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Effects of the 2008–09 Economic Crisis on Labor Markets in Mexico

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Abstract

The 2008–09 economic crisis has had a long-lasting negative impact on the Mexican economy. This paper examines labor market dynamics in Mexico in light of the crisis. The labor market has been characterized in recent years by low relative unemployment, but high levels of informal jobs, low-growth, and almost stagnant real wages. In this context, the crisis destroyed a wide number of formal jobs, and even informal, increasing the unemployment rates to pre-crisis levels. Manufacturing was the sector that endured the largest job losses during the crisis and wages decreased for all sectors. The government of Mexico implemented a variety of programs to cope with the crises. However, these measures were too limited to counteract the large negative impact of the crisis on labor markets.

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EFFECTS OF THE 2008-09 ECONOMIC CRISIS ON LABOR MARKETS IN MEXICO[1]

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1. Introduction

The economic crisis that hit worldwide during 2008-2009 produced a slowdown in economic activity and a significant reduction in the number and quality of jobs. Even though the severity of the crisis has differed by country or region, none has escaped its effects to some extent.

How governments implemented effective policies to spur growth and reduce the negative effects of the crisis on labor markets (for example, incorporating most of the laid off back again into employment) is worth analyzing to draw conclusions and policy lessons for the future. Countries like Germany or Brazil have been more successful than Spain or Mexico in containing the negative effects of the crisis on the labor market. This discrepancy deserves further analyses.

The labor market dynamics of Mexico have been characterized in recent years by low relative unemployment, but high levels of informal jobs, and low-growth, almost stagnant, real wages. These dynamics have been affected by the crisis. Unemployment rates usually were around 3.5 percent and after the crisis increased to about a persistent 5.5 percent. The levels of informality, measured as access to social security benefits through an employment contract, have been high. In 1993, informality was around 63 percent of total employment and increased to about 66 percent recently. This acted as one of the main mechanisms to adjust the labor market. During the crisis, average real wages declined in almost all economic activities and no increase has been recorded during the recovery. Real wages are lower compared to pre-crisis levels. Whether unemployment rates will continue to be relatively high, as a new bottom, and informality can continue absorbing workers in the sector is a matter of interest for the implementation of public policies and regulation reforms aimed at reliving the lasting effects from the 2008-09 crisis.

The aim of this paper is to describe in detail the effects of the crisis on the labor markets in Mexico and discuss the policies implemented by the government to cope with the crisis. In sour analysis, we identify the groups most affected and how policies adopted helped these groups weather the crisis. In addition, we compare public spending plans to fiscal mechanisms and other policies to drawn some conclusions about their effectiveness.

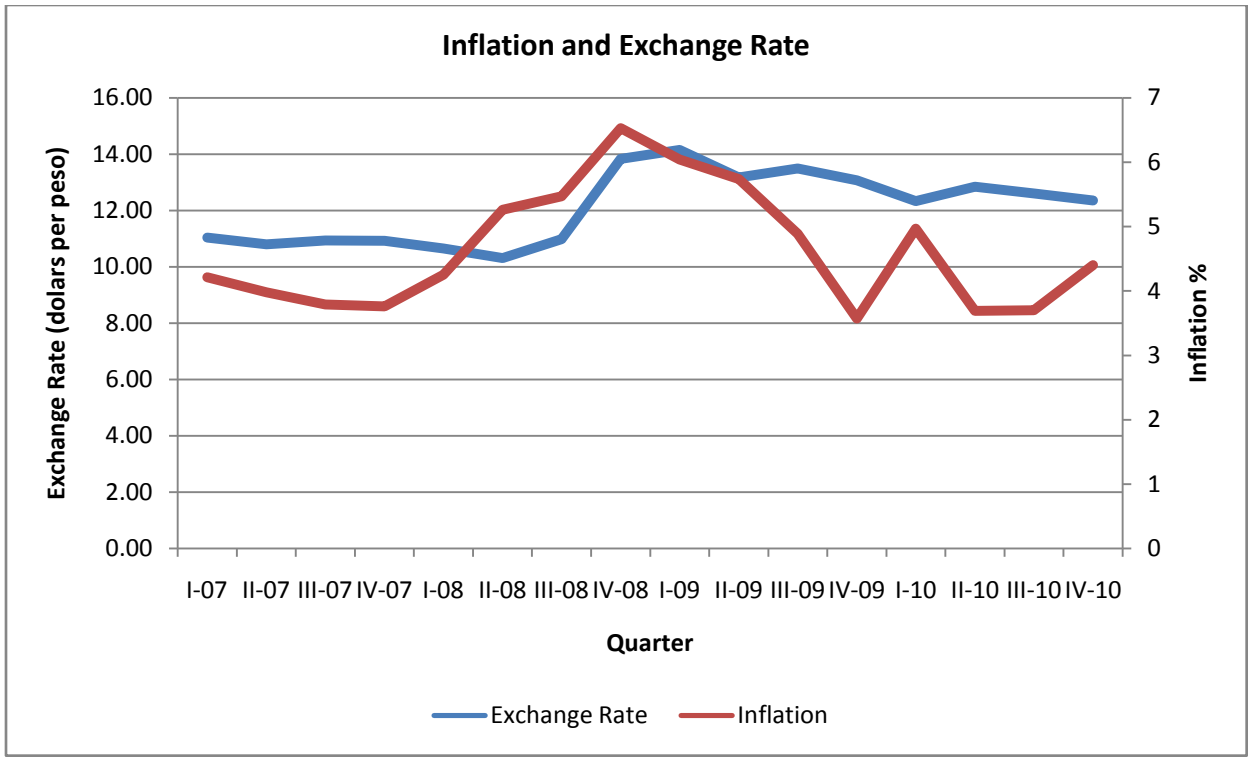
2. The Economic Crisis and Mexico's Labor Market

Real GDP growth in Mexico has been uneven over the last decade. Whereas in 2000 GDP grew at a rate of 6.6 percent, growth was only 3 percent in 2005, and 3.5 percent in 2007, just before the crisis. Growth decomposition studies (Bergoeing et al., 2002; Faal, 2005) show that moderate output growth in Mexico is mainly due to accumulation of production factors rather than higher levels of productivity. The sharp decline in productivity growth during the 1980s is generally attributed to the impact of macroeconomic instability on economic activity and investment. Subsequent progress over the past decade in attaining macroeconomic stability and opening up the economy to trade and investment flows in the context of bilateral trade agreements has contributed to a steady though

modest increase in productivity growth. Key factors cited in various studies to explain why Mexico has not grown as fast as other countries (see, for example, OECD, 2009) include relative weaknesses in education, infrastructure, financial development, and the rule of law, as well as anticompetitive and restrictive regulation of product and labor markets (Loayza and Palacios, 1997; Rodríguez-Oreggia, 2010).

The Mexican economy was hard hit by the financial crisis and the increase in international food prices in 2008. The inflation rate has been on declining trajectory since the end of 2008 while the exchange rate has experienced a slight increase (figure 2.1). The collapse of external demand, particularly in durable consumer goods, in the last quarter of 2008 and the first half of 2009 led to an almost immediate and severe downturn in economic activity. The loss of employment and the high level of uncertainty and risk brought by the economic crisis contributed to a fall in private consumption and investment, further reducing aggregate demand and inflationary pressure.

Figure 2.1: Annual Inflation and Exchange Rate

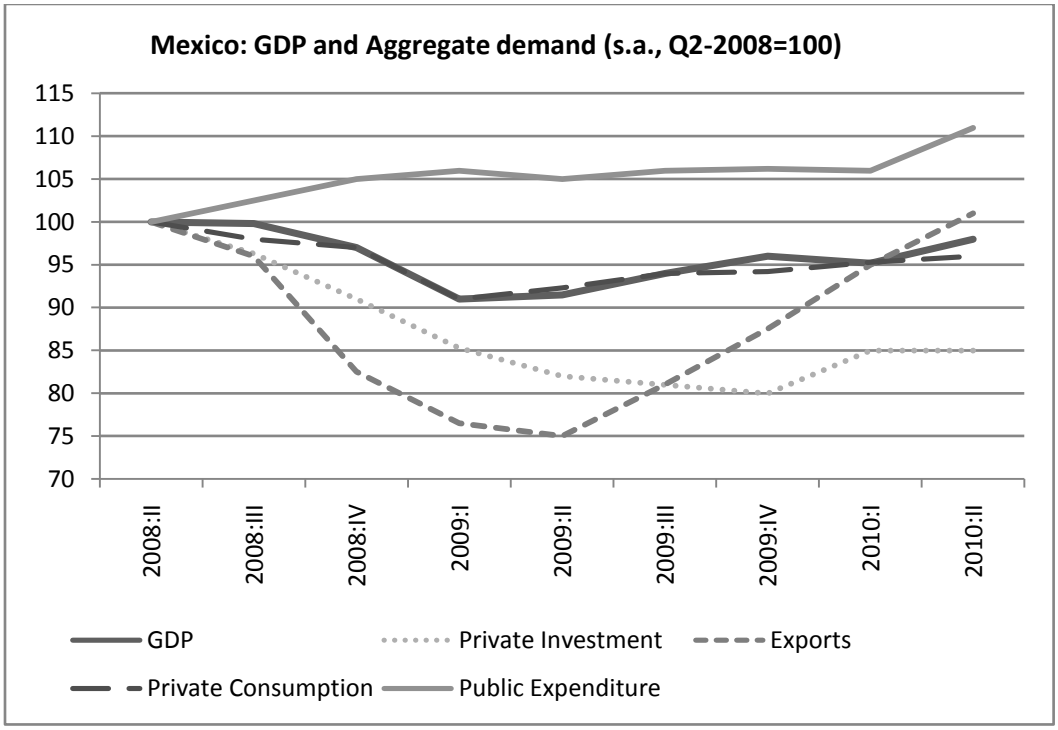


Source: Data from Central Bank of Mexico.

A subsequent rebound in external demand as of the second half of 2009 gave rise to a recovery, even though private consumption and investment are trailing behind and have not yet contributed significantly to the upturn of economic activity. Figure 2.2 depicts levels of economic activity and the main components of aggregate demand, showing that by the second quarter of 2010 GDP was still slightly below its pre-crisis level. A similar scenario occurred for private consumption and

investment, whereas the level of exports has returned to its pre-crisis level and public expenditure never dropped. Public expenditure, however, slightly increased even during the economic crisis. Recovery mostly seems to have come from the export increase.

Figure 2.2: GDP and Components of Aggregate Demand during the Crisis



Source: World Bank (2010).

The large contraction of economic activity by 6.5 percent in 2009 created a particularly large output gap. This could mean that the economy will grow for some years at a level moderately above its potential rate of growth; that is, absorbing excess capacity instead of creating inflationary pressures or absorbing new employment. In 2009, the government opted to maintain the same level of expenditures as in the previous year despite large drops in public revenue. Then the government initiated a process of fiscal consolidation by increasing taxes and containing public expenditures. The increase in taxes and public sector prices may have led to consumer price inflation by the end of 2010 compared to 2009. The government also opted to increase the level of international reserves to mitigate potential further financial shocks.

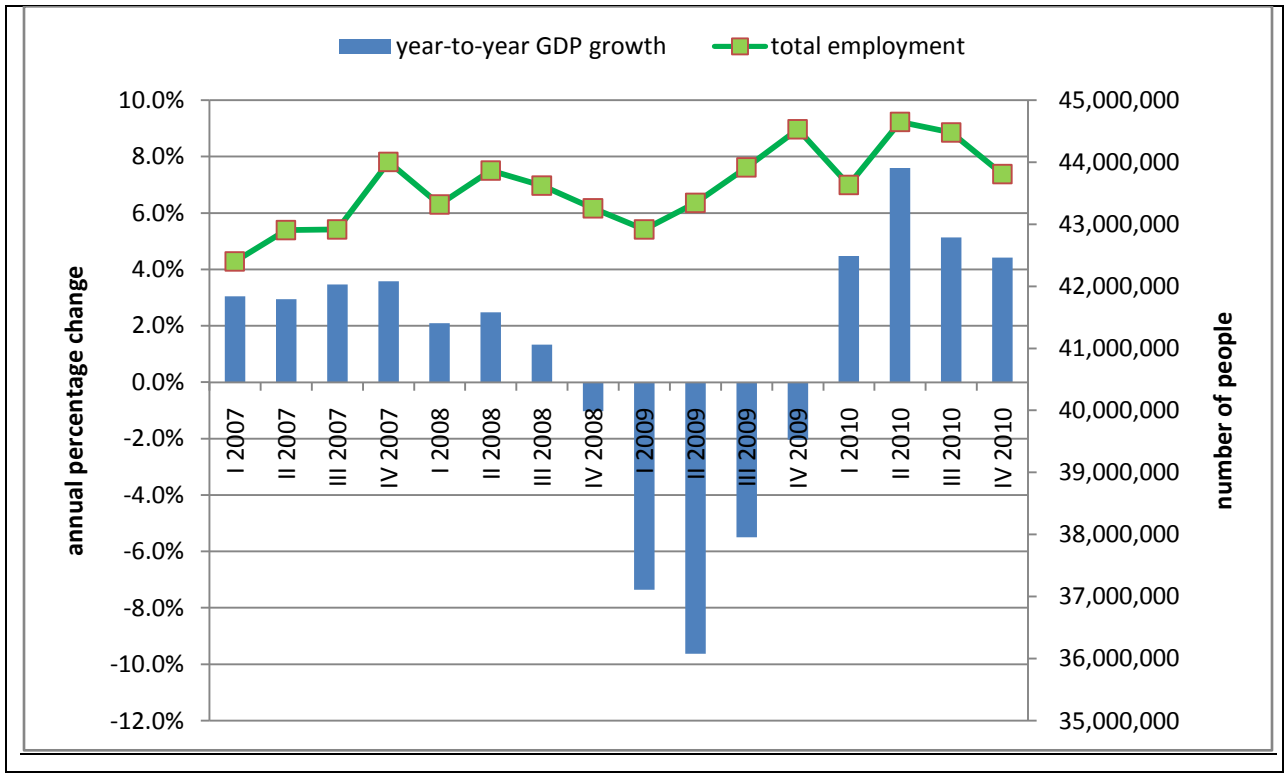
During the crisis, the central bank intervened in foreign exchange markets by providing foreign currency liquidity to the private sector. The Mexican peso increased in the last quarter of 2008 and has remained steady since then. Monetary policy has taken place within a medium-term inflation targeting framework of 3 percent. The central bank eased monetary policy in January 2009. In retrospect, the crisis did not have severe exchange rate, monetary, or financial consequences in

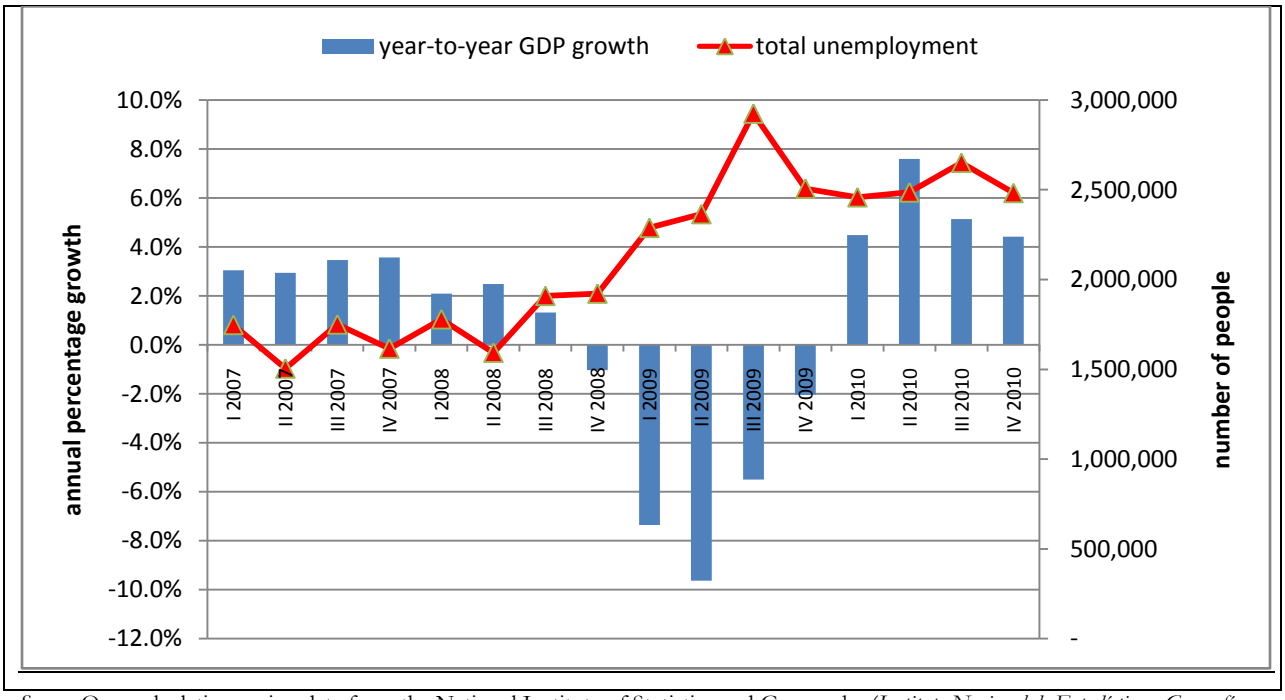
Mexico. Inflation was under control, credit did not collapse, and no financial institution required intervention. In this regard, this crisis was very different from previous crises in the country, with effects concentrating in this case on the real side of the economy only (that is, output and employment).

Total employment (figure 2.3, top panel) declined for the last three quarters of 2008 and the first of 2009, after which there were several consecutive quarters of positive job creation. In the second quarter of 2008, just before the crisis started, total employment was about 43.9 million workers, declining to 42.9 million in the first quarter of 2009. Employment growth then resumed, reaching a peak in the fourth quarter of 2009 with 44.5 million workers.

Despite significant job creation for most of 2009, total unemployment by the end of 2010 was 0.9 million workers above pre-crisis levels (figure 2.3, bottom panel). This indicates an economic crisis that, on the one hand, produced a rapid decline and recovery in total employment but, on the other hand, has not been able to produce enough jobs during the recovery so that unemployment returns to pre-crisis levels.

Figure 2.3: Total Employment and Unemployment, 2008–2010





Source: Own calculations using data from the National Institute of Statistics and Geography (*Instituto Nacional de Estadística y Geografía*—INEGI), the Economic Data Bank (*Banco de Informacion Economica*—BIE), and the Mexican Occupation and Employment Survey (*Encuesta Nacional de Ocupación y Empleo*—ENOE), 4th quarter 2010.

By March 2011 total employment had recovered, but unemployment and informality rates still compared unfavorably with the situation during the worse of the crisis. Even though the Mexican labor market has shown signs of an irregular recovery during the last months, as of early 2011 it remained in worse condition than before the crisis. The unemployment rate, which reached the almost record high of 6.41 percent in September 2009, declined every month (with the exception of the seasonal peak of January) to 4.81 percent in March 2010 but then rose to above 5 percent for most of 2010 (see figure 2.4). It again rose above 5 percent in April 2011 and reached 5.2 in June 2011. Thus, unemployment has hovered above 5 percent since October 2009, which is above the pre-crisis level. The 12-month average unemployment rate has flattened out but it is nearly 2 percentage points above the average in early 2008. A significant reduction in unemployment is still needed to grow the workforce to pre-crisis levels.

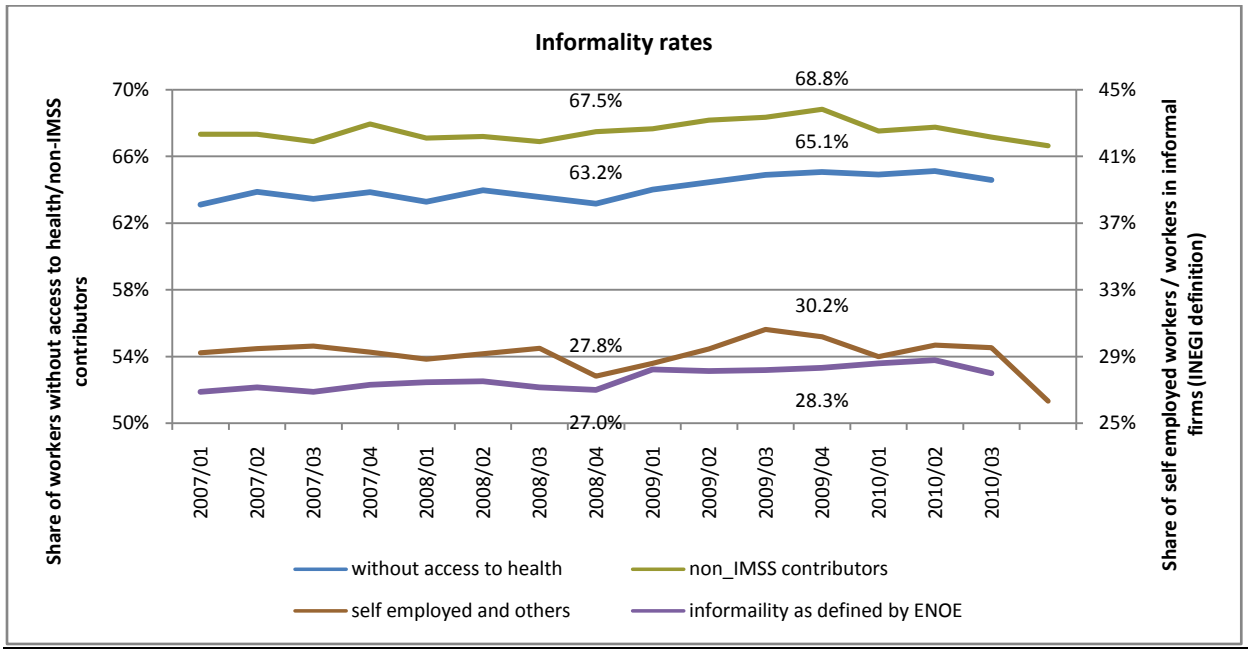
Figure 2.4: Monthly Unemployment Rate

Source: Own calculations using data from INEGI, BIE.

Informal employment also showed a slight increase during all quarters of year 2009, but declined quarter after quarter in 2010. All definitions of informal employment regularly used in studies for Mexican labor markets show an upward trend during 2009 and a downward trend in 2010. Informality rates that measure lack of access to health or social security show an increase of nearly 2 percentage points between the fourth quarters of 2009 and 2008. Informality rates that concentrate on self-employment or on informal home-firms also show an increase.[2] Preliminary numbers of the share of self-employed and family workers within total employment and the share of workers not affiliated to the social security also show an important dip in the fourth quarter of 2010 (see figure 2.5).

2 INEGI's definition of informal employment is the percentage of employed workers who have a job in home-firms that have no accounting or fiscal registry. We use an alternative definition as well, measured as access to social security benefits in the job.

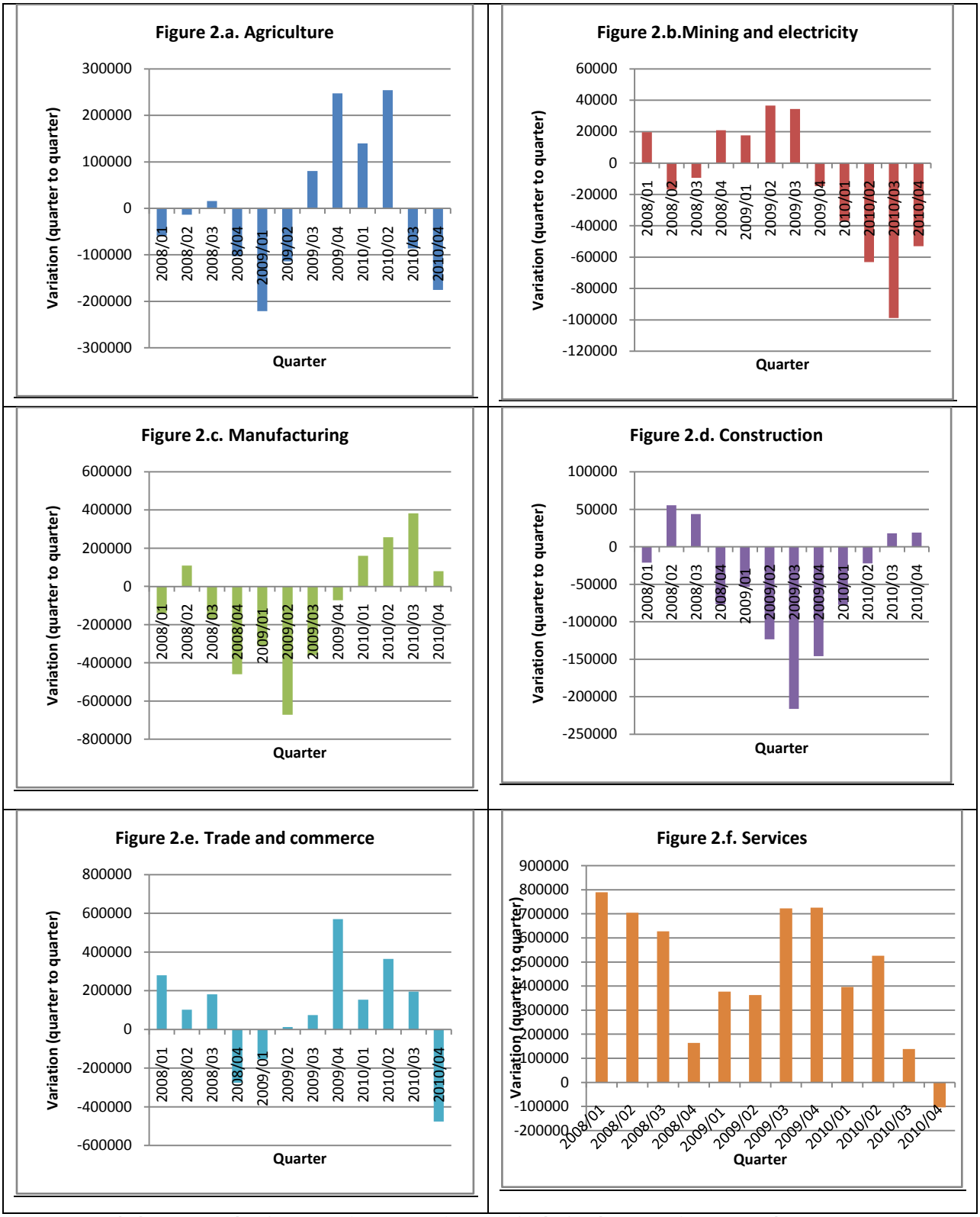
Figure 2.5: Informality Rates



Source: Own calculations using data from INEGI, BIE, and ENOE, 4th quarter 2010.

Analysis of job creation/destruction by economic activity also tells a story of how the crisis evolved. Figure 2.6 shows annual job creation/destruction for each sector of activity by quarter. Agriculture experienced three consecutive quarters of job destruction at the end of 2008 and beginning of 2009, and again shows destruction in the last two quarters of 2010. A similar pattern is observed for manufacturing: almost continuous destruction of jobs in 2008 and 2009, only recovering in 2010. The second quarter of 2009 shows the highest job decrease for manufacturing, a loss of about 672,000. By comparison, the largest job creation, in the third quarter of 2010, was only 382,000.

Figure 2.6: Year-to-year Employment Changes by Economic Activity (in persons)



Source: Own calculations using data from ENOE (various years). Figures for the fourth quarter of 2010 are preliminary.

In the construction sector, job destruction lasted longer than in agriculture and manufacturing: losses were experienced from the third quarter of 2008 to the fourth quarter in 2009. The worst quarter, the third in 2009, destroyed 216,000 jobs, whereas there was a recovery of about 35,000 jobs in the last two quarters of 2010. On the other hand, the trade and commerce sector had a briefer period of job destruction (only two quarters) although with meager wins afterwards. By the fourth quarter of 2010 trade and commerce again experienced a large decrease in jobs (these numbers, however, are preliminary and need revision).

In contrast with all other sectors, services experienced job creation in every quarter. Even at the height of the crisis this sector was creating about 722,000 jobs. This indicates a crisis that severely affected economic activities associated with tradable products (that is, agriculture, manufacturing, and tourism). Construction, even though is not a tradable goods sector, also endured a severe contraction, which creates doubts about the efficacy of public works or investment in infrastructure as a response to crisis-led employment loses.

The dichotomy in job creation/destruction between tradable and nontradable sectors can also partially be seen in wages. As indicators of the evolution of wages we chose the two largest occupations in tradeables and nontradeables: blue collar workers in manufacturing and workers in retail commerce. Twelve-month average wages in retail commerce (the economic activity with the largest share of total employment in Mexico) had a large fall during the crisis and have stagnated at a level 10 percent lower in real terms than before the crisis (see figure 2.7, top-right panel). Twelve-month average wages among blue-collar workers in manufacturing (where most of the Mexican exporting firms concentrate) have showed more resilience to the crisis with a much smaller decline of 1-2 percent with respect to the period before the crisis (see figure 2.7, top-left panel). A similar difference can be observed when comparing earnings indexes for construction and the nonfinance private services sector.[3] In this case, both sectors are nontradeable. On the one hand, real average wages have remained stable in the construction industry over the whole period. On the other hand, an index of real incomes among service sector workers fell significantly (around 8 percent) during first half of 2009 and then grew month after month to regain its pre-crisis level by late 2010 (see the bottom two charts of figure 2.7). These numbers reveal two types of labor market adjustment. Some sectors (like manufacturing and construction) adjusted to the crisis through a large job destruction but keeping real wages, whereas other sectors (like commerce and private nonfinancial services) saw a fall in wages together with sustained employment levels.

[3] This sector includes transport and communications, real estate services, scientific and technical services, health services, education services, entertainment and sports services, and hotels and restaurants.

Figure 2.7: Wage Indexes for Workers in Selected Industries

Source: Data from INEGI and BIE.

The aggregate trends and average rates shown above are described in more detail for specific groups in the following section.

3. Employment and Wages in Specific Groups during the Crisis

In this section, we analyze changes in job creation/destruction and wages for specific groups.

3.1. Job creation/destruction along the cycle

Year-to-year net job creation

We can characterize the evolution of the crisis by taking the second quarter of 2009 as the trough of the recession, and the second quarters of 2008 and 2010 as the beginning and the end of this cycle. Year-to-year net job flows through the second quarter of 2009 characterize the trough of the crisis, whereas year-to-year net job flows from the second quarter of 2010 onward characterize the recovery. In addition, we include annual job flows in the second quarter of 2008 (before the crisis started) as a comparison to a noncrisis year Comparing annual performance by the second quarters avoids results being tainted by seasonal adjustments in the labor market.

During the 2009 crisis, the labor supply in Mexico accelerated, making it more difficult to cope with the fall in labor demand. In fact, the population aged over 14 (also known as the potentially active population) increased by 1.73 million by the second quarter of 2009. This was over half a million more new workers than joined the labor force annually in previous years (for example, since 2003 the average annual growth of the potentially active population has been around the 1.1 million). This massive influx of potential workers faced job destruction of a little more of 522,000 and nearly 772,000 newly unemployed people. As a consequence, the inactive population grew by nearly 1.5 million people, 1.1 million of which were available to work (see table 3.1).

Table 3.1: Annual Changes in Main Components of the Labor Force

year ending the second quarter of…	Working age population	Out of the labor force			Labor force		
		TOTAL	non available	available	TOTAL	unemployed	employed
2007	1,176,542	340,166	63,419	276,747	836,376	127,495	708,881
2008	1,233,282	185,131	365,100	(179,969)	1,048,151	88,111	960,040
2009	1,733,858	1,484,506	379,854	1,104,652	249,352	771,767	(522,415)
2010	951,655	(476,747)	(209,674)	(267,073)	1,428,402	120,851	1,307,551

Source: **Own calculations using data from ENOE.**

It is difficult to ascertain the origin of the acceleration in working age population but a likely suspect is a change in migration patterns. Two forces may have played a role: (i) the recession in the United States may have forestalled migration from Mexico to the United States, and (ii) for the same reason, Mexican migrants in the United States may have returned to their country of origin. Preliminary evidence suggests that even though the crisis more strongly affected Hispanics in the United States, there was no net change in migration. Workers in the United States did not return home in greater numbers, and workers from Mexico did not migrate to the United States in greater numbers (see, for

example, Cornelius et al., 2010; Passel and Cohn, 2009). On the contrary, there is evidence of declining migration flows from Mexico to the United States.[4]

By the second quarter of 2010, the recovery was strong enough to absorb all the growth in the working-age population (which returned to a level comparable to pre-crisis years) and part of the inactive from the previous year. In fact, during the following four quarters, nearly 1.5 million people entered the labor force and 1.3 million jobs were created. Unemployment, however, continued growing, but at a rate similar to pre-crisis years.

As seen in table 3.1, 2009 and 2010 differ dramatically in their labor market performance. The former year shows large job destruction and expansion of unemployment whereas the latter includes massive job creation and a deceleration of joblessness. What are the characteristics of workers who constitute these substantial changes?

The distribution of employment by personal characteristics is shown in table 3.2. Interestingly, the distribution of job flows between males and females remained almost constant between 2009 and 2010. Women represent around 45 percent of the job flows and, given their smaller share in total employment, this implies that women were proportionately more affected during the fall, but also more favored during the recovery.

Regarding educational levels, there was a dual response to the crisis. Workers with primary education or less endured large job losses during the fall but few were employed during the recovery. Workers with secondary education (that is, at least nine years of schooling) endured relatively little job destruction in 2009 and were in the group with the largest job creation during 2010. Finally, workers with a high school education or better experienced similar job creation in both 2009 and 2010 (around 480,000 new jobs). It appears that the crisis first shed workers with lower qualifications and then hired workers with intermediate or better education. This result indicates an upgrading of the average schooling of new hires and that finding a job is becoming more difficult for people with low schooling. In contrast, the hiring of skilled workers does not seem to have been affected at all by the crisis.

Severe changes in employment concentrated at the extremes of the age distribution. Those aged less than 45 had job losses in the fall and job gains in the recovery of around 800,000 workers. Those aged over 55 lost employment in 2009 but then had an important job surge in 2010. Middle-aged workers (46 to 55) comprise the only group that kept growing throughout the crisis.

[4] Evidence collected from the National National Population Council (CONAPO) Encuestas sobre Migración en la Fronteras Norte y Sur de México (EMIF NORTE y EMIF SUR) and presented by the Mexican Ministry of Labor and Social Protection during the Sixth World Bank IZA Conference on Employment and Development, Mexico City, June 2, 2011.

Finally, there is an important geographic distribution of job flows.[5] The border region (which comprises Mexican states bordering the United States) experienced the largest job losses, followed by the center and capital regions. The latter two contain the largest share of total Mexican employment and population, which explains both their large share of total employment losses and highlights the greater impact of the crisis on the less-populated border region. Employment has improved in a more than proportionate manner in all regions of the country except in the border region. This confirms the fact that the crisis had a severe impact on firms associated with tradable goods, exports and manufacturing in particular, which are concentrated at the U.S.-Mexican border and which have not picked up again despite the end of the crisis in both countries. The south Pacific and peninsula regions are the only regions that did not suffer job losses either in 2009 or in 2010. Decelerating job creation in the Yucatán Peninsula in 2009 hints at the reduction of tourism activity, associated both with the American recession and the H1N1 virus outbreak of April 2009. Both events led to a large number of cancellations.

[5] The regions have been defined as follows. Capital: Mexico City, State of Mexico. Center: Morelos, Guanajuato, Hidalgo, Puebla, Querétaro, Tlaxcala. Central Gulf: Veracruz, Tabasco. Central North: Aguascalientes, Durango, San Luis Potosí, Zacatecas. Pacific North: Baja California Sur, Sinaloa, Nayarit. Pacific Center: Colima, Jalisco, Michoacán. Pacific South: Chiapas, Guerrero, Oaxaca. Peninsula: Campeche, Yucatán, Quintana Roo. Border: Baja California, Chihuahua, Coahuila, Nuevo León, Tamaulipas, Sonora.

Table 3.2: Decomposition of Annual Changes in Employment by Personal Characteristics

	year ending the second quarter of…		
	2008	2009	2010
TOTAL	**960,040**	**-522,415**	**1,307,551**
BY SEX			
female	398,975	-221,542	603,825
male	561,065	-300,873	703,726
BY EDUCATION LEVEL			
Without instruction	38,222	-290,129	18,351
Primary	-117,628	-732,183	23,931
Secondary	568,820	-87,614	661,404
High school	323,360	296,169	409,459
Professional	147,266	291,342	194,406
BY AGE GROUP			
Less than 26	171,178	-541,611	500,242
From 26 to 35	109,625	-193,136	187,169
From 36 to 45	319,282	-57,089	163,450
From 46 to 55	165,732	285,681	148,266
More than 55	194,223	-16,260	308,424
BY GEOGRAPHIC LOCATION			
Capital	248,065	-66,564	314,352
Center region	69,142	-142,347	290,907
Center gulf region	18,055	-32,695	126,057
North central region	42,011	-30,037	65,428
North pacific region	41,830	-17,509	54,851
Central pacific region	159,689	-58,427	189,950
South pacific region	24,861	59,082	95,370
Peninsula region	74,524	9,541	59,828
Border	281,863	-243,459	110,808

Source: **Own calculations using data from ENOE.**

The crisis produced net job losses in the primary and secondary sectors (where tradable goods are produced) and a much subdued job creation in the tertiary sector (shown in table 3.3). Manufacturing endured the largest employment destruction among all sectors, with 700,000 jobs lost. Construction activities experienced the second largest employment destruction (123,000 jobs lost), which indicates that public works were not able to create enough employment to at least partly compensate for the shock of the crisis. Interestingly, employment in restaurants and hotels also experienced job destruction of more than 45,000 (something not seen in the last ten years. This was perhaps due to the recession in developed countries and the outbreak in April 2010 of the H1N1 flu in Mexico, both of which must have reduced the number of tourists traveling to the country.

The recovery has produced new jobs in all three sectors. Agriculture jobs grew by more than 250,000, something unusual in a sector that has experienced a secular decline in total employment for decades. This employment growth suggests a temporary return to agricultural activities as a subsistence strategy. Manufacturing also saw job creation but much less than the job losses of the previous year, so that employment is still below pre-crisis levels. The activities with the largest job growth were trade and commerce (364,400 jobs) and other services (260,000 jobs). This indicates that job creation has concentrated in activities with low entry barriers, where informal employment concentrates.

Small and medium firms were responsible for the largest share of job creation during the recovery. In contrast, medium and large firms accounted for the largest share of the fall. This is compatible with the former description of a recession mostly affecting manufacturing firms and the recovery mostly favoring commerce and other services. It also depicts a crisis that destroyed employment in certain sectors of the economy that, four quarters later, have not returned to their pre-crisis levels. If we assume that tradable sectors and large firms have higher productivity and wages because of competitive pressures and larger capital endowment, then we can also assume that the recovery is not generating productive employment for the workers.

Table 3.3: Decomposition of Annual Changes in Employment by Economic Activity and Position

	year ending the second quarter of…		
	2008	2009	2010
TOTAL	**960,040**	**(522,415)**	**1,307,551**
BY ECONOMIC ACTIVITY			
Primary	**(30,714)**	**(77,160)**	**191,338**
Agriculture	(13,856)	(113,755)	254,482
Mining and electricity	(16,858)	36,595	(63,144)
Secondary	**164,498**	**(795,552)**	**235,583**
Manufacturing	109,083	(672,193)	257,594
Construction	55,415	(123,359)	(22,011)
Tertiary	**805,433**	**375,750**	**890,581**
Trade and commerce	101,366	12,870	364,390
Restaurants and hotels	166,157	(45,601)	186,286
Transport and communications	51,613	76,379	(46,833)
Financial services	191,658	37,599	131,194
Social services	46,923	168,234	18,605
Other services	120,403	24,889	259,965
Government services	127,313	101,380	(23,026)
Not specified	**20,823**	**(25,453)**	**(9,951)**
BY FIRM SIZE			
Agriculture firms	(13,856)	(113,755)	254,482
Micro firms	468,692	(221,427)	728,288
Small firms	156,744	11,997	268,388
Medium firms	4,337	(106,252)	(5,214)
Large firms	55,688	(379,747)	(21,111)
Government	127,313	101,380	(23,026)
Other	11,072	(1,367)	121,036
Not specified	150,050	186,756	(15,292)

Source: **Own calculations using data from ENOE.**

Flows by employment characteristics accentuate the image of a severe recession affecting good jobs and a recovery concentrating in not-so-good employment creation (see table 3.4). Salaried formal jobs declined by 403,000 during the recession but only increased by 180,000 during the recovery. On the other hand, job positions characterized as salaried informal, self-employed, or nonpaid worker all increased by more than double the net flows observed the previous year. Furthermore, during the crisis the loss of jobs with health coverage was three times the loss of jobs without health coverage, and the latter grew more than six times the former during the recovery. Finally, crisis job losses concentrated among those with wages between two and five times the minimum wage in 2009 while

recovery job gains concentrated among those earning less than twice the minimum wage in 2010. The number of workers earning more than five times the minimum wage declined in both 2009 and 2010.

Table 3.4: Decomposition of Annual Changes in Employment by Job Characteristics

	year ending the second quarter of…		
	2008	2009	2010
TOTAL	**960,040**	**(522,415)**	**1,307,551**
By position			
Salaried (formal)	306,987	(403,852)	180,036
Salaried (informal)	494,413	137,598	461,580
Employer	7,129	(231,887)	180,802
Self-employed	163,245	99,069	295,458
Nonpaid worker	(11,734)	(123,343)	189,675
By health insurance			
With health insurance	303,141	(393,090)	166,798
Without health insurance	648,725	(123,084)	1,127,673
No response	8,174	(6,241)	13,080
By minimum wage category			
Less than two	83,138	983,782	1,102,833
Between two and five	569,144	(1,550,261)	596,770
More than five	(33,439)	(486,374)	(701,495)
No monetary income	(86,976)	(37,442)	148,427
Undeclared	428,173	567,880	161,016

Source: **Own calculations using data from ENOE.**

The discussion above describes employment flows during the crisis and the recovery. What are the characteristics of unemployment flows? Interestingly, in 2008, the year before the crisis, as many women as men lost their job or couldn't find one. In 2009, however, the relation was four-to-one against men. More than 600,000 men became unemployed, while only 150,000 women did. During the recovery, the roles changed. A meager 7,000 men became unemployed while another 113,000 women lost their jobs (see table 3.5). This indicates that the crisis hit men, but the recovery is relatively creating more female unemployment.

Regarding levels of education, nearly half of the new unemployed during the recession had completed secondary education but not high school (which in Mexico represents between 9 and 12 years of education). This group is not the usual target of payroll cutbacks or job-searchers. The figures indicate, as usual but with larger magnitudes, that unemployment concentrates among

individuals with more education. Professionals did indeed take a serious blow in 2009 and 2010. Furthermore, job losses were mostly among younger workers, both in 2009 and 2010.

Finally, changes in unemployment by location show a similar pattern to changes in employment. The largest unemployment changes occurred in the border, capital, and central regions. As explained before, the latter two concentrate the largest share of total Mexican population, which explains both their large share of total unemployment and the greater impact of unemployment in the less-populated border region.

Table 3.5: Decomposition of Annual Changes in Unemployment by Personal Characteristics

	year ending the second quarter of…		
	2008	2009	2010
TOTAL	**88,111**	**771,767**	**120,851**
BY SEX			
Female	46,341	152,988	113,699
Male	41,770	618,779	7,152
BY EDUCATION LEVEL			
Without instruction	11,743	21,522	-5,593
Primary	26,805	187,998	22,458
Secondary	30,827	313,027	32,773
High school	39,754	171,422	27,342
Professional	-21,018	77,798	43,871
BY AGE GROUP			
Less than 26	31,778	284,352	9,549
From 26 to 35	8,148	180,417	66,278
From 36 to 45	22,443	129,941	40,089
From 46 to 55	15,395	118,860	1,750
More than 55	10,347	58,197	3,185
BY GEOGRAPHIC LOCATION			
Capital	-37,911	240,194	5,394
Center region	23,423	114,121	24,558
Center gulf region	-1,310	34,349	20,172
North central region	14,242	30,074	7,641
North pacific region	-1,385	25,571	12,240
Central pacific region	29,402	79,003	19,278
South pacific region	-4,104	1,648	16,611
Peninsula region	5,261	25,126	6,919
Border	60,493	221,681	8,038

Source: Own calculations using data from ENOE.

Transition matrices from panel data

Previous figures describe net job flows of employment and unemployment. However, these net flows only give a partial description of the workings of the labor market. Net job flows can be decomposed into four components, as follows:

$$E_f - E_i = \Delta E_{I \to E} + \Delta E_{U \to E} - \nabla E_{E \to I} - \nabla E_{E \to U}$$

that is, the change in total employment between final (E_f) and initial period (E_i) equals the growth of employment due to transitions from inactivity (and from out of the labor force) ($\Delta E_{I \to E}$) and from unemployment ($\Delta E_{U \to E}$), minus those who lost employment and became inactive ($\nabla E_{E \to I}$) or unemployed ($\nabla E_{E \to U}$). Similar decompositions can be done for net flows in unemployment:

$$U_f - U_i = \Delta U_{I \to U} + \Delta U_{E \to U} - \nabla U_{U \to I} - \nabla U_{U \to E}$$

and in inactivity

$$I_f - I_i = \Delta I_{E \to I} + \Delta I_{U \to I} - \nabla I_{I \to U} - \nabla I_{I \to E}$$

These components can be observed in the cells of a transition matrix:

	Inactive $_f$	Unemployed $_f$	Employed $_f$
Inactive $_i$	-	$\Delta U_{I \to U} = \nabla I_{I \to U}$	$\Delta E_{I \to E} = \nabla I_{I \to E}$
Unemployed $_i$	$\Delta I_{U \to I} = \nabla U_{U \to I}$	-	$\Delta E_{U \to E} = \nabla U_{U \to E}$
Employed $_i$	$\Delta I_{E \to I} = \nabla E_{E \to I}$	$\Delta U_{E \to U} = \nabla E_{E \to U}$	-

This transition matrix provides more nuanced information about job flows and reveals how changes in employment status are the consequence of gross flows to and from unemployment and inactivity. These flows also indicate the likelihood of moving from one status to another. The Mexican Occupation and Employment Survey (*Encuesta Nacional de Ocupación y Empleo*—ENOE) has a rotating panel that interviews the same household for five consecutive quarters. This implies that we can observe the same household and their individuals, and therefore its employment dynamics, for

the second quarter of two consecutive years. With these observations, transition matrices can be produced. The following analysis makes use of these rotating panels for our periods of study.[6]

The first transition matrix we analyze is an estimation of gross job flows before the recession—that is, between the second quarter of 2007 and the second quarter of 2008. In this case, we observe that around 9 million people became employed and 8.1 previously employed people became unemployed or inactive, thus a net job creation of around 0.9 million people was produced during the year before the recession. On the other hand, unemployment grew in only around 90 thousand people because around 1.5 million people previously employed or inactive became unemployed while nearly 1.4 million previously unemployed either found a job or left the labor market.

Table 3.6a: Transition Matrices for the Recession Period

		Second quarter 2008			
		Inactive	Employed	Unemployed	Total
Second quarter 2007	Inactive or out	23,687,896	8,199,919	684,809	**32,572,624**
	Employed	7,385,503	34,766,246	754,907	**42,906,656**
	Unemployed	451,074	900,531	153,591	**1,505,196**
	Total	**31,524,473**	**43,866,696**	**1,593,307**	**76,984,476**

Source: **Own estimates using rotating panels from ENOE.**

The second transition matrix refers to the recession—that is, between the second quarter of 2008 and the second quarter of 2009. According to this estimate, the fall in total employment was mostly due to the difference between to a gross job destruction (workers who were employed and became unemployed) of 1.2 million workers and a gross job creation (workers who were unemployed and became employed) of 0.833 million (see table 3.6b). The gross flows towards and from inactivity nearly cancel out (both around 8 million people) so most of the job destruction in 2009 can be attributed to firing existing workers in a proportion that more than compensated new hirings. Changes in unemployment can be attributed to the flows between employment and unemployment, already described, and to an additional flow from the inactive population. More than 951,000 initially inactive people became unemployed while only 544,000 formerly unemployed became inactive. This added 400,000 people (about half the total change) to the unemployed during the recession. In other words, the increase in unemployment is associated to the growth of labor supply.

[6] According to INEGI, the panel follows the interviewers for five quarters and it is representative at the national level.

Table 3.6b: Transition Matrices for the Recession Period

		Second quarter 2009			
		Inactive	Employed	Unemployed	Total
Second quarter 2008	Inactive or out	24,484,780	7,822,462	951,089	33,258,331
	Employed	7,980,215	34,688,008	1,198,473	43,866,696
	Unemployed	543,984	833,811	215,513	1,593,308
	Total	**33,008,979**	**43,344,281**	**2,365,075**	**78,718,335**

Source: **Own estimates using rotating panels from ENOE.**

During the recovery (table 3.6c), the pattern of gross flows changed in the sense that there was an increase in employed workers, a reduction in inactive workers, but also an increase in unemployed workers. The flow from inactive to employed was reduced by 1 million compared with the previous year, and the flow from inactive to unemployed was about the same figure. Unemployment under such condition in both periods increased, as well as those moving from unemployed to employed. Those employed in both periods also increased, while flows from employed to inactive decreased, and flows to unemployed remained about same as the previous year.

Table 3.6c: Transition Matrices for the Recovery Period

		Second quarter 2010			
		Inactive	Employed	Unemployed	Total
Second quarter 2009	Inactive or out	26,533,723	6,482,882	944,029	**33,960,634**
	Employed	5,423,962	36,760,882	1,159,437	**43,344,281**
	Unemployed	574,547	1,408,068	382,459	**2,365,074**
	Total	**32,532,232**	**44,651,832**	**2,485,925**	**79,669,989**

Source: **Own estimates using rotating panels from ENOE.**

Therefore, even though the recovery seems to be creating more jobs, there is also more persistence in the recovery period in the three categories: that is, more people remain as inactive, employed, or unemployed.

An econometric analysis of transition probabilities

The previous section described probabilities of transition from one employment status to another. However, these probabilities do not indicate the effect that a particular characteristic, such as age or education, has upon the likelihood of moving from one status to another. The effect of a single characteristic upon employment transitions is known as conditional probability. It is called so because it defines the effect of having one characteristic instead of another (for example, being a woman) upon a particular employment transition (for example, finding a job), under the condition that all the other characteristics (age, education, and so forth) remain the same. Conditional probabilities are of analytical interest because they indicate whether certain traits involve propensities to lose or gain employment. This kind of probability is computed through an econometric technique using the same panel data described in the previous section.[7]

Estimates for the conditional probabilities of becoming jobless before, during the recession and the recovery are shown in table 3.7. The table shows evidence about five main messages. First, males always had a lower probability of losing a job, rather than keeping a job, than females, but this advantage became larger during the recovery. Males were 2.9 percent less likely to become jobless, rather than keeping a job, than observationally equivalent females during the recovery, compared with 1.3 percent during the recession or 1.55 before the recession.

[7] The conditional probabilities presented in this section were estimated through a multinomial logit model. The model estimated the transition probabilities of four possible states between two periods: staying in a job, staying jobless, finding a job, and losing a job. The base category is keeping a job; thus all the interpretations have to be made with respect to this category. The estimation made use of rotating panels from ENOE for the second quarters of 2008-2009 and 2009-2010, for individuals aged 18 to 65. Further details about the estimation procedures are available from the authors upon request.

Table 3.7: Marginal Propensities to Lose a Job

	on the 2nd quarter		
Variables	**2007-2008**	**2008-2009**	**2009-2010**
By sex			
Male	-0.0155 ***	-0.0133 ***	-0.0298 ***
	(0.0039)	(0.0041)	(0.0035)
By schooling level [1]			
Secondary	-0.0107 **	-0.0014	-0.0125 ***
	(0.0045)	(0.0049)	(0.0040)
High School	-0.0154 ***	-0.0118 **	-0.0113 ***
	(0.0047)	(0.0050)	(0.0042)
Professional	-0.0389 ***	-0.0298 ***	-0.0296 ***
	(0.0050)	(0.0056)	(0.0045)
By region [2]			
Center region	0.0039	0.0014	-0.0015
	(0.0078)	(0.0078)	(0.0067)
Central gulf region	0.0049	-0.0242 ***	0.0010
	(0.0099)	(0.0091)	(0.0086)
North central region	-0.0003	-0.0230 ***	-0.0164 **
	(0.0083)	(0.0078)	(0.0067)
North pacific region	0.0067	-0.0027	-0.0167 **
	(0.0094)	(0.0091)	(0.0071)
Central pacific region	0.0050	-0.0120	-0.0075
	(0.0081)	(0.0078)	(0.0067)
South pacific region	-0.0232 **	-0.0223 **	-0.0190 **
	(0.0108)	(0.0110)	(0.0092)
Peninsular region	-0.0163 *	-0.0216 ***	-0.0180 **
	(0.0085)	(0.0084)	(0.0071)
Border	0.0015	-0.0036	-0.0094
	(0.0079)	(0.0078)	(0.0065)
By age [3]			
From 26 to 35 years	-0.0392 ***	-0.0197 ***	-0.0222 ***
	(0.0046)	(0.0052)	(0.0044)
From 36 to 45 year	-0.0421 ***	-0.0329 ***	-0.0255 ***
	(0.0048)	(0.0053)	(0.0045)
From 46 to 55 years	-0.0360 ***	-0.0271 ***	-0.0078
	(0.0054)	(0.0059)	(0.0053)
From 56 to 65 years	-0.0116 *	0.0148 *	0.0209 ***
	(0.0068)	(0.0079)	(0.0071)
By position in the household			
Household head	-0.0318 ***	-0.0410 ***	-0.0256 ***
	(0.0044)	(0.0045)	(0.0040)
Pseudo R2	0.1395	0.1302	0.134
N	42915	42170	40336

Source: Own calculations using rotating panel from ENOE between 2nd quarters of 2008, 2009 and 2010.

Note:

a. Level of instruction is compared to "No level of instruction and primary."

b. Geographic regions are compared to "Capital."
c. Age is compared with "From 18 to 25."
Omitted control groups are (1) with primary or less schooling; (2) Capital region; (3) Less of 26 years of age. Marginal effects on transition probabilities from employment to joblessness computed on the average using STATA command. Marginal effects are compared with the probability to be employed in both periods.

Second, individuals with higher education were less likely to lose a job, compared to keeping a job, both during the recession and the recovery. The difference is among workers with secondary education (semi-skilled), who were as likely to lose a job, rather than keeping a job, as those with primary or less schooling during the recession. Thus, the group of semi-skilled workers was particularly affected by the crisis (as mentioned in the discussion of table 3.2). Third, workers from the Yucatán Peninsula, the south Pacific, and the north central regions were less likely to become jobless (around 2 percent less), rather than keeping a job, than workers from the capital region. This advantage was observed before the crisis and persisted during the recovery, although it was somewhat smaller. On the other hand, the north central region was the most affected by the crisis. Fourth, middle-aged workers were less likely to become jobless, instead of keeping their jobs, than young and senior workers. This pattern was observed both in the recession and the recovery, but the disadvantage of senior workers (those aged more than 55) became even worse during the recovery when they became more likely to lose a job (around 2 percent more than the youngest group). Finally, household heads were less likely to lose a job, rather than staying in one, than other household members, but this advantage was smaller during the recovery (2.6 percent less likely) than during the recession (4.1 percent less likely).

Estimates for the conditional probabilities of finding a job, instead of staying in one, before and during the recession and the recovery are shown in table 3.8. Here we also have five main messages. First, males always had a lower probability of finding a job than females, rather than staying in one, and this probability has not changed significantly over time. Males were 3.6 percent less likely to become employed, rather than staying in a job, than observationally equivalent females, both during the recession and the recovery (slightly less likely, 4.2 percent, before the crisis). Second, individuals with higher schooling were less likely to find a job, instead of keeping a job, but such advantage was diminished during and after the recession. Workers with professional education were 3.5 percent less likely to find a job, compared with their probability of staying in a job in both periods, during the recession than similar workers with only primary or less education. This magnitude climbed to 5.0 percent during the recovery. Third, workers with similar characteristics but from different regions faced the same probability of finding a job rather than staying in a job, both during the recession and the recovery, with the exception of workers from the Yucatán Peninsula: they were less likely to find a job (a slight 1.4 percent) during the recession compared with a similar likelihood of keeping a job. Fourth, middle-aged workers were less likely to quit jobs, instead of staying in a job, than young and senior workers. This pattern was observed both in the recession and the recovery, but such difference was narrower during the recession. Finally, household heads were less likely to find a job, instead of keeping one, than other household members, but this was larger during the recession (4.5 percent less likely) than during the recovery (3.3 percent less likely) or before the crisis (3.2 percent).

Table 3.8: Marginal Propensities to Find a Job

	on the 2nd quarter		
Variables	**2007-2008**	**2008-2009**	**2009-2010**
By sex			
Male	-0.0420 ***	-0.0366 ***	-0.0359 ***
	(0.0031)	(0.0031)	(0.0034)
By schooling level [1]			
Secondary	-0.0108 ***	-0.0087 **	-0.0083 **
	(0.0036)	(0.0036)	(0.0039)
High School	-0.0151 ***	-0.0115 ***	-0.0255 ***
	(0.0036)	(0.0036)	(0.0039)
Professional	-0.0401 ***	-0.0351 ***	-0.0504 ***
	(0.0037)	(0.0037)	(0.0039)
By region [2]			
Center region	-0.0027	0.0095	0.0080
	(0.0061)	(0.0064)	(0.0073)
Central gulf region	-0.0151 **	-0.0008	-0.0036
	(0.0070)	(0.0078)	(0.0088)
North central region	-0.0039	0.0055	0.0118
	(0.0065)	(0.0069)	(0.0081)
North pacific region	-0.0051	-0.0050	0.0116
	(0.0071)	(0.0070)	(0.0087)
Central pacific region	-0.0049	0.0030	0.0073
	(0.0062)	(0.0064)	(0.0075)
South pacific region	-0.0052	-0.0058	-0.0055
	(0.0091)	(0.0090)	(0.0104)
Peninsular region	-0.0052	-0.0141 **	-0.0045
	(0.0070)	(0.0064)	(0.0080)
Border	0.0021	-0.0066	-0.0002
	(0.0063)	(0.0060)	(0.0071)
By age [3]			
From 26 to 35 years	-0.0401 ***	-0.0318 ***	-0.0443 ***
	(0.0033)	(0.0033)	(0.0036)
From 36 to 45 year	-0.0534 ***	-0.0365 ***	-0.0550 ***
	(0.0033)	(0.0034)	(0.0036)
From 46 to 55 years	-0.0397 ***	-0.0328 ***	-0.0482 ***
	(0.0037)	(0.0038)	(0.0040)
From 56 to 65 years	-0.0237 ***	-0.0195 ***	-0.0285 ***
	(0.0048)	(0.0049)	(0.0050)
By position in the household			
Household head	-0.0418 ***	-0.0425 ***	-0.0373 ***
	(0.0036)	(0.0035)	(0.0039)
Pseudo R2	0.1395	0.1302	0.134
N	42915	42170	40336

Source: Own calculations using rotating panel from ENOE between 2nd quarters of 2008, 2009 and 2010.
Note:
a. Level of instruction is compared to "No level of instruction and primary."
b. Geographic regions are compared to "Capital."
c. Age is compared with "From 18 to 25."
Omitted control groups are (1) with primary or less schooling; (2) Capital region; (3) Less of 26 years of age. Marginal effects on transition probabilities from employment to joblessness computed on the average using STATA.

In summary, these results indicate that there were only small differences in how the recession and the recovery affected different groups. By a small margin, those more likely to stay in a job during the economic crisis were the males, high skilled, household heads, and middle-aged workers.

3.2. Wage growth along the cycle

Average wages in real terms have declined for all groups. According to personal characteristics there seems to be a general decrease in wages (table 3.9). Males experienced higher decreases than females, up to 5.3 percent compared to 4.9 percent. By educational level, higher wage loses are concentrated in both tails, those with no instruction and those with higher instruction. Middle-skilled workers also experienced wage loses, although comparatively smaller. All age groups experienced wage loses, especially those in the middle groups of 36-45 and 46-55. Considering geographic location, wage loses at the beginning of the crisis were concentrated in the capital and central states. At the end of the period of analysis losses were higher in states bordering the United States with high manufacturing employment, the Yucatán Peninsula with high tourism employment, and the north central states.

Table 3.9: Change in Real Wages by Group

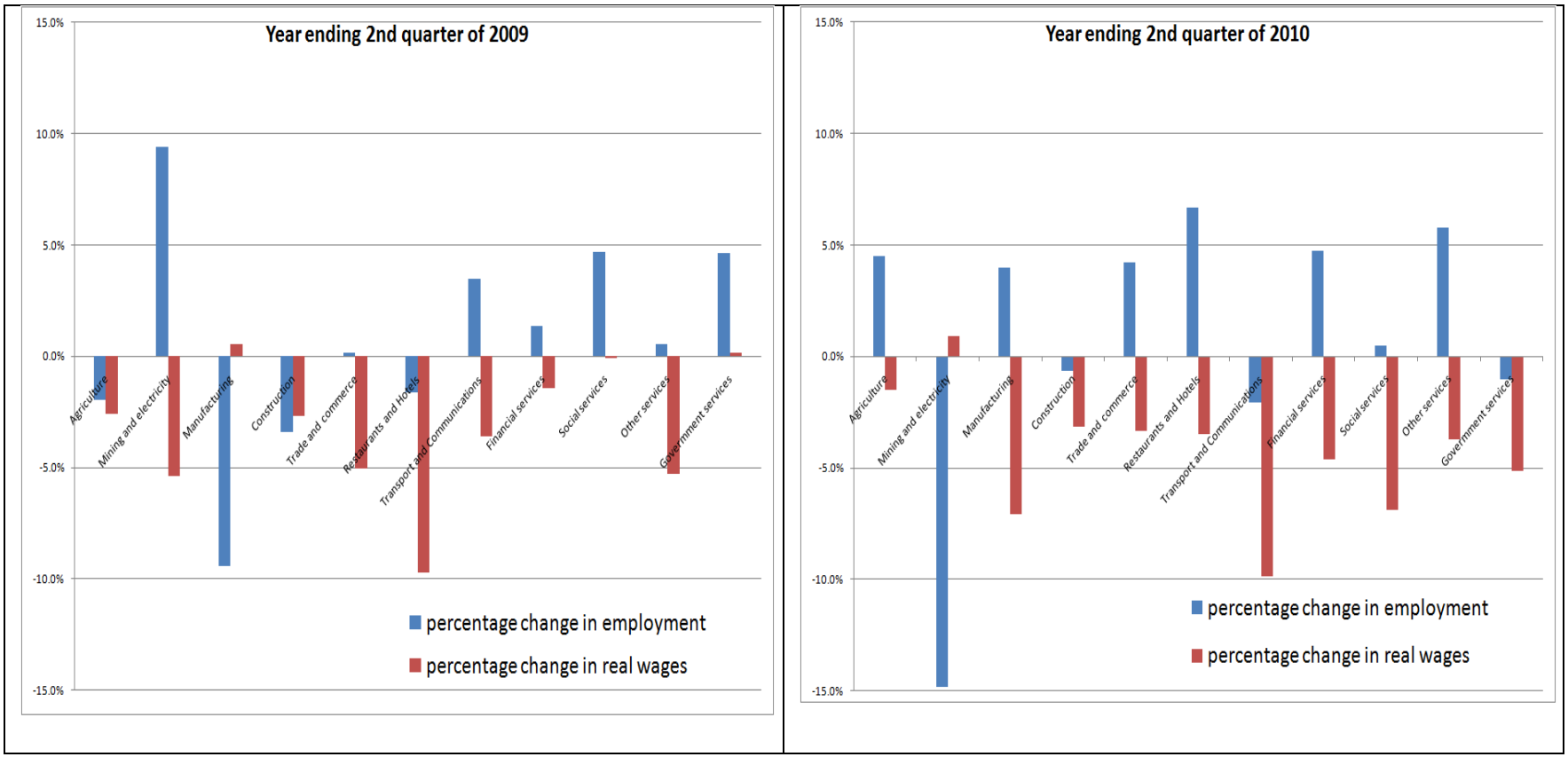
	year ending the second quarter of…				year ending the second quarter of…		
	2007	2008	2009	2010	2008	2009	2010
	Hourly wage by characteristics (pesos 2010)				inter annual percentage changes		
BY SEX							
Female	34.8	34.5	33.4	32.1	-1.1	-3.0	-3.9
Male	37.1	36.0	34.7	32.9	-2.9	-3.6	-5.3
BY EDUCATION LEVEL							
Without instruction	20.6	20.0	20.5	19.3	-3.2	2.6	-5.5
Primary	25.7	25.5	24.8	23.6	-1.0	-2.5	-4.8
Secondary	29.0	28.1	27.3	26.0	-3.1	-3.1	-4.5
High school	39.4	38.7	37.2	35.0	-1.6	-3.8	-6.0
Professional	69.2	66.3	64.5	60.8	-4.2	-2.7	-5.7
BY AGE GROUP							
Less than 26	25.4	25.3	24.9	24.5	-0.4	-1.6	-1.7
From 26 to 35	35.2	34.3	33.6	32.2	-2.5	-2.2	-4.1
From 36 to 45	40.0	39.4	37.5	35.0	-1.6	-4.8	-6.5
From 46 to 55	42.9	41.3	39.3	37.2	-3.7	-4.9	-5.3
More than 55	36.9	35.5	34.7	33.9	-3.8	-2.0	-2.4
BY GEOGRAPHIC LOCATION							
Capital	36.4	33.3	33.3	32.8	-8.4	0.1	-1.7
Center region	33.1	31.1	30.4	29.2	-6.1	-2.3	-3.7
Center gulf region	35.0	34.5	33.6	32.5	-1.3	-2.6	-3.3
North central region	33.8	33.6	31.6	29.9	-0.4	-6.1	-5.3
North pacific region	42.9	42.7	41.6	40.1	-0.4	-2.5	-3.7
Central pacific region	35.2	34.8	33.3	32.4	-1.2	-4.4	-2.6
South pacific region	28.9	28.2	26.4	26.5	-2.5	-6.3	0.3
Peninsula region	35.4	34.3	33.2	31.4	-3.1	-3.2	-5.5
Border	40.4	40.4	39.0	35.6	-0.1	-3.4	-8.7

Source: Own calculations using data from ENOE.

The distribution of wage changes by economic activity show some interesting patters. In 2009 average wages fell in all sectors but two: manufacturing and government services. Note that manufacturing was also the sector that endured the largest job losses, showing a clear pattern of adjustment to the crisis through quantities rather than prices. The case of government services is perhaps due to the fact that wages in the public sector are less sensitive to economic crisis, particularly if the crisis does not have budgetary implications such as fiscal consolidation.

Real wages declined in all activities of the tertiary sector. These decreases range from a slight -0.1 percent in social services and -1.2 percent in financial sector to severe -9.7 percent in restaurants and hotels and -5.1 percent in trade in commerce. The latter has been one of the few sectors that had no job destruction over the crisis, indicating a process of adjustment through wages rather than quantities. Sectors like agriculture, construction, and restaurant/hotels endured both a reduction of employment and of real wages (see figure 3.1).

Figure 3.1: Price and Quantities Adjustment by Economic Activity over the Crisis



Source: Own calculations using data from ENOE.

In 2010, during the recovery, real wages continued falling. In some cases like manufacturing, transport, and communications, wage reductions were harsh. This is consistent with the evidence from the previous section that indicates that the creation of new jobs during the recovery concentrated in workers in the lower end of the wage distribution (see table 3.4). This continued fall in real wages confirms that the initial stages of the recovery brought new jobs but with lower average wages.

Real wages declined for all types of firms during the recession, except large firms and government employees. On the other hand, all types of firms recorded a decline in real wages during the recovery (see table 3.10). We can also show wages according to access to social security benefits and type of job. According to table 3.11, where wages by sector were indexed to 2007=100, workers in public administration lost only about 3 percent of real wages, while those in the Mexican Institute of Social Security (*Instituto Mexicano del Seguro Social*—IMSS) lost about 9 percent, in the oil company Petroles Mexicanos (PEMEX) about 13 percent, and those not affiliated lost between 6-10 percent of real wages during the crisis.

Table 3.10: Change in Real Wages by Group

	year ending the second quarter of				year ending the second quarter of		
	2007	2008	2009	2010	2008	2009	2010
	Hourly wage by sector (pesos 2010)				inter annual percentage changes		
BY ECONOMIC ACTIVITY							
Primary							
Agriculture	20.5	20.1	19.6	19.3	-1.9%	-2.6%	-1.5%
Mining and electricity	55.1	52.9	50.1	50.5	-4.0%	-5.4%	0.9%
Secondary							
Manufacturing	31.0	29.3	29.4	27.3	-5.6%	0.5%	-7.1%
Construction	34.5	34.1	33.1	32.1	-1.3%	-2.7%	-3.2%
Tertiary							
Trade and commerce	30.5	29.6	28.1	27.1	-3.2%	-5.1%	-3.4%
Restaurants and hotels	28.8	29.2	26.4	25.5	1.6%	-9.7%	-3.5%
Transport and communications	36.4	34.7	33.5	30.2	-4.4%	-3.6%	-9.9%
Financial services	46.7	43.5	42.8	40.9	-7.0%	-1.4%	-4.6%
Social services	61.9	61.0	61.0	56.8	-1.4%	-0.1%	-6.9%
Other services	31.9	32.5	30.8	29.6	1.9%	-5.3%	-3.7%
Government services	45.9	45.2	45.3	42.9	-1.5%	0.2%	-5.1%
Not specified	27.0	28.2	25.3	27.3	4.4%	-10.2%	8.1%
BY FIRM SIZE							
Agriculture firms	20.5	20.1	19.6	19.3	-1.9%	-2.6%	-1.5%
Micro firms	33.1	32.4	31.4	30.0	-2.2%	-3.3%	-4.4%
Small firms	42.9	42.4	40.1	38.4	-1.2%	-5.4%	-4.2%
Medium firms	37.8	36.6	36.2	34.2	-3.1%	-1.1%	-5.3%
Large firms	45.7	44.0	44.3	41.1	-3.8%	0.7%	-7.1%
Government	45.9	45.2	45.3	42.9	-1.5%	0.2%	-5.1%
Other	22.6	23.0	22.4	22.4	1.8%	-3.0%	0.0%
Not specified	30.2	29.7	29.5	28.1	-1.7%	-0.7%	-4.7%
Self employed	33.2	33.1	32.4	31.1	-0.2%	-2.1%	-4.2%
Owner	64.1	60.2	55.0	53.9	-6.1%	-8.6%	-2.0%

Source: Own calculations using data from ENOE.

Table 3.11: Index of Real Wages per Hour by Affiliation to Social Security (2007=100)

	2007	2008	2009	2010
IMSS/Salaried	100	98	94	91
ISSSTE/Salaried	100	99	97	97
PEMEX—Defense/Salaried	100	94	89	87
Not affiliated—employer/Self employed	100	98	92	90
Not affiliated/Salaried	100	99	96	94

Source: **Own calculations using data from ENOE.**

All this evidence reveals the asymmetry of adjustment over the course of the crisis. During the recession, some sectors reduced employment quantities only, others adjusted real wages only, and others adjusted the two margins. During the recovery, all sectors (with the exception of mining) have showed job creation with lower real wages (see figure 3.1). The crisis produced a significant dislocation of the Mexican labor market. There were large flows of job destruction and creation that left the country with employment levels similar to before the crisis, but unemployment levels of around 900,000 people more than before the crisis. Average wages declined for all sectors

4. Policies to Cope with the Crisis

The Mexican government announced a series of programs to cope with the crisis, which included the Program to encourage Growth and Employment (PICE) announced in October 2008, and the National Agreement to support the Household Economy and Employment (*Ampliación del Programa de Empleo Temporal a Nivel Federal*—ANFEFE), announced in January 2009. The expected outcome was a about a 0.9 percent boost of GDP. Additional support in the form of credit from development banks was expected to increase total investment to about 171,000 million pesos, or about 1.4 percent of GDP (CEFP, 2009).

PICE aimed to cope with the effects of the economic crisis by using resources mainly from oil revenues. A total of 255,000 million pesos was to be used in infrastructure, massive transport programs, and other priority sectors. These goals were reinforced in January 2009 with a presidential agreement creating the Intersecretarial Commission for Acquisitions and Works in the Public Administration for the Small, Micro and Medium Firms. The commission aimed to ease crisis conditions by at least a 20 percent increase in public sector acquisitions from those firms.

The main mechanism of PICE was public expenditure in infrastructure, with an initial budget of about 0.7 percent of the GDP (excluding investment in oil sector) of about 90,000 million pesos. The National Fund for Infrastructure is part of PICE which is the flagship infrastructure program of the administration. Another 90,200 million pesos was awarded to PEMEX to build a new refinery and other infrastructure. Despite a lack of information about the execution of those programs, a report of the House of Deputies (CEFP, 2009) stated that at as of mid-2009, there had been very little progress. For example, by the first quarter of 2009 only 15 percent of the infrastructure fund

had been spent on road infrastructure and only 0.4 percent on other infrastructure such as water provision, sewage, and water purification. The CEFP report states that the main problem is the allocation of resources to projects without any execution plan or rights to build. About 40 percent of the programs were still undefined in 2009, and other 50 percent were delayed because of cumbersome bureaucratic processes.

Although public expenditure increased at the beginning of the crisis (see figure 2.2), private investment has lagged. Furthermore, recovery has not been led by growth in public investment, which is still below pre-crisis levels. Given the limited information available about public works programs, and that this limited information indicates that very modest progress was attained during the first year of the crisis, when it was most needed, we will concentrate on the labor policies adopted by the Mexican government.

4.1. Labor Policies

On January 2009, the federal government announced ANFEFE, a series of policy actions and a string of commitments on the part of several public and private Mexican institutions. These included allocation of 750 million pesos to foster changing home appliances and a reduction in natural gas prices as well as gasoline. ANFEFE policy actions can be grouped into different pillars. The first pillar, Support to Employment (*Apoyo al Empleo y a los Trabajadores*), is a combination of both active and passive labor market policies to confront the international crisis.

The Temporary Employment Program (*Programa de Empleo Temporal*—PET) and the National System of Employment (*Servicio Nacional de Empleo*—SNE) were the two main active labor market polices proposed in the ANFEFE. SNE is an emergency temporary employment program for unemployed or reduced-income workers, and includes labor intermediation, mobility, and training services. In January 2009 it was announced that the fund would pay out 2.2 million pesos by the end of 2009.

Research shows that employment programs are considered to be an appropriate mechanism for dealing with cyclical downturns in the labor market. They provide income support for those who have lost their jobs and, given their self-targeting mechanism (they usually pay below minimum or nearly minimum wages), they focus on people most in need of finding an income source. In addition, since they are not tied to social security contributions or any other previous employment requirement, temporary employment programs are expected to benefit those in the bottom of the income distribution. The international impact evaluation literature finds that these programs have only short-term employment impacts and no wage/productivity impact for the beneficiaries. The Latin American literature for this type of program finds positive short-term employment effects. This evidence confirms the anti-cyclical, temporary, emergency character of the program.

The government's deployment of the PET during the economic crisis is presented in table 4.1.

Table 4.1: Temporary Employment Program

Year	Implemented Works	Beneficiaries (2001-2008), Identified (2009-2010)			Federal Budget	State Budget		% Increase in Budget	% Increase in beneficiaries
		Women	Men	Total	Total	Total	Total		
2001	52,117	496,586	1,315,999	1,812,585	$4,189,653,967.66	$450,019,780.18	$4,639,673,747.84		
2002	51,021	543,243	1,278,419	1,821,662	$4,242,774,631.04	$245,796,508.44	$4,488,571,139.48	-3.26	0.50
2003	25,311	250,180	567,315	817,495	$2,255,278,382.08	$138,524,438.50	$2,393,802,820.58	-46.67	-55.12
2004	21,113	202,856	472,362	675,218	$2,109,057,492.07	$105,885,426.28	$2,214,942,918.22	-7.47	-17.40
2005	19,944	216,825	455,613	672,438	$1,877,185,023.02	$94,377,560.32	$1,971,562,583.33	-10.99	-0.41
2006	12,179	125,229	255,381	380,610	$1,281,311,186.55	$83,278,255.43	$1,364,589,441.99	-30.79	-43.40
2007	15,703	158,032	319,639	477,671	$1,618,325,026.11	$118,873,516.82	$1,737,198,542.93	27.31	25.50
2008	10,885	180,993	204,031	385,024	$937,778,360.49	$115,867,574.70	$1,053,645,935.20	-39.35	-19.40
2009	29,694	279,838	402,989	682,827	$2,367,102,898.59	$118,748,488.50	$2,485,851,387.09	135.93	77.35
2010	26,712	427,985	469,722	897,707	$2,756,077,660.77	$110,812,687.92	$2,866,890,348.70	15.33	31.47

Source: **data from the Information Center for the Program of Temporal Employment (CIPET).**

The table displays the number of implemented works related to hiring workers, the beneficiaries, and the federal and state budgets. The number of beneficiaries increased by 136 percent from 2008 to 2009, and by another 15 percent through 2010, while the budget increased by 77 percent from 2008 to 2009 and by another 31 percent through 2010. Most of the increase in the budget came from federal sources. PET's response to the crisis peaked in January 2009, and the 2008 figures for beneficiaries and the budget show a reduction from 2007. Furthermore, despite the sharp increase in unemployment during the crisis, the total budget in 2010 is only about 60 percent of the resources allocated in 2001, which was a year with more stability, and the number of beneficiaries is lagging by a million (also compared with 2001).

Important elements of the PET include extension to urban areas in response to job destruction in manufacturing and services, and support for the unemployed. The ability of PETS to reach urban areas and the unemployed depends on Ministry of Labor (*Secretaría del Trabajo y Previsión Social*—STPS), which has played a coordinating role among all the secretaries and agencies administering PETS since late 2008. Preliminary evidence seems to show that only one of the implementing agencies, the Ministry of Social Development (*La Secretaría de Desarrollo Social*—SEDESOL) has been able to reach the unemployed and the urban areas. Perhaps because of its experience in the expansion of other social programs in urban areas (such as *Oportunidades* and *Estancias Infantiles*), SEDESOL has shown a pattern of allocation of PET resources that is correlated with the level of unemployment and the size of the urban population.

In addition, preliminary evidence from administrative data shows some association between PET budget allocations and poverty, unemployment, and urbanization. However, these variables are highly correlated so that conditional associations are needed to ascertain if PET is reaching the

urban population and the unemployed. This is important because, despite being assigned new roles during the crisis, PET is still a program for protecting the poor from seasonal shocks. Econometric evidence shows that PET has indeed become more oriented towards the unemployed and the urban population. However, three caveats are necessary.[8] First, poverty is still the major criterion for identification of beneficiaries in the program. Second, SEDESOL seems to be the only dependent agency that has allocated resources to the unemployed. Third, it is mostly in year 2010 that PET in SEDESOL has reallocated resources to the urban and the unemployed, which suggests that there has been a learning curve in this process.

All this evidence indicates that there is room for improvement in the allocation of resources towards areas most affected by unemployment. Additional data for monitoring and evaluating the program is necessary for a more accurate picture, but it is clear that PET is mainly an antipoverty program that focuses on the rural poor. Therefore, PET needs consider how to increase coverage and effectiveness among the unemployed population in urban areas.

The SNE, as presented in table 4.2, includes several actions that support recruitment matching mechanisms for job seekers. These include a Web site listing positions posted by firms, telephone services for same purpose, workshops for job seekers, and labor festivals that bring together job seekers and firms. ANFEFE's Support to Employment program provides scholarships for workers in the Fellowship Training Program for Work (*Programa de Becas de Capacitación para el Trabajo*—PROBECAT or PAC) program, the Training Grants for Work (*Becas de Capacitación para el Trabajo*—BECATE) program, and other small programs.

BECATE offers training courses and a modest scholarship to unemployed and underemployed job seekers. It has about seven different modalities covering different types of population. Most of the modalities provide private training courses. However, it was estimated that BECATE only trains 0.5 percent of their potential population.[9] Also, an incidence analysis indicates that the programs are benefiting the better-educated workers.

PAC partially subsidizes on-the-job training for workers employed in formal sector firms. The objective of the training is to increase the worker and the firm's productivity. Impact evaluations have shown some positive effects on technology adoption, introduction of business reorganization in firms, and on productivity of the firm in some time periods. However, there are no evaluations showing an impact on worker wages.

In general, the number of beneficiaries attending SNE programs increased as well those effectively hired. For example, in 2007 3.2 million people attended, of which 657,000 were hired, while in 2010 4 million attended, of which 987,000 were hired. However, the ratio of the effectively hired to attended slightly decreased from 0.29 in 2007 to 0.24 in 2010.

[8] This econometric analysis is included in "Temporary Employment Programs. International Evidence and Mexico's Experience during the 2009-2010 Crisis," a World Bank report available upon request.
[9] See UAM, 2008b.

Table 4.2: National Employment System

	Recruitment Service		Support to Employment		Microregions		Emergency Actions		Total	
Year	Attended	Hired	Attended	Hired	Attended	Hired	Attended	Hired	Attended	Hired
2005	1,712,639	375,140	340,597	186,841	11,557	4,366	n.a.	n.a.	2,111,177	591,438
2006	1,772,493	377,747	301,285	165,428	12,362	6,262	n.a.	n.a.	2,086,140	549,437
2007	1,950,746	447,814	309,884	200,960	12,250	8,705	n.a.	n.a.	2,272,880	657,479
2008	2,775,180	590,986	463,227	262,230	6,067	3,062	n.a.	n.a.	3,244,474	856,278
2009	3,424,515	577,545	398,406	222,357	n.a.	n.a.	116,480	96,500	3,939,401	896,402
2010	3,563,825	665,861	439,842	261,119	n.a.	n.a.	81,007	60,817	4,084,674	987,797

Source: Ministry of Labor.

Notes: Recruitment service: includes the recruitment agency in all forms, workshops for seeking jobs, and agriculture temporary jobs. Support to employment includes PROBECAT, PAE, BECATE, internal labor mobility. Emergency actions include: Action for Support Employment, Emergency Actions for Service Sector Workers.

There are two passive labor market policies included in the ANFEFE: (i) expanded withdrawals from pension savings accounts for unemployed workers, and (ii) extended coverage of health and maternity benefits for unemployed workers who contributed to the system. The latter was a temporary measure that protected workers and their families during the worst period of the crisis (the first and second quarters of 2009). The former is a permanent change with long-term implications. The short-term distributive impact of these policies will likely be favorable to middle-income families. In fact, both measures are linked to being a beneficiary of the formal social security systems in Mexico, particularly the IMSS. In this regard, beneficiaries of the IMSS are concentrated in the middle and top deciles of the income distribution; hence, expanded withdrawals from pension funds and extended coverage of health insurance are more likely to occur in middle and top deciles. If unemployment concentrates in lower-middle income households then this policy will likely have a distributive impact favorable to these households in the short term. Expanded withdrawals from individual retirement accounts did allow the government to respond rapidly to increasing unemployment during global crisis. However, there might be a need for a broader review of passive labor market policies in the medium term since the current provision threatens to erode workers' pension funds.

The expansion of the unemployment withdrawal facility had a rapid response by potential beneficiaries. The number of withdrawals in 2009 nearly doubled the number in 2008 and the average amount withdrawn grew by 39 percent. In 2010 the number of withdrawals was still 60 percent higher than in 2008, and the average amount is now 73 percent higher than in 2008. This is partly the consequence of the increase in the maximum withdrawal allowed (now up to 90 days of salary, instead of 75) and the relaxed eligible for this facility (only three years of contributions, instead of five). These numbers also highlight the relevance and usefulness of the instrument in a period of growing, and still unabated, unemployment.

There are concerns about the adequacy of this instrument as unemployment protection and its impact on the future pensions. In year 2009, the average withdrawal was of 5,355 pesos (equivalent

to approximately 22 days at the average salary of workers who contribute to IMSS). In year 2010, the average withdrawal was of 6,673 pesos (equivalent to 28 days at the average IMSS salary). These could be equated to nearly two months of unemployment insurance with a 50 percent replacement rate (still below the three months with 50 percent replacement rate seen in the less generous unemployment systems in OECD countries). Given that withdrawals can be extended up to six months, and the first one cannot exceed 30 days of the last salary, it seems that most withdrawals are making use of this first-month limit.

It is not clear if beneficiaries of the provision are actually unemployed (there are neither supervision nor activation mechanisms associated with the use of the facility). Nevertheless, the number of withdrawals per month follows closely the evolution of the unemployment rate during 2009 (see figure 2.7). After reaching a peak of nearly 140,000 withdrawals in July 2009, the monthly average has declined to around 80,000 since March 2010, still well above the average 40,000 withdrawals observed in 2008 and 2007. This is compatible with the unabated open unemployment rate observed during most of 2010.

Assuming individuals make only one withdrawal (the first), which would be an upper bound, the numbers indicate that around 100,000 individuals per month benefit from this unemployment protection facility. However, the number of unemployed workers has been above 2 million since the first quarter of 2009. This indicates the paucity of the mechanism given the size of the problem.

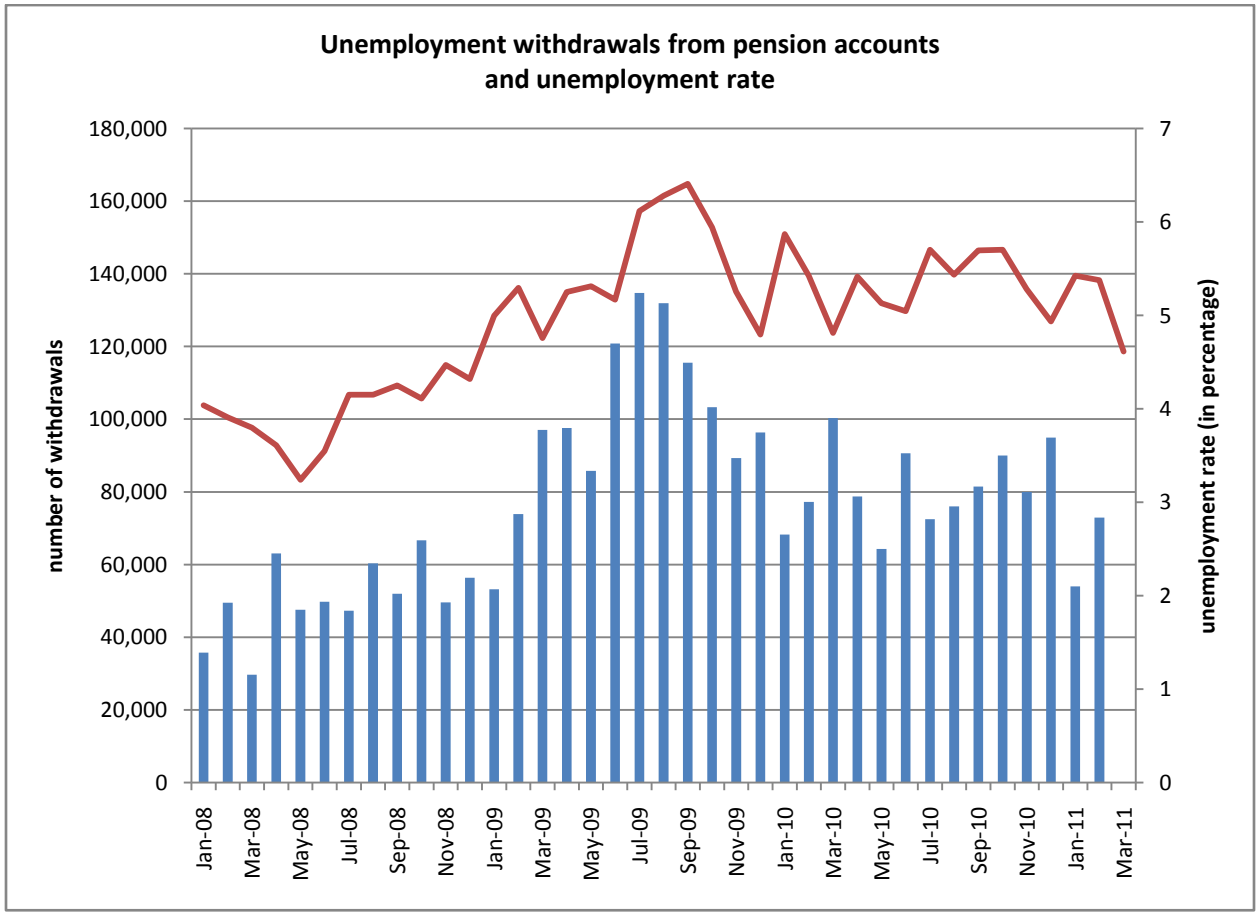
Moreover, at the time of writing this report, there is no official information about the reimbursements that workers have made to their individual accounts. This is a critical issue in the sustainability of the mechanism. On the one hand, incomplete reimbursements affect the pension that the worker may enjoy at retirement. On the other hand, without reimbursements, if the worker faces a new unemployment spell in the future (the limit is not before five years) she will again have to carve into her fund, further debilitating her pension at retirement. If unemployment spells last more than six months or occur again before the five-year limit, the worker would have no unemployment protection mechanism.

Another passive labor policy is Unemployment Insurance for the Elderly (*Seguro de Cesantía en Edad Avanzada)* for unemployed workers 60 years of age and older who worked in the formal private sector. Workers who contribute for at least 24 years to the social security system can receive a pension payment if they become unemployed. Those who do not reach the contribution time can withdraw in one lump sum the account balance for unemployment relief.[10] In addition, workers can receive a severance payment in case of a layoff. However, this applies only to workers employed in formal firms covered by the law. Still another passive labor policy is an Unemployment Insurance introduced in 2006 in Mexico City by the local government, which is still a small program. The program is for workers in the formal sector, in firms based in Mexico City, and provides up to six months of relief equal to the minimum wage.

[10] Ley del Seguro Social (Social Security Law), 1995.

Our conclusion is that labor market policies in Mexico are still limited and underfunded. Even though the country has implemented a variety of active labor market programs, the funding and coverage of these programs are insufficient for dealing with either the current crisis or future ones. Total unemployment withdrawals from pension funds represented 0.14 percent of nominal GDP in 2009. This contrasts with allocations of 0.5 to 2 percent of GDP in European Union (EU) and other Organisation for Economic Co-operation and Development (OECD) countries for passive labor market policies (see figure 4.1). The budgets of temporary employment programs, training, and intermediation services represent less than 0.3 percent of the Mexican GDP whereas these active labor market policies account for between 0.5 to 1 percentage point of the GDP in EU and OECD countries. In order to have better mechanisms for dealing with the aftermath of the current crisis and, more important, with future crisis, Mexico needs to enhance its labor market policies both in terms of funding and design. As mentioned before regarding the expansion of PET, Mexico seems ready to consider a technical analysis for an enhanced unemployment protection mechanism, as well as further expansions of its labor policies.

Figure 4.1: Unemployment Withdrawals from Pension Accounts and Unemployment Rate



Source: INEGI, BIE, SEDESOL, and data provided by the National Commission for the Pension System (*Comisión Nacional del Sistema de Ahorro para el Retiro*—CONSAR).

5. Conclusions

The 2008-2009 economic crisis still shows long-lasting negative effects in the Mexican economy. The dramatic slowdown in economic growth in early 2009 was felt worldwide. Within Latin America, Mexico was heavily affected, with GDP growth falling by 7 percentage points, partly as a result of its close trade links to the United States. The unemployment rate increased sharply from 3.5 percent to about 5.5 percent at the peak of the crisis. The levels of informality are still high at around 66 percent of the economic active population. Average real wages declined and had not recovered. The economic crisis led to a rapid decline and recovery in total employment in 2010. However, the economy has not been able to produce enough jobs to recover to unemployment rates at pre-crisis levels. The unemployment rate, which was 6.41 percent at the peak of the crisis in September 2009, declined to a 4.81 percent in March 2010 but then increased again to above 5 percent for most of 2010.

During the crisis, some sectors reduced employment, others adjusted real wages only, and others adjusted both. The crisis severely affected economic activities associated with tradable products (that is, agriculture, manufacturing, and tourism). Construction, even though is not a sector of tradable goods, also endured a severe contraction. During the recovery, all sectors (with the exception of mining) showed job creation with lower real wages. In 2009 average wages fell in all sectors but two: manufacturing and government services. Manufacturing was also the sector that endured the largest job losses. This indicates a clear pattern of adjustment to the crisis through employment rather than wages in this sector. The fact that government services were unaffected by the crisis is perhaps related to the fact that there was not fiscal consolidation associated with the crisis. The fall in wages in sectors ranged from a slight -0.1 percent in social services and -1.2 percent in the financial sector to a severe -9.7 percent in restaurants and hotels and -5.1 percent in trade in commerce. The services sector experienced job creation in every quarter: even at the peak of the crisis this sector was creating about 722,000 jobs.

The workers more likely to stay in a job during the economic crisis were male, highly skilled, household heads, and middle aged. Women were proportionately more affected by the crisis and more favored during the expansion. Finding a job became more difficult for low-skilled labor, and in contrast skilled labor did not seem to be affected. The crisis had a severe impact on firms associated with tradable goods, exports, and manufacturing in particular. These firms concentrate at the U.S.-Mexican border and have not picked up again despite the ending of the recession in both countries. The south Pacific and the peninsula regions are the only ones that did not suffer job losses either in 2009 or in 2010. Small and medium firms were responsible for the largest share of job creation during the recovery. In contrast, medium and large firms accounted for the larger portion of the reduction. This is compatible with the former description of a recession mostly affecting manufacturing firms and the recovery mostly favoring commerce and other services. It also depicts a crisis that destroyed employment in certain sectors of the economy and, four quarters later, these sectors have not return to their previous levels. If we assume that because of competitive pressures

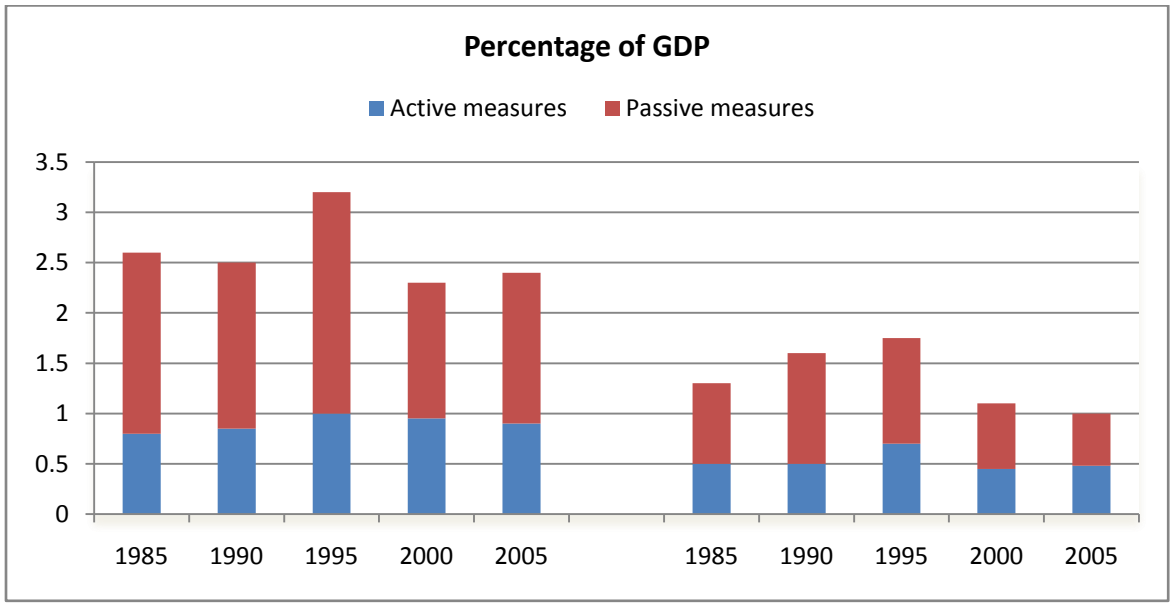
and larger capital endowment, tradable sectors and large firms are the ones with higher productivity and wages, we can then say that the recovery has not still boosted the labor market back to pre-crisis levels, leaving the Mexican workers in a weaker position than before the crisis.

Labor market dynamics are changing. The crisis produced a significant dislocation of the Mexican labor market. There were large amounts of employment destruction and creation that left the country with employment similar to pre-crisis levels, but unemployment around 900,000 people more than before the crisis. Average wages declined for all sectors. In addition, there is accelerated growth in the working age population that likely is a result of changing migration patterns. Two forces may have played a role in this. First, the recession in the United States may have forestalled migration from Mexico to the United States. Second, for the same reason, Mexican migrants in the United States may have returned to their country of origin. However, preliminary evidence suggests that even though the crisis more strongly affected Hispanics in the United States, there was no net change in migration. Workers in the United States did not return home in greater numbers, and workers from Mexico did not migrate to the United States in greater numbers.

To cope with the crises, the Mexican government announced a series of recovery programs that were mainly financed with oil revenues. Even though public expenditure increased during the crisis, private investment was lagging. Private sector growth seemingly has not responded to increased public investment and indeed lags below pre-crisis levels. There is limited information about public works programs, and the available data indicate that very modest progress was attained during the first year of the crisis, when it was most needed. The data also indicate that employment in the construction sector contracted dramatically, even though government programs should have had an immediate impact on this sector.

Labor market policies in Mexico are still limited and underfunded. Even though the country has implemented most a variety of active labor market programs, the funding and coverage of these programs are insufficient for dealing with either the current crisis or future ones. Total unemployment withdrawals from pension funds represent 0.14 percent of nominal GDP in 2009. This contrasts with allocations of 0.5 to 2 percent of GDP in EU and other OECD countries for passive labor market policies (see figure 5.1). The budgets of temporary employment programs, training, and intermediation services represent less than 0.3 percent of the Mexican GDP whereas these active labor market policies account for 0.5 to 1 percentage points of the GDP in EU and OECD countries. In order to have better mechanisms for dealing with the aftermath of the current crisis and, more important, with future crisis, Mexico needs to enhance its labor market policies both in terms of funding and design. In fact, Mexico seems ready to consider further expansions in its labor policies.

Figure 5.1: Labor Market Policies as Percentage of GDP



Source: OECD (2009).

a) Unweighted average for OECD EU countries. Data exclude the Czech Republic, Hungary, Italy, Poland, and Slovak Republic.

b) The active totals are calculated for Denmark and the United Kingdom excluding from Category 1 in the years 2000 the data for benefit administration, which are affected by significant statistical breaks.

c) Unweighted average for Australia, Canada, New Zealand, Switzerland, and the United States.

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