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Labor Demand in Latin America and the Caribbean
What Does It Tell Us?

Daniel S. Hamermesh

11.1 Introduction

The central questions in labor demand deal with the responsiveness of employers' use of various components of their inputs of labor to changes in their costs. This general rubric includes employment-wage elasticities for labor as a whole and for various labor subaggregates: elasticities of relative employment in different groups in response to changes in their relative costs; the patterns of employment change as scale expands and as capital deepens or improves in quality; the paths of employment as old equilibria are shocked and new ones are approached; and these same things for measures of labor utilization, such as hours per time period.

All of these have been very extensively studied, and the existing literature would seem to give a convincing degree of agreement on at least some of the central issues (see Hamermesh 1993). Nonetheless, not everyone is convinced about how much we really know on even the simplest question—the constant-output own-price elasticity of demand for aggregate labor (Topel 1998). Because this parameter is fundamentally important for understanding the impacts of such diverse policies as payroll taxation, subsidies for employment growth, and others, one wonders whether there is any hope of convincing skeptics that something can be known. Part of the reason for the skepticism may be the fact that most empirical research is based on labor markets in industrialized countries. Such studies suffer from the problem that exogenous changes in labor costs or restrictions on employ-

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ment demand are very rare in those countries, and when they do occur they are typically small. This means that researchers trying to identify structural parameters using these data must either rely on models that go to great lengths to establish the exogeneity of the labor cost measures, or they must search for tiny changes in employment and/or hours in response to the few tiny exogenous changes in labor costs. Neither approach is particularly satisfying.

So long as one believes that the underlying technologies are the same in developed and developing economies, data from the latter provide an ideal way to infer the sizes of important structural parameters. Broad swings in the political viewpoints of succeeding governments often lead to broad changes in labor market policy in developing countries. The major vicissitudes in policy can be exploited to allow inferences about these parameters that are based on large exogenous changes in labor costs. It is true that in many cases the data on labor markets in developing countries are not as complete as in developed economies, but in some cases they are, and in those instances the availability of good data that cover periods of widespread and substantial policy changes allows us to make inferences about labor demand that should be useful for students of labor market behavior generally.

In some instances Latin America and the Caribbean meet both criteria: Some of the policy changes are much larger, in terms of the size of the shocks, than we typically see in developed economies, and in many cases the data, especially establishment data, are very well suited to studying labor demand. The majority of these studies do meet these criteria. In particular, the Saavedra and Torero (2000) study of Peru and the Barros and Corseuil (2000) study of Brazil meet both of these criteria perfectly, while the others all at least cover periods in which the shocks are much greater than typically seen in industrialized economies. In what follows I examine what we can learn about these central issues in labor demand from recent studies of the economies of this region.

11.2 Evidence on the Overall Demand for Labor

The central parameter in the study of labor demand is the constant-output own-wage elasticity of employment demand. Hundreds of estimates of this parameter have been produced using a variety of methods and types of data (Hamermesh 1993). A large number of the recent Latin American and Caribbean studies generate estimates of this parameter. Moreover, while most of the studies in the literature use aggregate or industry data, many of the studies in this recent group produce their estimates using firm-level data, thus avoiding the aggregation biases that are likely to be severe in what are surely nonlinear economic relationships. Assuming measurement errors in these microdata are not a serious problem,

Table 11.1 **Latin American and Caribbean Estimates of Constant-Output Own-Wage Labor Demand Elasticities**

Country/Study	Data	Frequency/Time Period	Estimated Elasticity		
			Blue-Collar	All	White-Collar
Barbados/Downes et al.	Aggregate	Annual/1970–96		–.17	
Brazil/Paes de Barros & Corseuil	Establishments	Monthly/1986–97		–.40	
Chile/Fajnzylber & Maloney	Firms	Annual/1981–86	–.32		–.48
Colombia/Fajnzylber & Maloney	Firms	Annual/1980–91	–1.37		–.59
Mexico/Fajnzylber & Maloney	Firms	Annual/1986–90	–.42		–.44
Peru/Saavedra & Torero	Sectors	Quarterly/1987–97		–.19	
Uruguay/Cassoni et al.	2-digit industries	Quarterly/1975–84		–.69	
		Quarterly/1985–97		–.22	

even apart from the greater exogenous variation in labor costs that is likely in developing countries, the spatial disaggregation of the data gives these studies an advantage over most earlier studies.

In table 11.1 I summarize estimates of these elasticities from a number of recent Latin American and Caribbean studies. The methodologies of the studies are fairly closely comparable: All estimate equations describing the logarithm of employment as a function of wages and output, thus providing a direct estimate of this crucial parameter. All except the Barbadian study include at least one lag in employment as an additional regressor. Clearly and necessarily the results differ across the studies. In part, these differences arise from slight variations in the methods of estimation and in the data (their frequency, their level of spatial aggregation, and their definitions of the measures of labor costs). These differences may also be due to true differences in the nature of the technologies used in the different countries, perhaps differences in the output mix, perhaps true differences in the available means of producing the same product.

Despite the obvious differences, the results are remarkable for their apparent consistency. Taking the results for the four countries—Barbados, Brazil, Peru, and Uruguay—for which the estimates have been produced covering all employment, the average constant-output own-wage elasticity is –0.30. The estimates by Fajnzylber and Maloney (2000) are somewhat larger than the other estimates, but one must remember that they are based on employment disaggregated by a measure of skill, so it is unsurprising that they are bigger (more in the following). There is clearly a range of estimates presented here so that, as always with any group of empirical studies, no one particular estimate can be inferred as being "the truth." But taking

all the estimated elasticities together, one must infer that they reinforce the consensus estimate, –0.30, that I identified (Hamermesh 1993) from the many studies covering mainly industrialized economies and based mainly on more highly aggregated data. That we obtain a set of estimates whose central tendency is around –0.30 is also consistent with the observation that labor's share of output is around 2/3 in a Cobb-Douglas two-factor world.

That the estimates replicate the previous literature should in part lay to rest concerns that our knowledge of the size of this crucial parameter is too uncertain to allow us to make predictions about the likely impact of imposed changes in labor costs on the level of employment. The sizes of the shocks to labor costs in these countries, and their source in the sharp political changes that have swept over the region, suggest that concerns about identification that have led critics to question studies based on developed economies should be less severe here. As in Angrist's (1996) study of the West Bank/Gaza Strip, these additional estimates for developing economies suggest that our inferences from developed economies may be broadly applicable elsewhere.

Although estimates of the constant-output own-wage elasticity for homogeneous labor are the most common in the set of recent Latin American and Caribbean studies, these studies contain a variety of other implications for the analysis of long-run labor demand that merit attention. The Argentine study (Mondino and Montoya 2000) estimates the demand for employment and hours separately, including as regressors lagged values of each component of the labor input. The long-run wage elasticities generated in the study are thus measures of the responsiveness of the employment-hours ratio to changes in payroll costs (and are thus not included in the tabulation of labor demand elasticities in table 11.1). The long-run constant-output elasticity of employment to a change in labor costs, holding hours constant, is –0.94. This implies a substantial degree of worker-hours substitution and indicates that a rise in wages induces employers to work a smaller labor force more intensely each hour. Because the same elasticity based on the equation for hours is only –0.03, by inference a rise in labor costs does not alter the length of the workweek.

Because it disaggregates employment by a broad measure of skill, the three-country study by Fajnzylber and Maloney (2000) allows us to examine whether there are differences by level of skill in the long-run responsiveness to shocks to labor demand. This depends on the nature of the underlying possibilities for multifactor substitution among the types of labor and capital, but past studies suggest that there is an inverse relationship between the amount of skill embodied in a group of workers and the absolute value of the elasticity of demand for their labor. Except for the estimates for Colombia, this is not the case in this study. This apparent inconsistency with the literature may not be as disturbing as it seems at first glance, however. The level of skill in even the lower-skilled groups exam-

ined in studies of developed economies may be as high as the average in the white-collar groups summarized in table 11.1. Because the definition of skill is so fluid, the results here simply may not be comparable to those found elsewhere in the literature.

In their estimates for the Caribbean, Downes, Mamingi, and Antoine (2000) recognize that a well-enforced minimum wage that bites high into the distribution of earnings will have major negative effects on employment. Indeed, even though their estimates are based on aggregate data and thus include many workers whose wage and employment are unlikely to be affected by changes in minimum wages, they find this negative effect for Jamaica, where they specify a coverage-weighted minimum wage index (although not for Trinidad and Tobago, where a less complex index is used). The exact sizes of the estimated elasticities tell us nothing about the underlying structure of demand, because they depend on both the labor demand elasticity and the fraction of the workforce affected by the minimum, so I do not include them in table 11.1. Nonetheless, the results for Jamaica are consistent with standard inferences about long-run labor demand elasticities.

While I do not summarize their impacts in table 11.1, most of the studies other than that by Fajnzylber and Maloney (2000) include measures of the costs of employment regulations in addition to the direct measure of labor cost. Most specify these as representing the effect of the changing stringency of administrative regulations rather than the impact of endogenous changes in the actual costs of the programs. Indeed, perhaps the strongest point in some of these studies and their biggest innovation is the careful construction of these measures in an area where the literature is fairly sparse (Hamermesh 1993, chap. 8), and most studies simply look at before-after changes. That in their study of Peru Saavedra and Torero find significant reductions of employment in response to increases in the generosity of severance pay suggests that, as with the wage-cost measures that are included in standard labor demand equations, so too do other exogenous cost increases reduce employment demand. Mondino and Montoya (2000), who also carefully constructed a measure of the cost of employment regulations, find a similar result for Argentina.

Taken together, the Latin American evidence should add considerably to economists' and policy advisors' assurance in emphasizing the long-run economic costs of so-called job protection policies—their impacts on average levels of employment. They should underline the essential irrelevance of a spate of mathematically clever theoretical models based essentially on arguments about market imperfections that claim that such policies may actually increase employment (e.g., Bertola 1992). They should also make one very dubious about empirical results from cross-country comparisons that claim that such policies have no impact on employment levels, based on examinations of the estimated impacts of quickly constructed indexes of regulatory stringency in the labor market (e.g., OECD 1999).

11.3 Dynamic Labor Demand in Latin America and the Caribbean

Most of the recent Latin American and Caribbean studies allow us to examine the path of employment as the labor market moves between old and new equilibria in response to cost or output shocks. All of the studies specify smooth symmetric adjustment by including one or two lagged dependent variables in the labor demand equations. Thus, while they ignore the innovations in the study of the dynamics of factor demand that were pointed out in the 1990s (see Hamermesh and Pfann [1996] for a summary), their firm rooting in the standard literature on factor demand allows for ready comparisons.

Table 11.2 summarizes the speeds of adjustment of labor demand that have been estimated in the recent Latin studies. In each case I have calculated the speed as the number of time periods, t^*, for half the gap between old and new equilibria to be traversed. In these equations with a single lagged dependent variable the calculation is

$$t^* = \frac{\ln(.5)}{\ln \lambda}, \tag{1}$$

where λ is the coefficient on the lagged dependent variable. To facilitate comparisons across studies the table expresses t^* in quarters. That there may be temporal aggregation biases is well known and may explain why the estimates here and in the literature generally indicate slower adjustment the more highly temporally aggregated are the underlying data. Acknowledging this, however, except for the Brazilian study by Barros and Corseuil (2000), all of the estimated speeds of adjustment are slow relative to the typical estimates for developed economies. In the literature, generally, the best estimate is that the half-life of the lag in the adjustment of employment demand is around two-quarters (Hamermesh 1993, chap. 7), below all but the one exception listed in table 11.2.

We cannot determine whether the striking difference between these Latin estimates and the estimates in the general literature arises because adjustment is truly slower in Latin America, or because the dynamic specifications of the estimating equations are incorrect. For example, it may be that the assumption of smooth symmetric adjustment is incorrect, and any one of a large variety of alternative specifications would describe the dynamics in the data sets better. These would include lumpy adjustment, linear adjustment costs, and any kind of asymmetry. Perhaps the problem is especially severe in the context of a developing economy.

Findings in the literature for developed economies have also established some regularities in the estimated relative speeds of adjustment of the demand for different components of the labor aggregate and for different groups of workers. Mondino and Montoya's (2000) finding for Argentina that the demand for hours adjusts more rapidly than the demand for em-

Table 11.2 **Latin American and Caribbean Estimates of Speed of Adjustment of Labor Demand (in quarters)**

Country/Study	Data	Frequency/ Time Period	Half-life of Adjustment: Employment	Worker Hours	Hours
Argentina/Mondino & Montoya	Firms	Annual/1970–96	5.4		0.4
Brazil/Paes de Barros & Corseuil	Establishments	Monthly/1986–97		1.0	

	Data	Frequency/ Time Period	Half-life of Adjustment: Blue-Collar	All	White-Collar
Chile/Fajnzylber & Maloney	Firms	Annual/1981–86	8.8		4.0
Colombia/Fajnzylber & Maloney	Firms	Annual/1980–91	20.8		5.6
Mexico/Fajnzylber & Maloney	Firms	Annual/1986–90	14.4		19.2
Peru/Saavedra & Torero	Establishments	Quarterly/1987–97		5.1	
Uruguay/Cassoni et al.	2-digit industries	Quarterly/1975–84 Quarterly/1985–97		5.9 5.0	

ployees is consistent with both the large empirical literature for developed economies and with the observation that adjusting hours initially in response to what may be perceived as a temporary shock allows employers to avoid incurring the fixed costs of hiring and firing workers.

A comparison of the relative speeds of adjustment of the demand for blue- and white-collar employees in the Fajnzylber and Maloney (2000) estimates is less encouraging. In estimates for two of the three countries that they examine, adjustment is slower for blue- than for white-collar employees. This result is inconsistent with the widespread finding in developed countries' labor markets that adjustment speeds decrease with the skill of the work group (presumably because the fixed costs of hiring and firing are greater among more skilled workers). Why the results should be opposite this is unclear. Perhaps unions and other institutional arrangements restrict the adjustment of blue-collar employment more than that of white-collar employment; perhaps misspecification of the dynamics due to the temporal aggregation of the data is more serious in the equations describing blue-collar employment.

Beginning with Nadiri and Rosen (1969), a small literature has developed examining the linkages among the adjustment paths of several factors. The issue is whether greater speed in the adjustment of one produc-

tive input raises the rate at which another adjusts—whether the inputs are dynamic complements or not. There is no consensus in the literature on this point for any pair of inputs, and the results in the one Latin study that provides evidence on this issue do not help to pin down the answer to this question. Mondino and Montoya (2000) do include lags in hours per worker (employment) in the dynamic equations describing employment (hours). Unfortunately, the coefficients on lagged hours in the employment equation sum to 0.15, while those on lagged employment in the equation describing hours sum to –0.06. Perhaps the best conclusion is that there is little evidence for or against the dynamic complementarity of employment and hours per worker.

Increased product-market competition, such as would arise from greater openness to international trade, might be expected to spur employers to adjust more rapidly in response to shocks to costs or output. With competitors from other countries introducing new products and technologies, domestic producers become increasingly uncompetitive if they maintain antiquated staffing structures. Evidence for Mexico based on monthly data covering 1987–1995 (Robertson and Dutkowsky 2002) supports this hypothesis. Cassoni, Allen, and Labadie (1999) provide some weak evidence in favor of it too, because there was a slight rise in the speed of adjustment of employment demand as the Uruguayan economy became more open.

One of the central purposes of the recent group of Latin American and Caribbean studies was to examine how changing employment regulation, particularly job security laws such as those governing severance pay, affected the speed of adjustment of employment demand. (Heckman and Pagés [2000] discuss this at length.) The evidence on this issue in the literature (Hamermesh 1993, chap. 8) is sparse and conflicting. Much of it, like Barros and Corseuil's (2000) study for Brazil, is based on comparing speeds of adjustment pre- and postregulatory change and is inconclusive. Like the few other studies (e.g., Burgess and Dolado 1989) that actually try to measure the severity of regulations, Saavedra and Torero (2000) find in their panel of establishments that increases in a carefully constructed measure of the cost of severance pay slow the speed of adjustment of employment. Their results suggest that, if we hope to uncover their dynamic effects, there is a large payoff in empirical research on labor demand to specifying the details of labor market regulations.

11.4 Conclusions and Implications

No single study of an economic phenomenon, or even several studies, is ever highly convincing, because one can worry about the representativeness of the example and particular problems with the research design. The results of recent Latin American and Caribbean studies, however, based as they are on labor markets that have not been thoroughly examined using

modern econometric techniques and that have been characterized by relatively large shocks, should reinforce our confidence about the negative impact on employment of higher labor costs, both payroll costs and job market regulations. They should remind policymakers that in developing economies, as in developed ones, policies that may be socially desirable, but that raise labor costs or increase labor market rigidity, have negative consequences for the level of employment.

In many ways the strengths and weakness of these Latin American and Caribbean studies mirror those of the vast literature of labor demand. The estimates of static labor demand parameters seem generally reasonable—reasonably tightly estimated and consistent with an underlying theory that is fairly closely linked to the estimating equations. The estimates of the dynamics of adjustment are much less convincing, both in these studies and in the larger literature. This may be because the dynamic specifications are much less loosely linked to theory than are the static estimates. This difference suggests that further work on Latin America and the Caribbean should focus on more careful specification of labor market dynamics if we are to be able to draw inferences about the impact of shocks and labor market regulations on fluctuations in the demand for workers and hours.

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