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Price, wage and employment response to shocks: evidence from the WDN survey[☆]

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ABSTRACT

We analyse the relative intensity and character of price vs. cost and wage vs. employment firm-level adjustment to cost-push shocks in the European System of Central Banks Wage Dynamics Network (WDN) survey data set. The results document several statistically significant and theoretically sensible relationships: price increases are less likely when product market competition is more intense, and more likely when collective wage agreements or employment protection legislation constrain firm-level reactions. We discuss how changes of such structural and institutional features of firms and of their environment may underlie the evolution of macroeconomic adjustment mechanisms in Europe.

1. Introduction

The distribution of shocks across prices, wages, and employment reactions is an essential element of microeconomic and macroeconomic adjustment. At the microeconomic level, reactions to market-originated shocks are shaped by structural features and by institutional constraints. In the labour market, collective bargaining privileges wage stability, and employment protection legislation aims at stabilising employment. Stable wages and stable employment are beneficial for uninsured workers, but labour market rigidity constrains labour (re) allocation reducing productivity and profits (see e.g. Bertola, 1999). Administrative and survey data are analysed from relevant perspectives by Guiso et al. (2005), Leonardi and Pica (2007), Cardoso and Portela (2009), and others. At the macroeconomic level, labour market rigidity prevents wage and employment changes from absorbing the impact of cost shocks, and makes it more difficult for monetary policy to achieve price stability as contractually pre-set wages anticipate future price increases. If labour markets are heavily regulated and weak product market competition endows firms with significant price-setting power, then (in the absence of appropriate economy-wide wage-setting coordination) energy prices and other supply shocks can easily trigger wage-price inflationary spirals.

We obtain novel insights on these important issues analyzing the Wage Dynamics Network (WDN) survey,[1] which collects information on a large variety of objective firm characteristics and elicits subjective responses regarding various aspects of its operations. An Online Appendix documents the data set's structure, which is meant to let researchers relate the behavioural features elicited by the survey to structural and policy factors. Companion papers analyze the evidence provided by the survey on specific other aspects, and obtain complementary insights to ours. Babecký et al. (2012) focus on the relationship between survey answers regarding wage rigidity and non-wage labor cost flexibility; Druant et al. (2012) analyze survey responses regarding the frequency

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[1] The WDN program, based at the European Central Bank in 2006–2009, coordinated the work of researchers from 24 European System of Central Banks member institutions.

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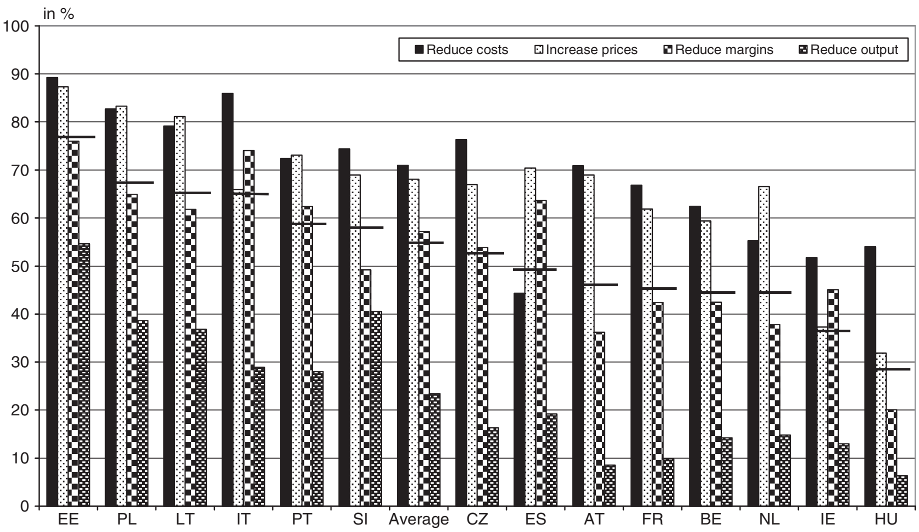

Fig. 1. Percentage of firms assigning "very relevant" or "relevant" to each adjustment strategy after a cost shock, by country.

and character of wage and price changes; Galuščák et al. (2012) focus on firms' answers regarding how the wages of newly hired workers are related to market conditions and to the wages of existing employees.

Like these papers, ours can exploit the rich structure and international span of the survey, and has to acknowledge that these data have important limitations. Their purely cross-sectional character prevents time-series analysis of dynamic phenomena, and subjective responses by busy managers are unavoidably imprecise in ways that may be compounded by subtle differences, across countries and cyclical conditions, in the phrasing and interpretation of qualitative questions. Nevertheless, the data prove able to provide robust and sensible evidence, and offer information that is complementary to, and consistent with, that provided by quantitative sources.

We focus specifically on how firms' reported reactions to hypothetical cost-push shocks depend on the intensity and the international character of output market competition, and on the incidence of collective-bargaining constraints on firm-level wages. The extent to which such shocks are passed through to prices, wages, and employment is clearly relevant to more general and topical macroeconomic issues, such as the consequences of oil-price increases like those observed in 2007–08 (when the survey was designed), as well as in previous and later episodes.[2] The data's rich structure makes it possible not only to identify the persistence and commonality of hypothetical shocks, but also to assess the relevance of structural and policy features that constrain and shape responses to shocks. We find that a significant (albeit small) proportion of the variation across countries and firms of price, wage, and employment adjustment strategies is empirically explained by structural and institutional features. Consistently with standard theoretical insights, product market competition reduces the relevance of price reactions to cost shocks, and cost adjustment is distributed across wage and employment reactions in ways that depend on the extent of firm-level wage flexibility and on the presence of temporary workers.

Section 2 reviews aspects of the survey's questions and structure that are relevant to the specific issues we address and to the interpretation of our results, and Section 3 outlines the theoretical considerations that motivate the empirical specifications. Section 4 investigates the influence of firms' characteristics on the reported relevance of price and cost adjustments. Section 5 examines the survey's evidence regarding preferred cost-adjustment strategies. In both cases, controlling for other relevant variables, the data offer robust evidence of the role of the structure of employment contracts (as regards their permanent or temporary character, and the presence of flexible wage components) in shaping firms' responses, and confirm that when product or labour markets are less competitive, then cost shocks spill-over more strongly into price or wage increases. Section 6 concludes discussing the arguably limited quantitative relevance and structural interpretation of some of the empirical correlations, and highlighting their implications for policy and further research.

2. Data

The survey asked firms for a qualitative assessment of their adjustment strategies in reaction to hypothetical shocks affecting all firms in the market: an unanticipated increase in the cost of an intermediate input (for example, an oil price increase), and an unanticipated and permanent increase in wages (for example, due to the renewal of a national contract). A total of 15,235 responses were obtained from firms located in the 14 countries listed along the horizontal axis of Fig. 1 and in Table A.1 in the Appendix, where summary statistics weigh the data so as to account for differences in sampling probabilities and non-response rates across observable characteristics of firms. These are all the countries where the survey was conducted except Luxembourg, and Germany and Greece where different phrasing and formatting of the questions and answers we analyze resulted in non-comparable data (see the Online Appendix for details).

The respondents were asked to consider four different adjustment strategies in response to cost-push shocks: an increase in prices; a reduction in profit margins; a reduction in output; and a reduction in costs. Each could be assessed as "very relevant," "relevant," "of little relevance," or "not relevant." There is clearly a lot of heterogeneity across countries as regards not only the character, but also the overall intensity of adjustment. In Fig. 1, the countries are sorted according to the means of the four percentages, shown by the black lines, which range from more than 75 percent in Estonia to less than 30 percent in Hungary. The bars in the figure show the percentage of firms that assign "very relevant" or "relevant" to the possible adjustment strategies. Moreover, Table 1 illustrates the average relevance of the four adjustment strategies across all countries. In response to a cost shock, approximately 70 percent of the respondents indicate that a

[2] Respondents were also asked about adjustment strategies in the aftermath of demand shocks. Fabiani et al. (2011) characterize, using methods similar to those of our paper, how structural and institutional features shape reactions both to the hypothetical demand shocks envisioned by the WDN data we analyze here, and to the actual shocks firms experienced in the course of the 2008–09 recession, when a follow-up survey was conducted by the WDN.