How will labor markets adjust to the crisis? A dynamic view

William Maloney
LCR Chief Economist Office
March 2009

Tracking flows of workers among different sectors of employment during economic downturns can shed light on the mechanism of labor market adjustment and inform the design of safety net programs. Though patterns may differ across recessions, we find that the generally countercyclical rise in unemployment and informality is driven primarily by a reduction in hiring in the formal sector, rather than increased labor shedding. Further, changes in the rate of separations from informality are the largest determinant of changes in unemployment. Both suggest that safety nets should focus less on formal job loss per se and more generally on movements in family incomes, perhaps revealed through self targeting mechanisms.

Past crises suggest that as GDP falls unemployment and informality will rise. For Brazil and Mexico the elasticity of the unemployment rate with respect to output averages roughly -4.5; for unemployment and the elasticity of the share of the labor force in informal employment averages about .2.

Understanding the flows of workers among sectors that generate these movements in aggregates can help understanding the mechanisms of adjustment of labor markets during crisis, and inform the design of safety net programs. At any moment in time, changes in any labor market indicator, such as the unemployment rate, or the share of formal employment, is driven by changes in flows into and out of those employment states from and to other states. A change in the unemployment rate, for example, could be supported with a variety of combinations of flows. In the US literature, for example, Shimer (2007) and Hall (2005) among others have argued that most new unemployment is caused by employers ceasing hiring, rather than firing workers. The reason for this is an active subject of debate.

Following workers as they move among sector across several periods of economic downturn in Brazil and Mexico suggests several stylized facts about how Latin America's labor markets adjust to macro economic shocks.[1]

• Consistent with the US literature, the share of formal employment is procyclical with an elasticity of approximately .2-.3. That is, while not always the case, formal employment generally falls during recessions. This occurs primarily because of a reduction in hiring and hence greater difficulty of finding formal jobs from inactivity, unemployment and informal jobs rather than because of increased separation from formal jobs.

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[1] See Bosch and Maloney (2008) for details.

- Transitions between informality and formal employment, in fact, slow down during downturns. Conversely, in recoveries, flows increase in both directions suggesting increased matching across both the informal and formal sectors of the economy. The symmetry of flows, as opposed one where workers transit unidirectionally from unemployment to informality to formality to retirement suggests that job matches in the informal sector are not overall, considered inferior. The queuing view of informality as disguised informality is true for some, but not the majority of those holding informal jobs.

- The unemployment rate is countercyclical, rising as output falls, with an elasticity with respect to output of roughly -4.5. It is driven primarily by increased job separations of informal workers. Shedding of workers from the formal sector, while important, has not been the dominant driver.

- Informality is also countercyclical, not primarily because of increased shedding from the formal sector, but because unemployed workers cannot find jobs in the formal sector.[2] Fundamentally, informal job finding rates show much less cyclical volatility than formal ones and hence the sector winds up hiring a disproportionate number of job seekers in downturns.

- Together, these stylized facts offer an updated mechanism of the informal sector as a safety net, although without the connotation of a general inferiority of informal employment. The sector absorbs the majority of the newly unemployed, and contributes most to changes in unemployment. However, it is not primarily a direct safety net for those losing formal sector jobs.

Why does this matter?

Downturns differ from one another. At the most basic level, the elasticities of unemployment and formality vary across episodes within these two countries and we could expect the underlying dynamics to change as well. Hence, extrapolating the lessons from history to the present global crisis is not without risks. However, several implications emerge from the stylized facts presented above:

- Job loss in the formal sector is not sufficient as a targeting criterion. New entrants to the labor force, or family members seeking to augment falling real incomes will find themselves unable to access formal employment and will recur to the informal sector. Because no one in the family has lost a job, their declining prospects will not show up on official job registers.

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[2] More generally, the cyclical patterns can be more complex depending on the nature of the economic shock. From 1988-91 in Mexico, the informal sector *expanded* during the boom in non-tradables-construction, services, transport, a pattern also found in Brazil and Colombia at various times (Fiess et al 2008). However, the present shock is originating from the exterior largely through demand for exports which tend to be more formal sectors. The more straightforward interpretation as a negative shock to the formal sector is appropriate.

- To the degree that job loss is a criterion, the fact that most is from the informal sector suggests that tracking formal employment rolls, or targeting formal workers will miss a critical part of the story.

- The increased absorption of labor in the informal sector implies a fall in average earnings there. For instance, small business owners will see more competition from new entrants in the midst of a decline in overall spending. Again, average family incomes, rather than job loss per se, needs to be a central focus of targeting efforts.

- The increased rate of job separations from the informal sector suggests that, while the informal sector is absorbing more workers, it is doing so in a dynamically frenetic way, shedding labor at a very high rate as well. This may arise because many of the new entrants to the sectors soon find their micro enterprise to be unviable. Informality is thus something of an unstable safety net.

- That said, informality cannot be considered a criterion in itself for social protection expenditures. In good times, opinion surveys in both countries confirm the view gleaned from the transition patterns above that a substantial majority consider self-employment an attractive sector to enter. In times of crisis, the relative share of involuntary entrants rises, but a sizable share remains voluntarily informal (see annex II). The informal salaried in both good and bad times are substantially less voluntary than the self employed (see Perry et. al 2008).

Policy

- Policies seeking to preserve jobs by raising the costs of firing are unlikely to have first order effects since formal sector separations are not the primary drivers of unemployment and informality growth. In fact, they may further depress hiring in the formal sector by increasing the long run labor cost.

- Targeting should be based more on family income than on registered job loss. Unfortunately, because of the CCT's reliance on means testing for targeting, sudden falls in family income with moderate duration may be missed by infrequent periodicity of means testing. That said, the fact that in Mexico, children do drop out of school when a parent loses a job suggests a need for the kinds of incentives that CCTs offer.

- A self targeting system such as envisaged in workfare programs such as Trabajar or the PET can obviate the need for means testing. For instance, setting the program wage sufficiently low means that only those truly in need will apply for the program.

- The choice of types of works programs, whether simple with low materials content or more sophisticated infrastructure projects with a lower budget share transferred to workers depends substantially on the local context and bjectives of the government.[3]

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[3] See Ravallion (1999) and Maloney (2000)

Annex 1: Details on adjustment mechanisms

Fujita and Ramey (2007) offer a means of decomposing movements of labor market aggregates, such as the unemployment rate, or the share of formal employment into the principle contributions of flows to and from different sectors. Table 1 reports this breakdown for Brazil and Mexico, across a long period, and during times of crisis. In general, between 85 and 80% of movements in the unemployment rate are driven by inflows from informality (I). Outflows reductions in outflows to formal jobs (F) contribute roughly 20%; to informal salaried work, relatively little, and to self employment (S), essentially zero.

Table 1: Relative Contribution of Flows to Aggregate Movements in Unemployment and Formal Employment (In percent)

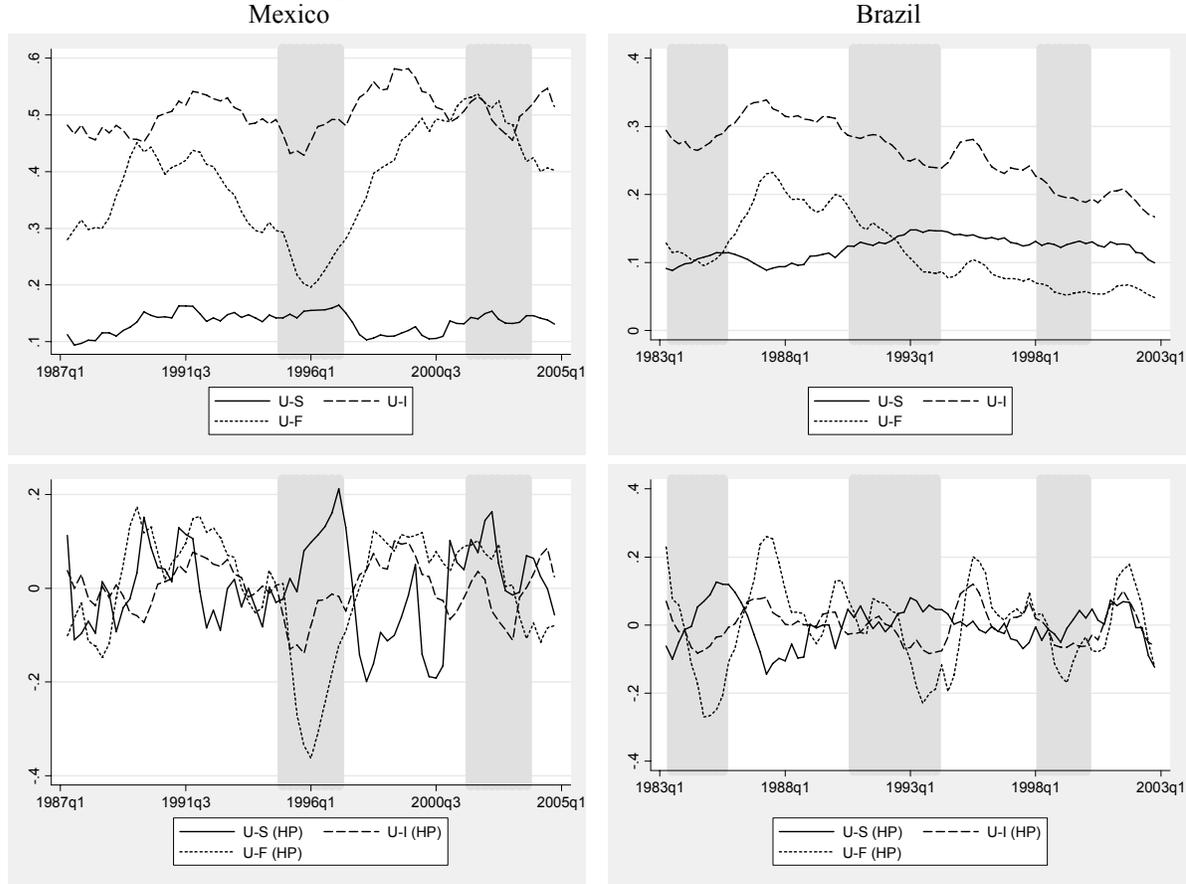|	Unemployment Rate				
	I-Inflows	Outflows-F	Outflows-I	Outflows-S	Error
Whole Sample					
Mexico	0.82	0.20	0.02	-0.03	-0.01
Brazil	0.69	0.22	0.11	-0.03	0.01
Recession					
Mexico	0.76	0.24	0.04	-0.01	-0.02
Brazil	0.65	0.26	0.09	0.00	0.00
	Formal Employment				
	I-flows	Outflows-I	Outflows-S	Outflows-U	Error
Whole Sample					
Mexico	0.69	0.08	0.01	0.19	0.04
Brazil	1.22	-0.21	-0.16	0.18	-0.02
Recession					
Mexico	0.84	-0.05	-0.01	0.17	0.05
Brazil	1.31	-0.15	-0.22	0.08	-0.02

Notes: The table presents the contribution of the cyclical component of each flow to cyclical volatility of the unemployment rate and the share of formal employment for Mexico and Brazil following Fujita and Ramey, 2007. We define recession as output below trend. O=Out of the Labor Force, U=Unemployment, E=Employment, S=Informal Self-Employed, I=Informal Salaried, and F=Formal Sector, all as proportions of working age population. Data for Mexico (left panels) is drawn from the quarterly National Urban Labor Survey (ENEU) from 1987:Q1 to 2004:Q4. Data for Brazil (right panels) is drawn from the Monthly Employment Survey (PME), quarterly averaged from 1983:Q1 to 2001:Q2.

Underlying these results are differing responses of flows among particular sectors to downturns. Figure 1 presents the raw and detrended job finding probabilities across time in Brazil and Mexico. The former are somewhat clearer, however Brazil experienced a steady rise in informality across the sample period and this evolution muddies somewhat the cyclical patterns. What is clear is that flows from unemployment into formal employment show the greatest volatility across the cycle, decreasing more than any other sector of employment during downturns.

Figure 2 shows the analogous series for job separations. In this case, transitions from formality to unemployment vary far less than either flows from informal salaried work or informal self employment.

In the simulations underlying table 1, the contribution of each possible flow to the evolution of unemployment and formal employment is undertaken by modeling how all flows interact to generate these aggregates, and then sequentially holding one flow or another fixed and measuring the resulting impact on the evolution of the aggregate.

Figure 1: Job Finding Rates from Unemployment (Levels and Cycle): Mexico and Brazil

Figure 2: Job separation Rates towards Unemployment (Levels and Cycle): Mexico and Brazil
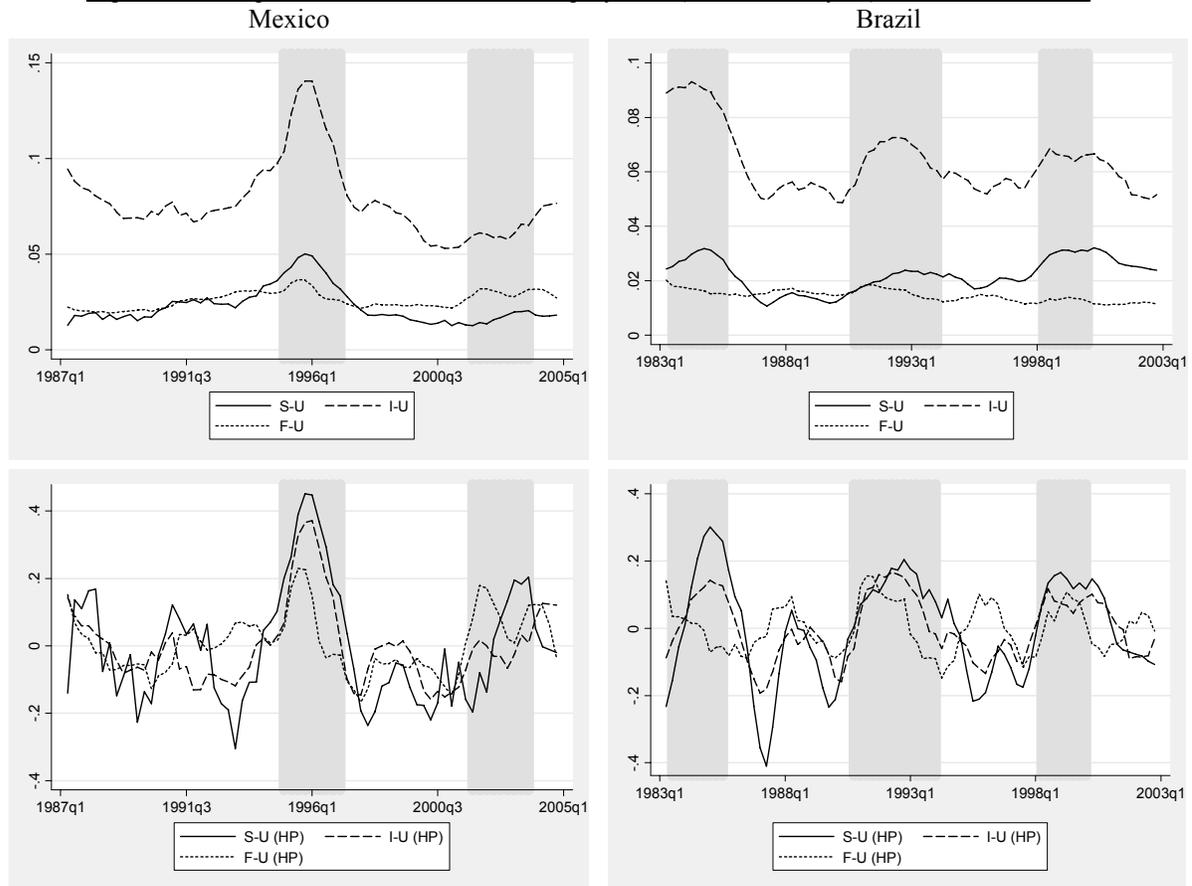
Notes: Figure 1 shows the transition rates from unemployment (U=Unemployment) into the three employment sectors (S=Informal Self-employed, I=Informal Salaried, and F=Formal Sector). Figure 2 shows the transitions rates into unemployment (U) from all three sectors of employment. Transition rates are inferred from the continuous time transition matrix for each period obtained following the procedure by Geweke et al. (1986) outlined in Bosch and Maloney (2009) Section III. Computations are based on 10.000 Monte Carlo replications. The series have been smoothed using a 4 quarter moving average to remove high frequency fluctuations. The bottom panels shows the series logged and de-trended using an HP filter with lambda 1600. Data for Mexico (left panels) is drawn from the quarterly National Urban Labor Survey (ENEU) from 1987:Q1 to 2004:Q4. Data for Brazil (right panels) is drawn from the Monthly Employment Survey (PME), quarterly averaged from 1983:Q1 to 2001:Q2. Shaded areas indicate recessions.

Annex II: Cyclical changes in the level of disguised unemployment in the informal sector

The Mexican employment survey suggests that there is a component of informality that correspond to disguised unemployment and which varies as expected over the business cycle.. Figure 3 plots the proportion of workers who respond positively to the question "Have you been looking for a job over the last two months?" and who had not changed employment status from the quarter before as a possible proxy for the degree of dissatisfaction with the current job coupled with the availably of alternative jobs. Search

intensity is generally higher in the informal salaried sector, perhaps, reflecting the relative youth of that group although the magnitudes (and hence differences) are not large: in the upturns of mid-1990s and 2000, search rates were equal across sectors at roughly 1-2%. These very low levels suggest that we may not be fully capturing the degree of involuntariness in the sector. As additional information, the National Microenterprise survey suggests that in 1992, roughly 65% of those entering informal self employment from formal salaried work replied doing so voluntarily. The rate of search is equivalent to the formal sector at this time, and somewhat below the informal salaried sector suggesting a higher degree of involuntary entry there.

The share searching is strongly countercyclical implying that as the labor market becomes slack and the access to the formal sector from all sectors decreases, dissatisfaction increases. In the informal sectors, the percentage searching for better jobs peaks at just under 7% during the 1995 crisis, a gap of slightly over 4% points over the formal sector . This suggests that in fact the sector contained more workers who were forced into bad matches. This makes sense if during the crisis only the informal sector was hiring and absorbing more unemployed as a share of the workforce than during booms.

Figure 3: Searching While Employed: Mexico
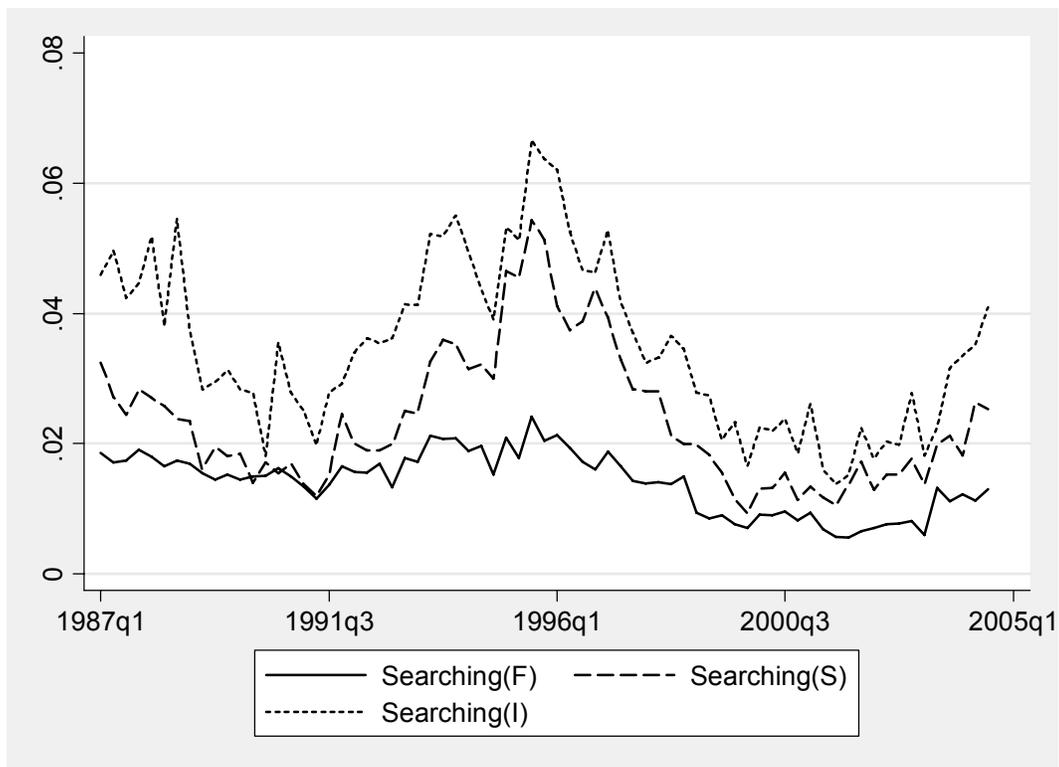
Note: Quarterly data from the National Urban Labor Survey (ENEU) 1987:Q1 to 2004:Q4. Searching (j) refers to the proportion of employed workers in sector j who claim to be looking for a new job and have not changed employment status in the previous quarter.

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