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ABSTRACT

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This paper summarizes evidence for the existence of a wage curve – a downward-sloping relationship between the level of pay and the local unemployment rate – in modern micro data. At the time of writing, the curve has been found in 40 nations. Its elasticity is approximately -0.1.

JEL Classification: J3, J4, J6, E24, E31

Keywords: wage determination, unemployment, wage curve, Phillips curve

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The wage curve is a statistical regularity or empirical 'law' of economics. It traces out, as in Figure 1, a downward-sloping relationship between wages and local unemployment. The curve's elasticity is approximately -0.1.

As an example, consider two regions within a country. Assume Region A's unemployment rate is double that in Region B. The wage-curve finding then states that a worker's wage will then be 10% lower in Region A than the wage of an identical worker in Region B.

To understand the wage curve's place in intellectual history, it is useful to go back to one of the oldest questions in economics, namely, that of how the price of labor is affected by the unemployment rate. Following an empirical tradition begun by the New Zealand economist A.W. Phillips (1958), this issue has traditionally been studied with aggregate time-series methods. Although its robustness is still questioned, the Phillips Curve, which is a relationship between wage growth and unemployment, has become part of the bedrock of macroeconomics textbooks. Sargan (1964) pointed out that it was possible to view the Phillips Curve as being consistent with a steady-state solution where the level of pay depends on the level of unemployment.

Blanchflower and Oswald (in, for example, 1994 and 1995) were among the first to argue instead for the use of microeconomic data in such a setting. Their book does not study the Phillips Curve, nor use aggregate data. Instead, using samples of individual workers, the authors' work documents the existence of a logarithmic curve -- what physicists would call a power law -- linking the level of the wage to the unemployment rate in the local area. Their book's conclusion is that, in sixteen nations, including the United States, the data are well described by a wage curve with an unemployment elasticity of approximately –0.1.

Since then, those conclusions have been checked, and largely replicated, by other researchers and on different nations' data. Examples include Hoddinott (1996) for the Cote d'Ivoire; Janssens and Konings (1998) for Belgium; Sabin (1999) for China; Bellmann and Blien (2001) for Germany; and Garcia-Mainar and Montuenga-Gomez (2003) for Spain. A recent study by Sanz-de-Galdeano and Turunen (2006) has used a large longitudinal data set on workers across the Euro Area and, once again, obtained a similar elasticity.

Evidence for a wage-curve pattern has been found in more than 40 countries. Its existence in the United States, however, is currently viewed as somewhat more controversial. One reason is that Blanchard and Katz (1997) argue for a Phillips Curve, rather than a wage curve, in United States data. Staiger, Stock and Watson (2002) and Card and Hyslop (1997) also report a high level of auto-regression in U.S. wages. In contrast, Hines, Hoynes and Krueger (2001) conclude that a wage curve specification has a more natural theoretical interpretation and fits the data (hours as well as wages) better than the Phillips Curve specification. Hines et al (2001) produce evidence of wage curves using annual and hourly earnings from the 1977-2000 March Current Population Survey files. The authors also uncover wage curves in the Panel Study of Income Dynamics. Using the PSID, Hines et al suggest that a 3 percentage point decline in the unemployment rate is associated with a 4 per cent increase in real wages, which translates into an elasticity similar to

the Blanchflower-Oswald number. Recently, Blanchflower and Oswald (2005) returned to the topic of the wage curve, and, in modern US data, argued that the United States has a long-run wage curve with the usual elasticity of -0.1 but that their previous book should have paid more attention to the high degree of auto-regression in US state wages.

The wage curve seems relevant beyond its implications for labor economics. First, macroeconomic analysis has for some decades stressed the need for microeconomic foundations. Second, some macroeconomics textbooks make extensive theoretical use of a wage curve (at the aggregate level), but do not provide evidence for it.

Wage curves have been reported for Argentina, Australia, Austria, Belarus, Belgium, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Côte d'Ivoire, Czech Republic, Denmark, East Germany, Estonia, Finland, France, Great Britain/UK, Holland, Hungary, India, Ireland, Italy, Japan, Latvia, New Zealand, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Turkey, USA, and West Germany. These studies are summarized in Blanchflower and Oswald (2005). A meta-analysis -- on a sample of 208 wage/unemployment wage curve elasticities from the literature -- by Nijkamp and Poot (2005) concludes that

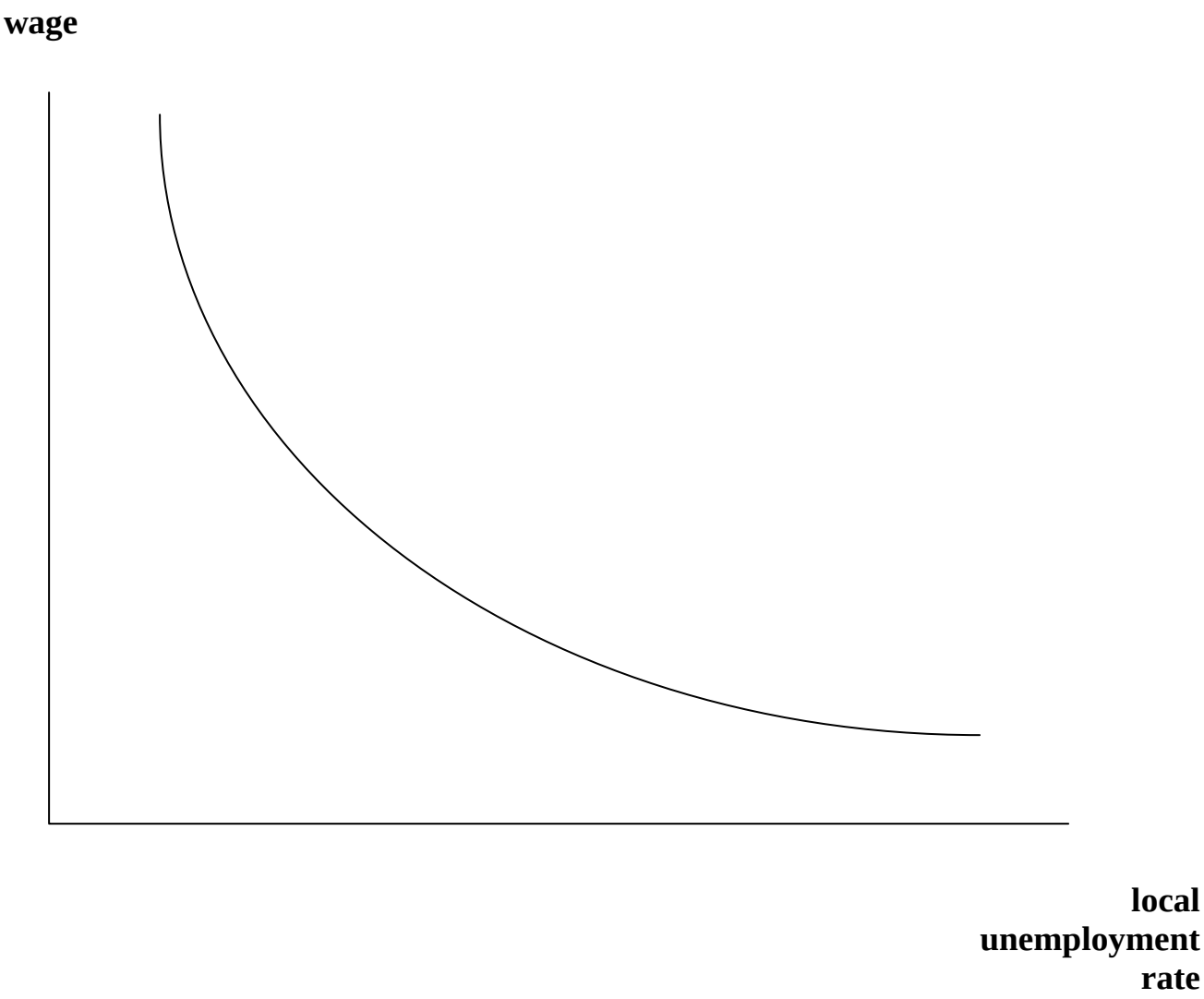
> "the wage curve is a robust empirical phenomenon … but there is … evidence of publication bias. There is indeed an uncorrected mean estimate of about -0.1 for the elasticity. After controlling for publication bias by means of two different methods, we estimate that the 'true' wage curve elasticity at the means of study characteristics is about -0.07".

Why the wage curve exists, however, is not so well-understood. One way to rationalize such a pattern is to appeal to non-competitive theories of the labor market -- for example to the idea of a no-shirking condition or a Nash bargaining-power locus. According to this kind of analytical framework, high local unemployment makes life tougher for workers (because, for example, they will find it harder to obtain work if laid off by their current employer), and therefore it is not necessary for employers to remunerate them so generously. The wage curve is then potentially an important element of a theory of equilibrium in the labor market such as in Shapiro and Stiglitz (1984) or Pissarides (2000).

Whatever the correct theoretical interpretation, new empirical results continue to emerge. Even in South Africa, where unemployment rates have run as high as 30%, Kingdon and Knight (2006) recently concluded that there is a wage curve with an elasticity of -0.1. Although its conceptual foundations will go on being debated, and more research, especially for the United States, is required, the wage curve appears to be a pattern that holds in many nations.

Figure 1

The Wage Curve



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