.2. Twice a year	<input type="checkbox"/>
30.3. Once a year	<input type="checkbox"/>
30.4. Less than once a year	<input type="checkbox"/>

31. Is there any particular month (or months) where the wages are most likely changed?

31.1. No	<input type="checkbox"/>
31.2. Yes. Which one?	<input type="checkbox"/>
	J F M A M J J A S O N D

THANK YOU

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Table 1 - Sample coverage

In terms of the number of firms:														
	Total		By sectors:								Memo:			
	Number of firms	% of total	Manufacturing		Manufacturing (incl. Energy)		Energy		Services		% of total population of firms with 20 or more employees	% of total population		
			Number of firms	% of total	Number of firms	% of total	Number of firms	% of total	Number of firms	% of total				
Population			10060	100.0	8466	84.2	8502	84.5	36	0.4	1558	15.5	48.5	3.7
Number of employees	20-49	6317	62.8	5289	52.6	5306	52.7	17	0.2	1011	10.0	30.4	2.4	
	>49	3743	37.2	3177	31.6	3196	31.8	19	0.2	547	5.4	18.0	1.4	
Targeted sample		2494	100.0	2102	84.3	2112	84.7	10	0.4	382	15.3	12.0	0.9	
Number of employees	20-49	995	39.9	838	33.6	841	33.7	3	0.1	154	6.2	4.8	0.4	
	>49	1499	60.1	1264	50.7	1271	51.0	7	0.3	228	9.1	7.2	0.6	
Final sample		1173	100.0	991	84.5	999	85.2	8	0.7	174	14.8	5.7	0.4	
Number of employees	20-49	446	38.0	387	33.0	389	33.2	2	0.2	57	4.9	2.1	0.2	
	>49	727	62.0	604	51.5	610	52.0	6	0.5	117	10.0	3.5	0.3	

In terms of the number of employees:													
	Total		By sectors:								Memo:		
	Number of employees	% of total	Manufacturing		Manufacturing (incl. Energy)		Energy		Services		% of total population of firms with 20 or more employees	% of total population	
			Number of employees	% of total	Number of employees	% of total	Number of employees	% of total	Number of employees	% of total			
Population		830639	100.0	642313	77.3	658545	79.3	16232	2.0	172094	20.7	50.4	30.7
Number of employees	20-49	191015	23.0	160661	19.3	161150	19.4	489	0.1	29865	3.6	11.6	7.1
	>49	639624	77.0	481652	58.0	497395	59.9	15743	1.9	142229	17.1	38.8	23.7
Targeted sample		448506	100.0	317928	70.9	330646	73.7	12718	2.8	117860	26.3	27.2	16.6
Number of employees	20-49	33391	7.4	28055	6.3	28182	6.3	127	0.0	5209	1.2	2.0	1.2
	>49	415115	92.6	289873	64.6	302464	67.4	12591	2.8	112651	25.1	25.2	15.4
Final sample		261007	100.0	161073	61.7	172655	66.1	11582	4.4	88352	33.9	15.8	9.7
Number of employees	20-49	15020	5.8	12993	5.0	13072	5.0	79	0.0	1948	0.7	0.9	0.6
	>49	245987	94.2	148080	56.7	159583	61.1	11503	4.4	86404	33.1	14.9	9.1

Source: Ministry of Employment Personnel Database and Banco de Portugal Central Balance-Sheet Database

Table 2 - Most important factors for the competitiveness of the main product (Question 10)

(mean ranks)

	Total	Manufacturing	Manufacturing (incl. Energy)	Services	Firms - 20 to 50	Firms - 50 or more
Quality	3.7	3.7	3.7	3.7	3.7	3.7
Price	3.5	3.6	3.6	3.3	3.6	3.5
Long-term relationship	3.4	3.4	3.4	3.4	3.4	3.4
Delivery period	3.4	3.4	3.4	2.9	3.4	3.4
Product differentiation	3.0	3.0	3.0	3.0	3.0	3.0
After-sales services	2.9	3.0	3.0	2.7	2.9	3.0

Note: Firms were asked to indicate the importance of each option in a scale ranging from 1 (not important) to 4 (very important).

Table 3 - Frequency of prices reviews and price changes (Questions 19 and 20)

(percentage of total)

	Price Reviews								Price Changes							
	Daily	Weekly	Monthly	Quarterly	Twice a year	Yearly	Less than once a year	Total	Daily	Weekly	Monthly	Quarterly	Twice a year	Yearly	Less than once a year	Total
Total	1.4	3.0	12.6	13.1	24.3	44.2	1.4	100.0	0.0	1.3	1.1	5.7	13.9	62.8	15.3	100.0
Manufacturing	1.8	3.4	13.8	14.4	27.4	38.3	1.0	100.0	0.0	1.6	1.2	5.7	16.4	58.8	16.4	100.0
Manufacturing (incl. Energy)	1.8	3.3	13.6	15.0	27.0	38.3	1.0	100.0	0.0	1.6	1.2	6.2	16.1	58.8	16.1	100.0
Services	0.0	1.7	8.3	5.0	12.5	69.2	3.3	100.0	0.0	0.0	0.8	3.3	4.2	80.0	11.7	100.0
Firms with 20 or more employees but less than 50	1.4	2.8	9.4	13.1	22.5	48.8	1.9	100.0	0.0	0.9	1.4	6.6	8.9	64.8	17.4	100.0
Firms with 50 or more employees	1.4	3.1	14.3	13.1	25.2	41.8	1.2	100.0	0.0	1.4	1.0	5.2	16.4	61.8	14.3	100.0

Note: This results were compiled only for those firms that responded to both questions.

Table 4 - Price response to demand and cost shocks (Question 25)
(mean ranks)

	Total	Manufacturing	Manufacturing (incl. Energy)	Services	Firms - 20 to 50	Firms - 50 or more
Positive demand shock	3.53	3.47	3.48	3.99	3.39	3.62
Positive cost shock	3.48	3.40	3.40	4.08	3.33	3.58
Negative demand shock	3.30	3.21	3.21	3.99	3.15	3.38
Negative cost shock	3.49	3.42	3.43	4.00	3.28	3.61

Note: Firms were asked to indicate one of the following options: 1 - Less than a week; 2 - From 1 week to 1 month; 3 - From 1 to 3 months; 4 - From 3 to 6 months; 5 - From 6 months to 1 year; 6 - Price remains unchanged. The mean ranks were computed only for options 1 to 5 (i.e. across those firms that change their price).

Table 5 - Reasons for price stickiness (Question 26)

Question	Theory	Mean rank	Accept rate	P-value	Percentage of respondents
26.7	Implicit contracts	3.2	80.8	0.00	94.5
26.1	Co-ordination failure	2.8	67.4	0.59	94.5
26.9	High fixed costs	2.8	68.3	0.00	92.2
26.11	Cost-based pricing / constant marginal costs	2.7	64.3	0.17	90.6
26.4	Explicit contract	2.6	57.9	0.46	88.7
26.12	Procyclical elasticity of demand	2.6	59.6	0.01	89.0
26.2	Time lag in price adjustments	2.5	51.4	0.42	91.6
26.3	Temporary shock	2.5	49.5	0.00	91.4
26.10	Judging quality by price	2.3	41.1	0.00	92.0
26.6	Menu costs	1.9	27.4	0.01	91.4
26.5	Pricing threshold	1.8	21.3	0.04	90.2
26.8	Costly information	1.7	20.6	-	79.7

Note: Firms were asked to indicate the importance of each option in a scale ranging from 1 (not important) to 4 (very important).

The accept rate corresponds to the percentage of firms considering each theory as "important" or "very important".

The p-values were computed for testing the hypothesis that the mean rank of a given theory is significantly different from that of the theory ranked just below it.

Table 6 - Most important factors for a price increase decision (Question 23)

(mean ranks)

	Total	Manufacturing	Manufacturing (incl. Energy)	Services	Firms - 20 to 50	Firms - 50 or more
Increase in:						
The price of raw materials	3.59	3.69	3.69	2.86	3.56	3.60
Wage costs (inc. taxes)	3.27	3.28	3.27	3.28	3.38	3.21
Demand	2.50	2.52	2.52	2.41	2.48	2.52
Competitors' price	2.67	2.68	2.68	2.65	2.64	2.69
Financing costs	2.49	2.47	2.47	2.62	2.60	2.42

Note: Firms were asked to indicate the importance of each option in a scale ranging from 1 (not important) to 4 (very important).

Table 7 - Most important factors for a price decrease decision (question 24)

(mean ranks)

	Total	Manufacturing	Manufacturing (incl. Energy)	Services	Firms - 20 to 50	Firms - 50 or more
Decrease in:						
The price of raw materials	3.27	3.37	3.37	2.58	3.32	3.24
Wage costs (inc. taxes)	2.97	2.98	2.97	2.95	3.11	2.88
Demand	2.98	3.01	3.00	2.83	2.95	2.99
Competitors' price	2.93	2.95	2.94	2.87	2.87	2.97
Financing costs	2.34	2.35	2.34	2.31	2.44	2.28

Note: Firms were asked to indicate the importance of each option in a scale ranging from 1 (not important) to 4 (very important).

Chart 1 - Share of the main product in total turnover
(Question 2)

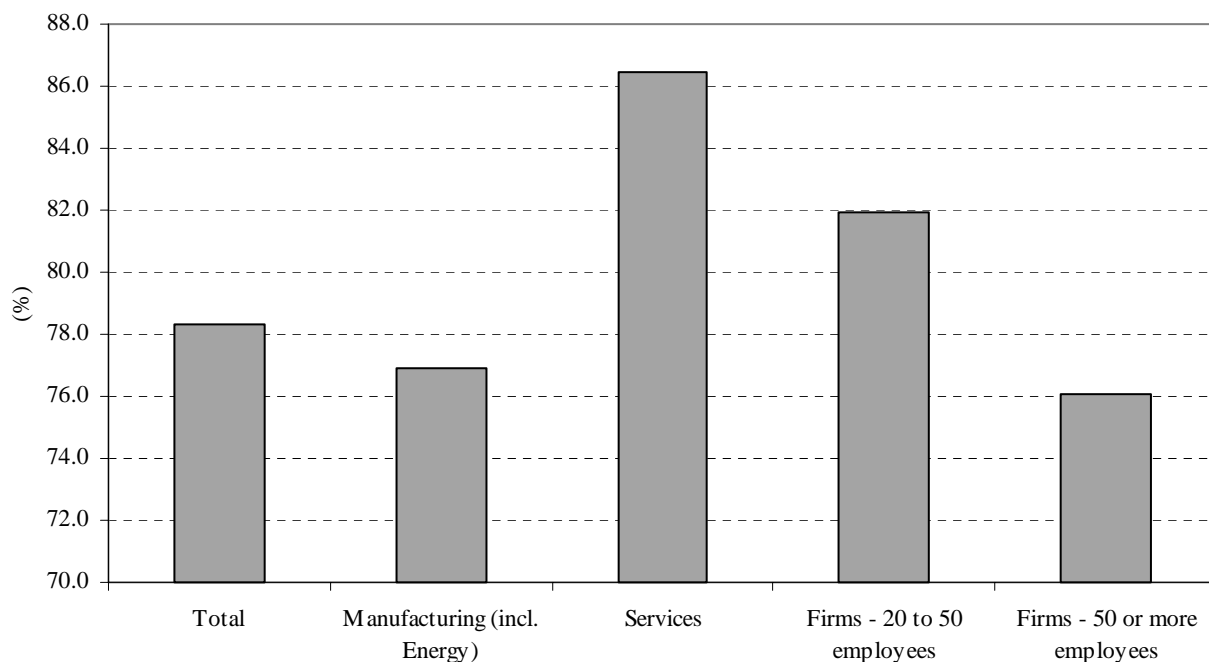


Chart 2 - Main market
(Question 3)

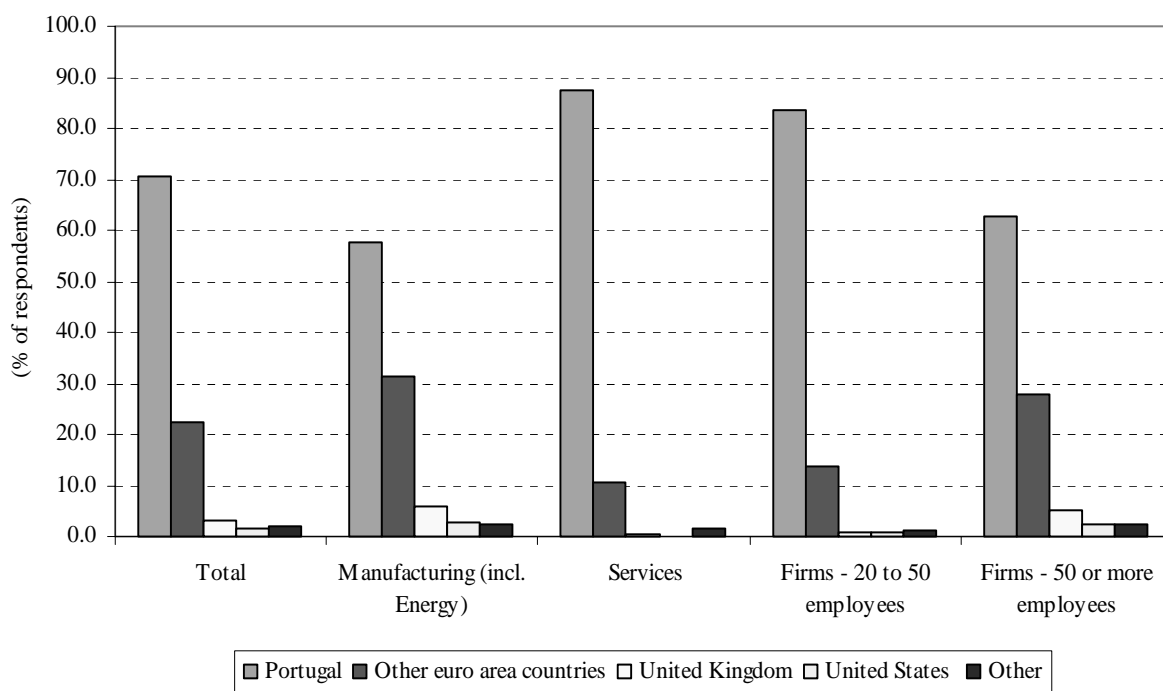


Chart 3 - Share of exports in total turnover
(Question 4)

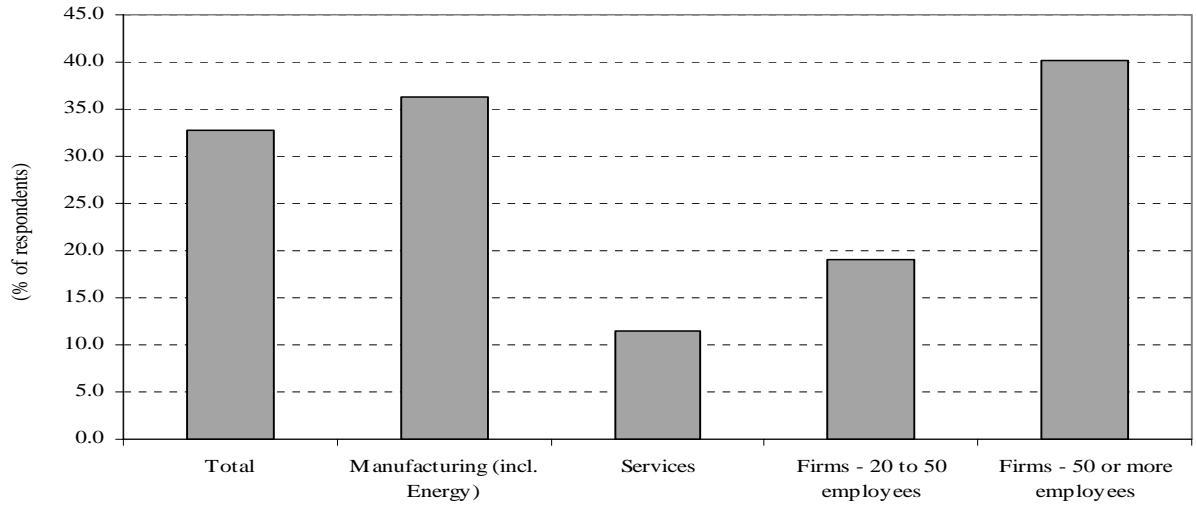


Chart 4 - Main destination of sales
(Question 5)

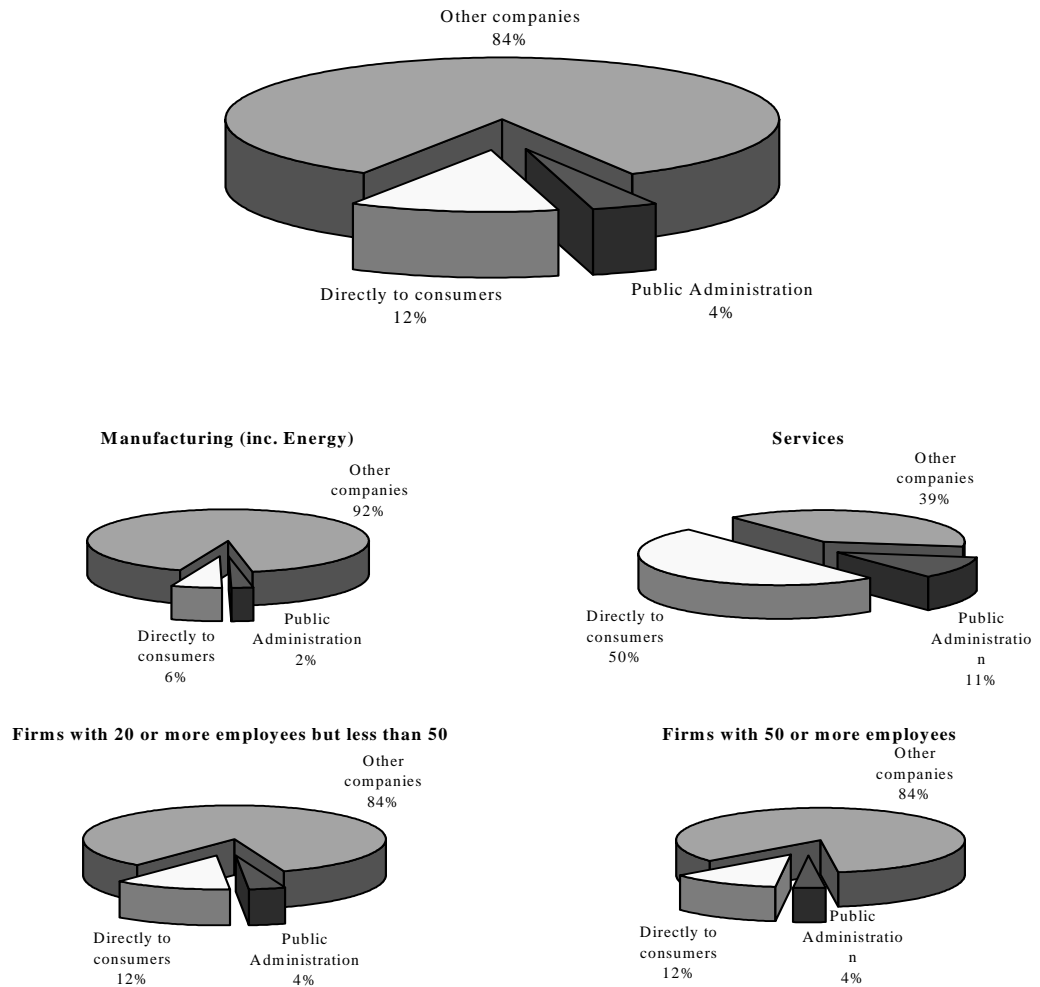


Chart 5 -Type of relationship with customers
(Question 8)

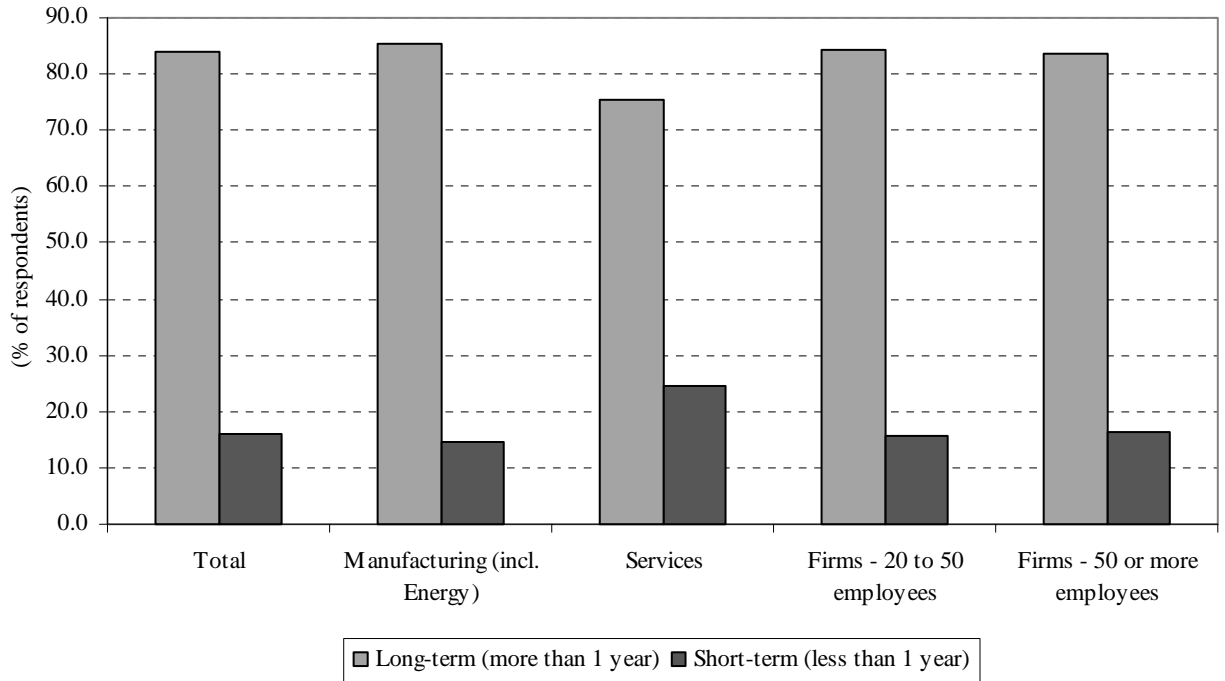


Chart 6 - Share of sales to long-term customers in total turnover
(Question 9)

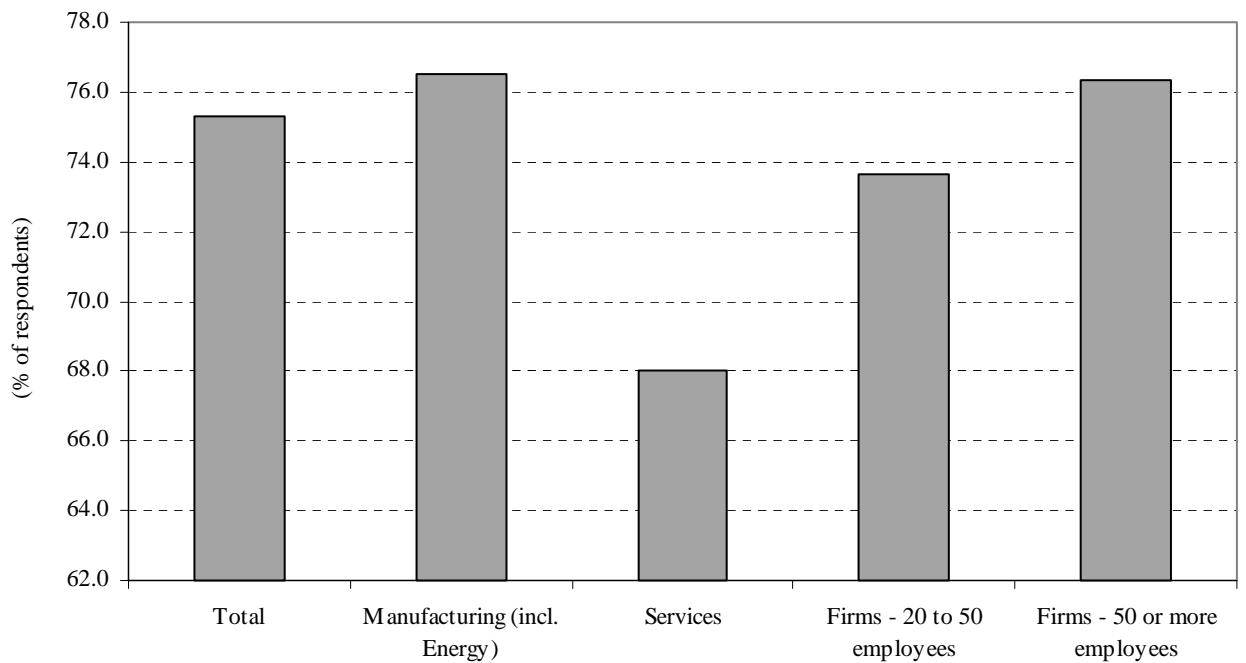


Chart 7 - Number of competitors in Portugal
(Question 6)

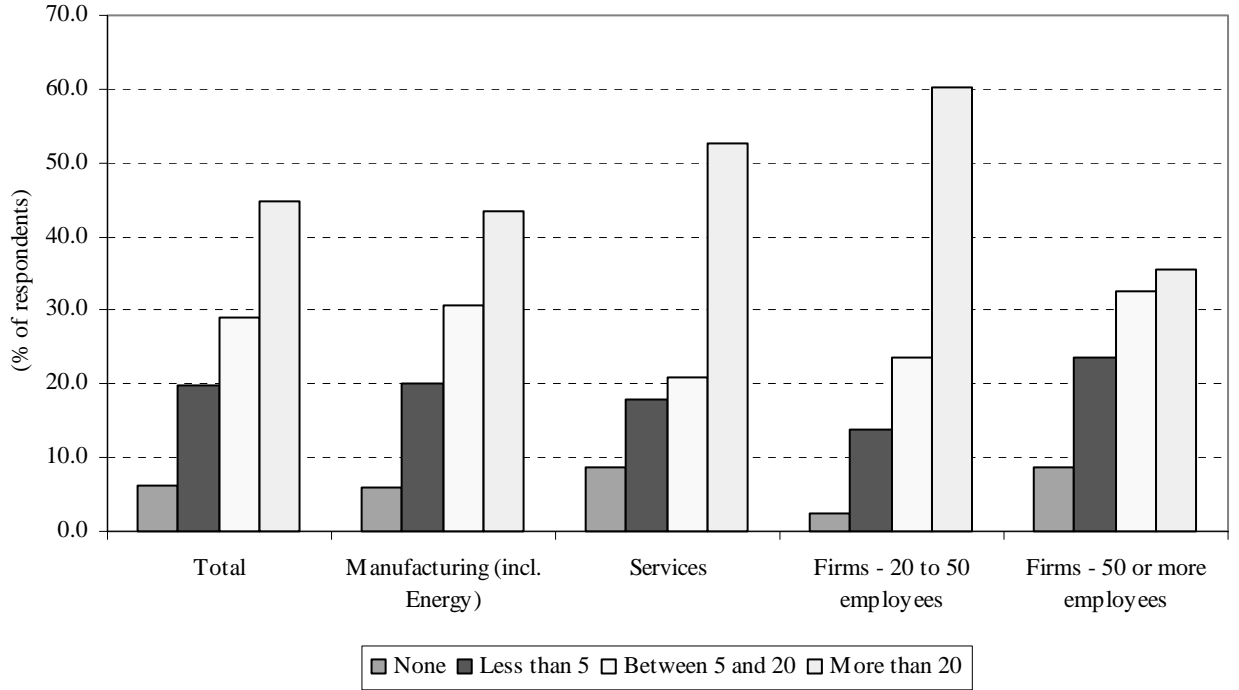


Chart 8 -Market share of the main product in Portugal
(Question 7)

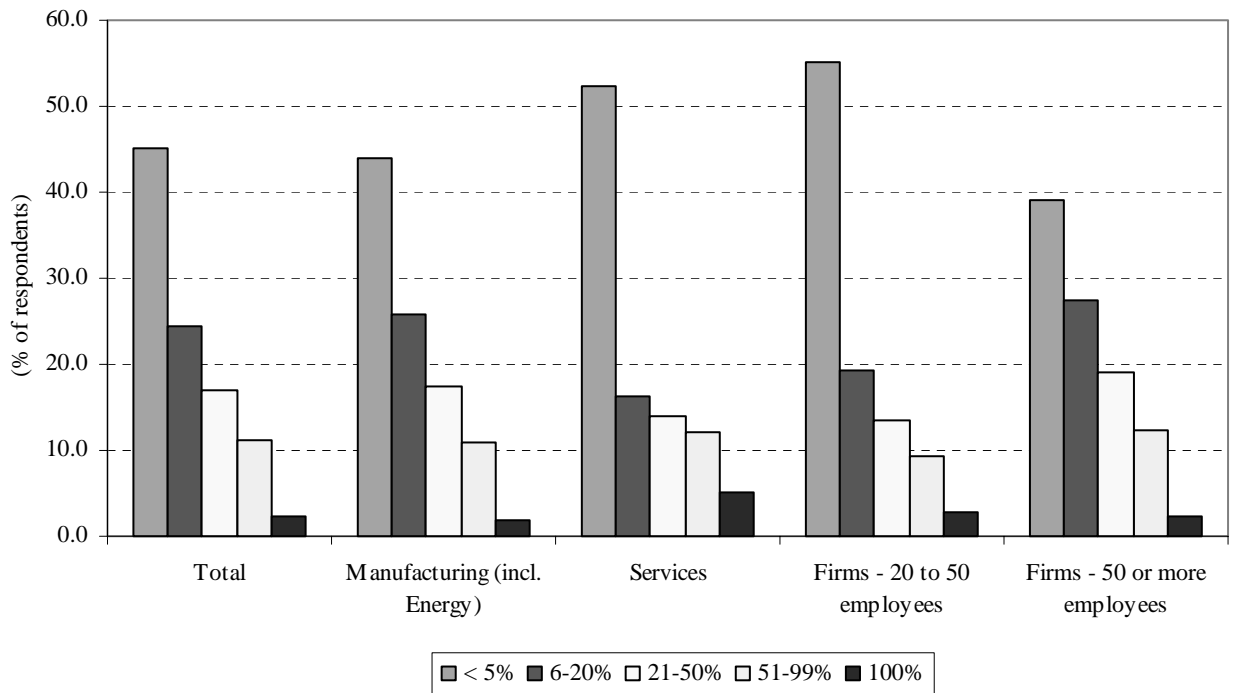


Chart 9 - Elasticity of demand

(Question 22; fall in quantities sold if prices increase by 10%)

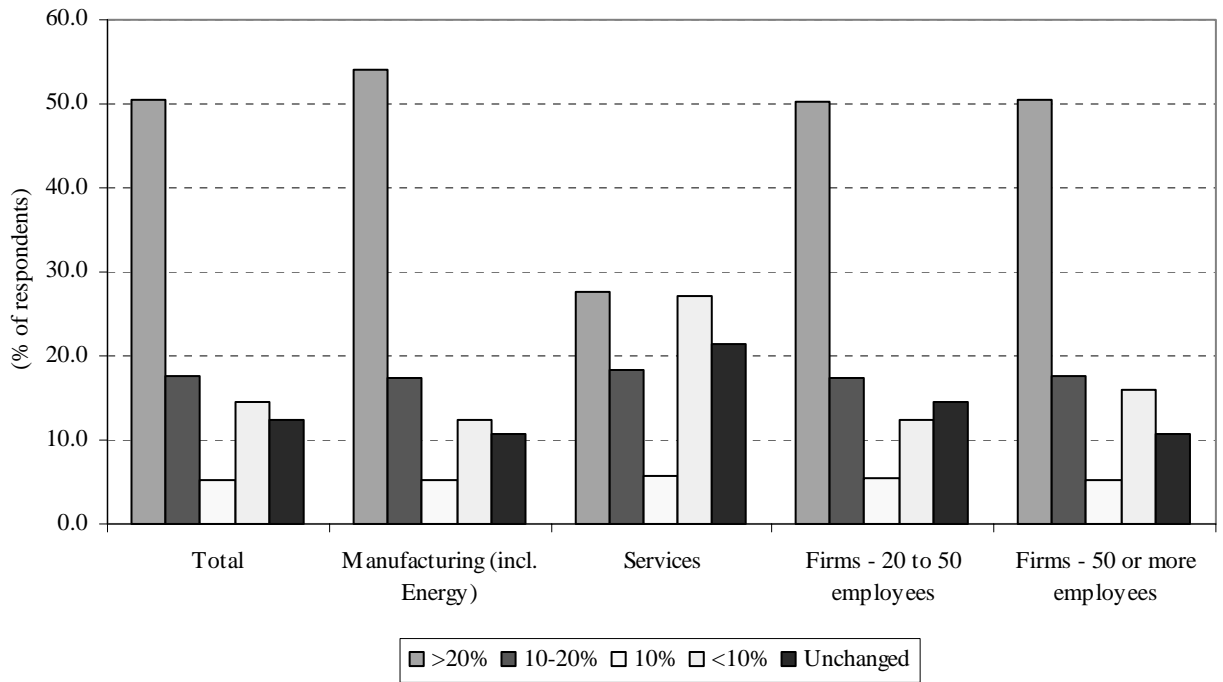


Chart 10 - Degree of price-setting autonomy

(Question 16)

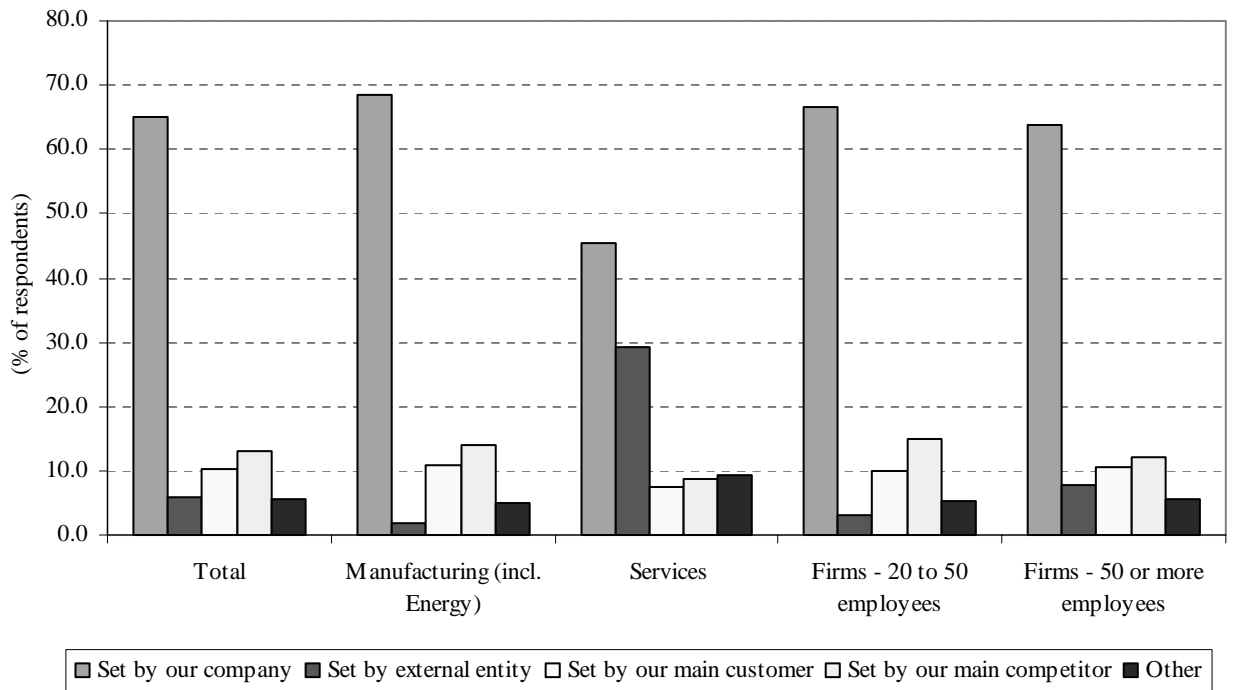


Chart 11 - Evidence on price discrimination
(Question 11)

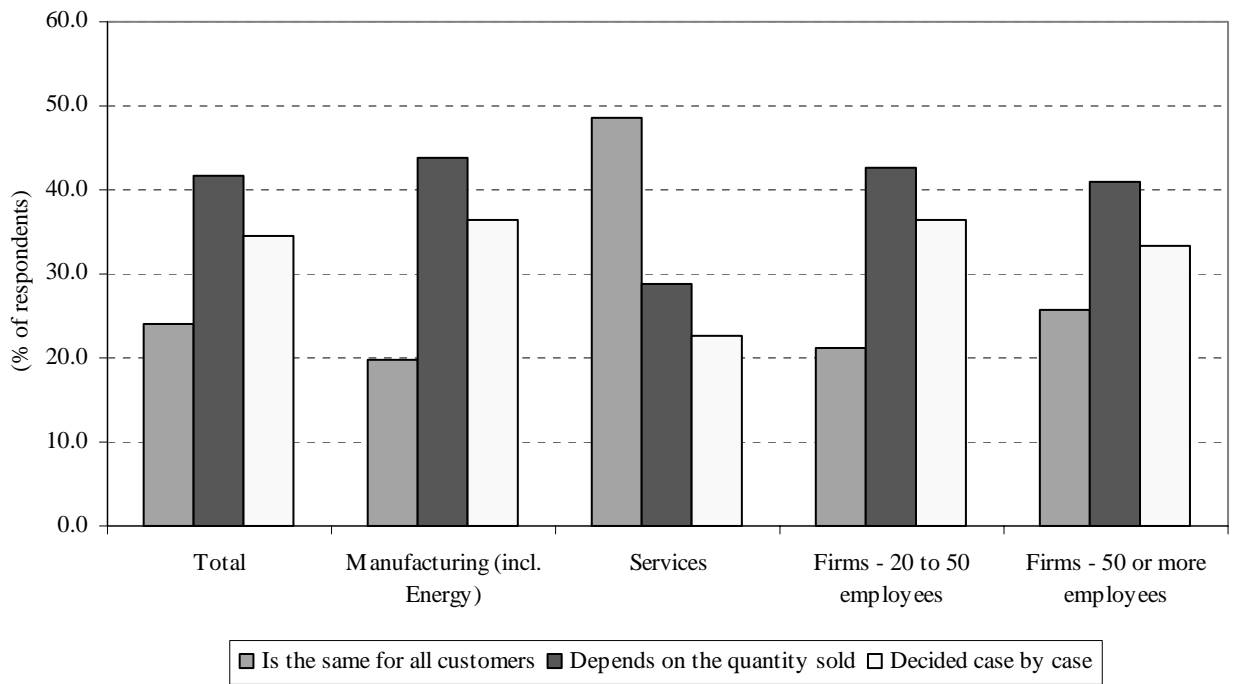


Chart 12 - Price-adjustment strategies
(Question 18)

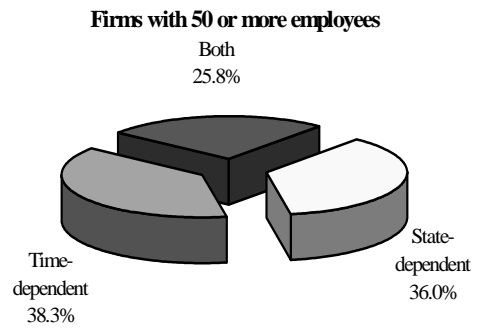
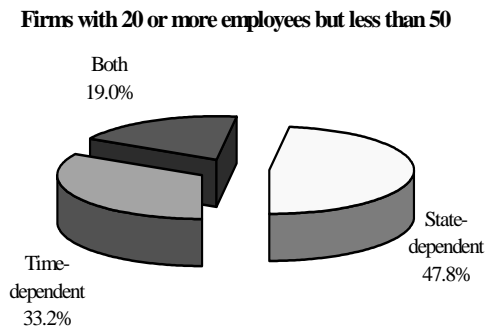
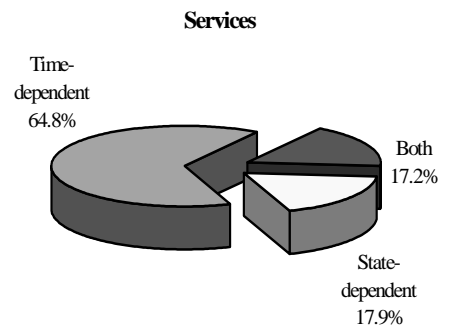
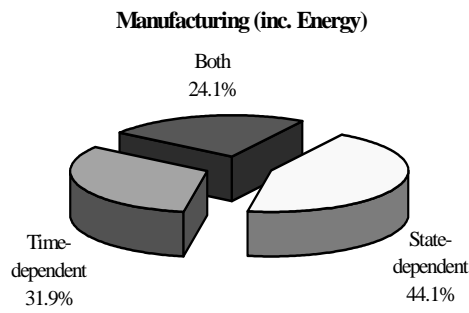
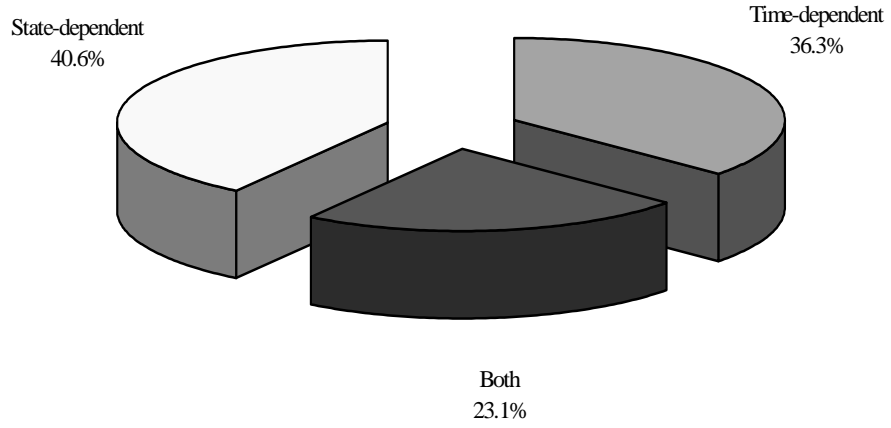
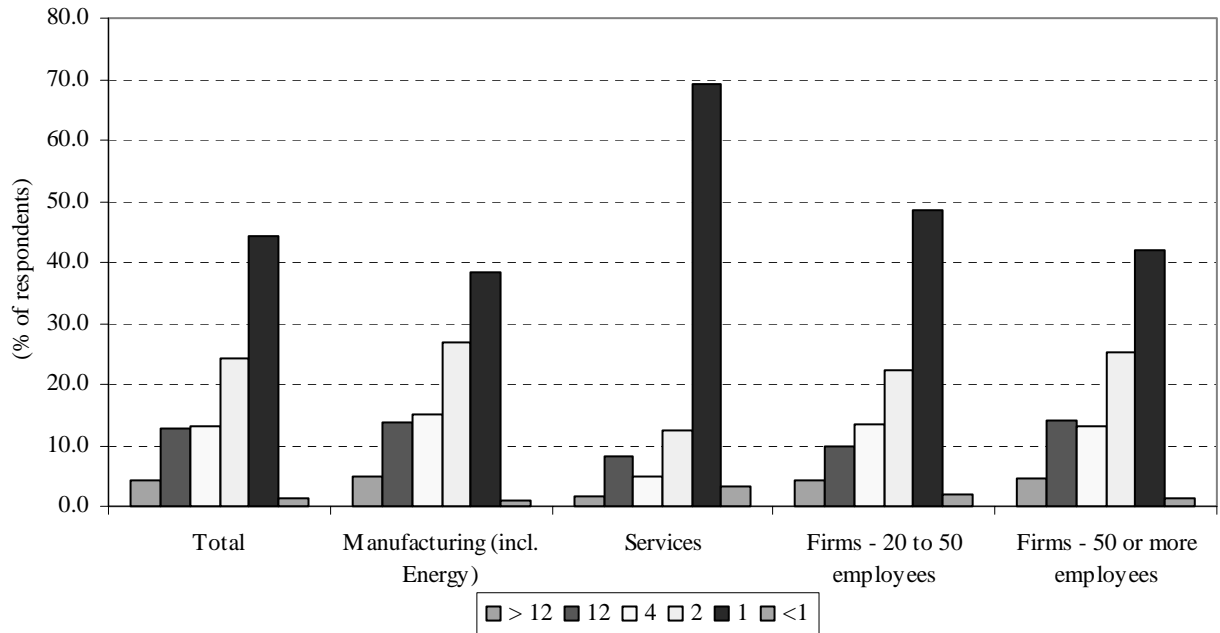
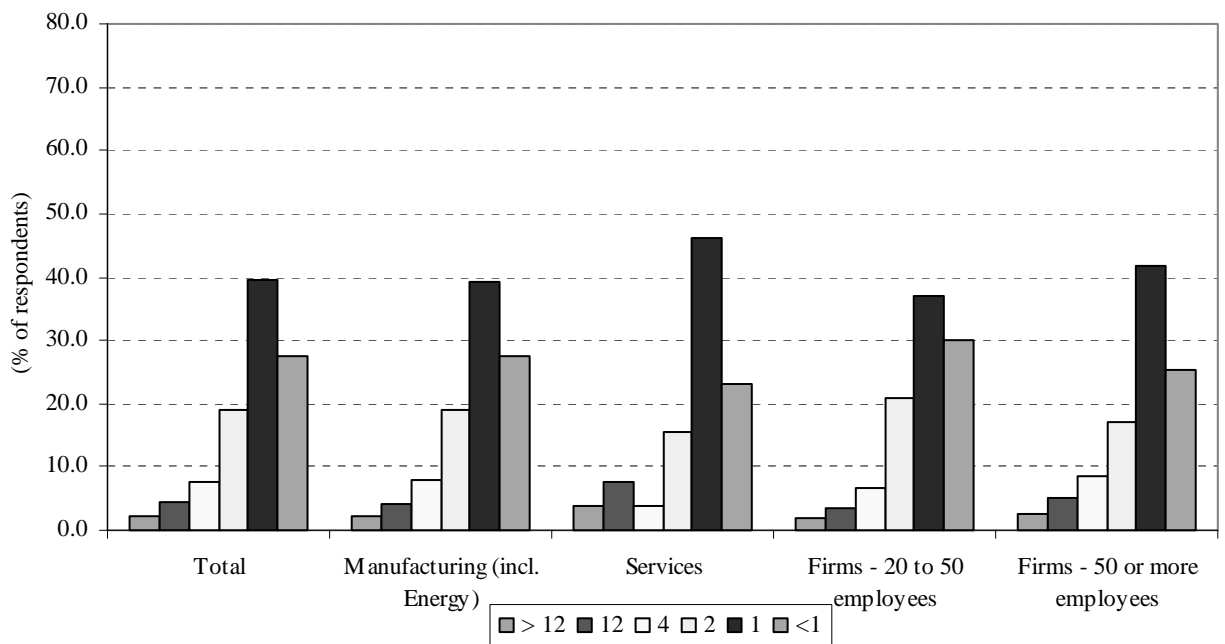


Chart 13 - Frequency of price reviews
(Question 19; number of times in a year)



Average frequency: Total=4.0; Manuf.=4.4; Manuf.+Energy=4.4; Serv.=2.6; Firms(20-50)=3.6; Firms(>50)=4.2

Chart 14 - Frequency of price changes
(Question 20; state-dependent firms; number of times in a year)



Average frequency: Total=2.3; Manuf.=2.3; Manuf.+Energy=2.3; Serv.=2.9; Firms(20-50)=2.1; Firms(>50)=2.4

Chart 15 - Evidence of the presence of a particular month where wages are most likely changed

(Question 31)

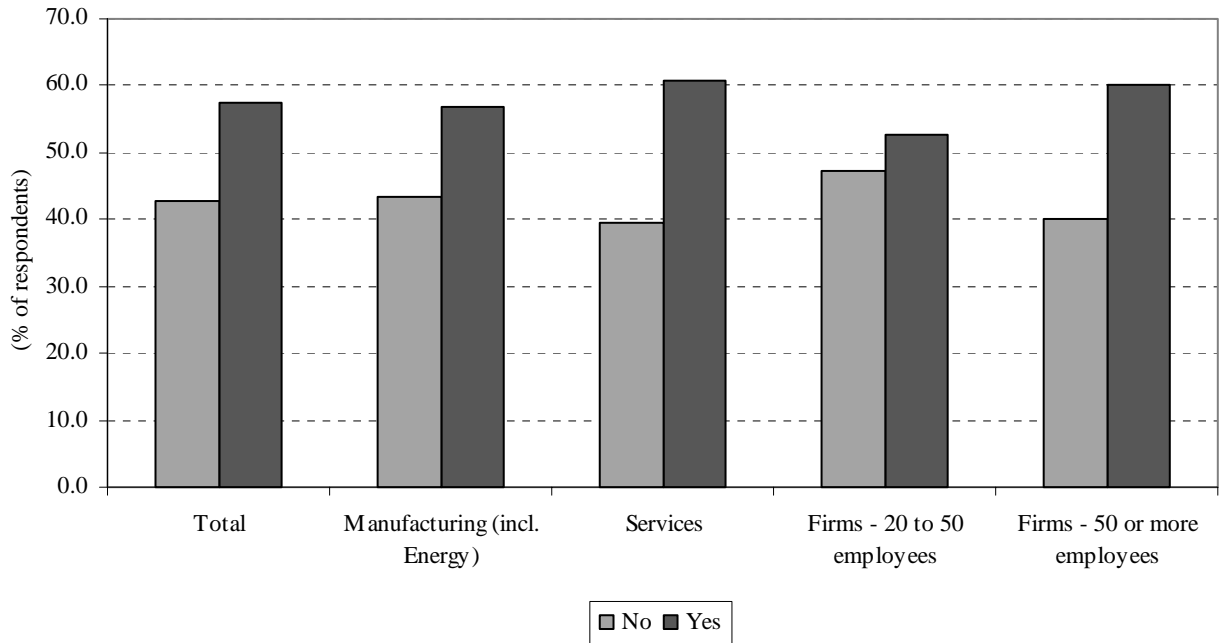
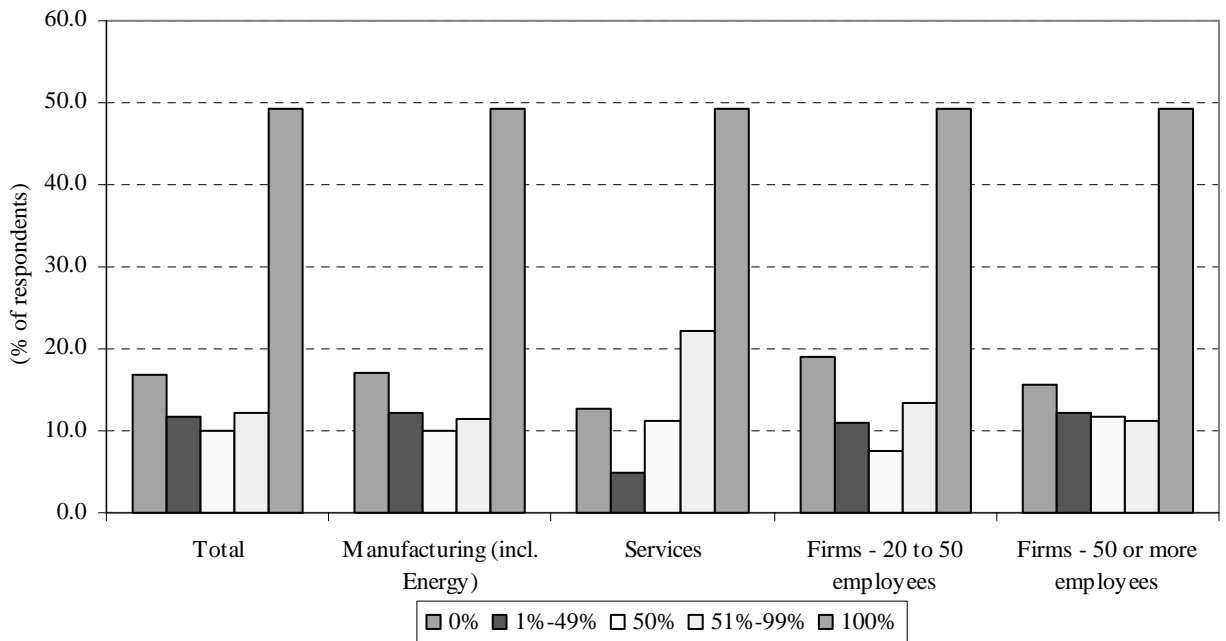


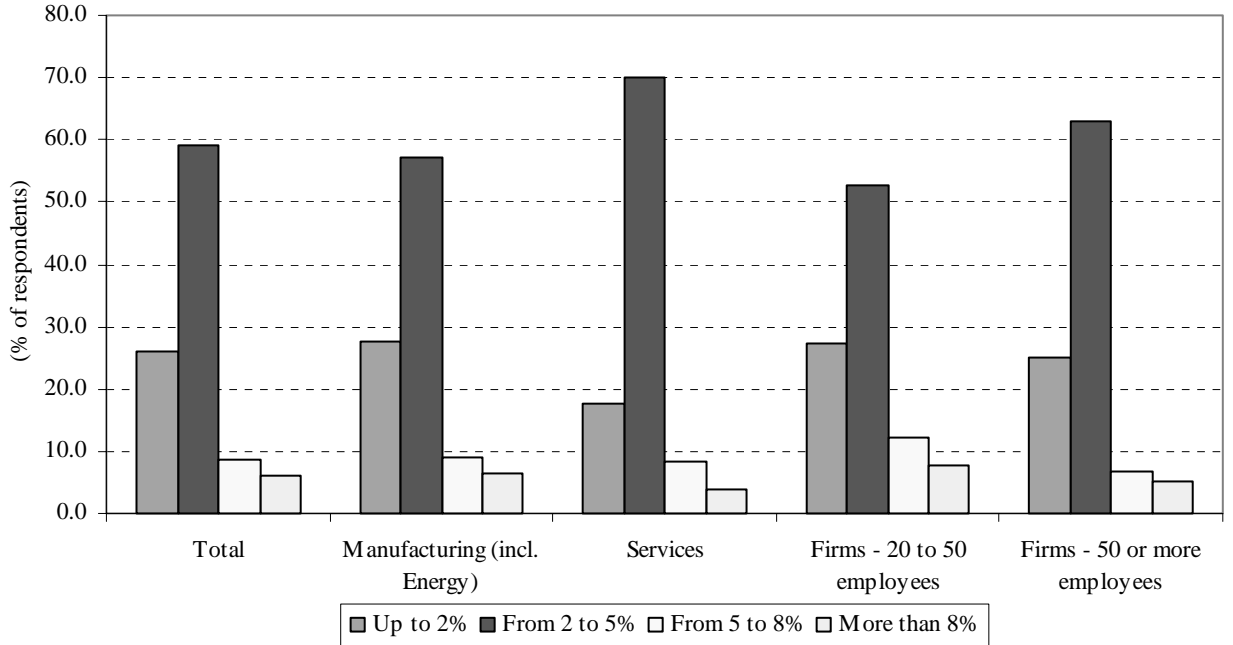
Chart 16 - Percentage of price increases in the most recent price changes

(Question 14)



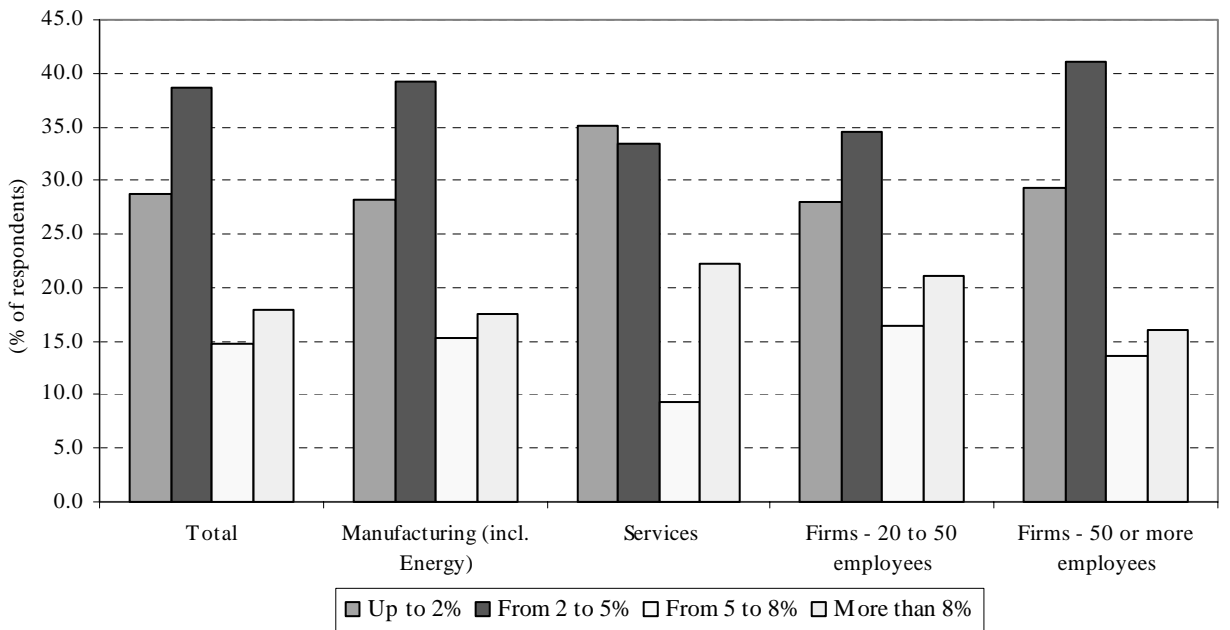
Average percentage: Total=68.8; Manuf.=66.7; Manuf.+Energy=66.6; Serv.=81.4; Firms(20-50)=68.3; Firms(>50)=69.0

Chart 17 - Average magnitude of the most recent price increases
(Question 15)



Average percentage: Total=3.5; Manuf.=3.5; Manuf.+Energy=3.5; Serv.=3.6; Firms(20-50)=3.7; Firms(>50)=3.4

Chart 18 - Average magnitude of the most recent price decreases
(Question 15)



Average percentage: Total=4.4; Manuf.=4.4; Manuf.+Energy=4.4; Serv.=4.3; Firms(20-50)=4.7; Firms(>50)=4.2