

V. EMPLOYMENT AND INCOME

1. Introduction

It is very difficult to quickly gauge a disaster's possible impact on employment and income. One must begin by using the available sources to determine the extent to which the labor force of the affected country or region's employment and income was at risk.

Then the analyst must use field studies to assess the post-disaster state situation of jobs and employment generation in the key sectors of the economy in the affected region. Later, he/she must determine the best time to conduct a much more precise and detailed evaluation while making sure that such painstaking endeavors are completed in time for the results to be delivered to policy makers in charge of drawing up repair and reconstruction plans and programme.¹

106

Timely assessments are key to ensuring that policy makers can focus actions on the most affected areas and sectors. The dynamics of employment recovery are not simply a variable of indirect adjustment (i.e., a product of investment in reconstruction); to achieve the greatest impact, programs must take into account where, to what extent and which sectors have been affected. Such an approach is essential for stemming the migratory flows frequently sparked by delays in employment recovery. Such migration tends to contribute to expanding the poverty belts around urban areas and to rendering more precarious the options available to these population groups to undertake their own micro process of family reconstruction, a subject not covered in macroeconomic disaster analysis.

2. Estimation of the overall impact on vulnerable employment

A preliminary response to the problem requires an estimate of the population exposed to disaster damage in terms of employment vulnerability. An approximation may be obtained by comparing data on the economically active population (EAP) of the affected areas against the impact on housing and the population, and with such vulnerability indicators as those measuring poverty, unemployment, and female employment.

The procedure to be followed involves determining the dimensions of the percentage of primary and secondary affected population. This will allow the analyst to ascertain the exposed EAP (those suffering direct loss of employment, reduction in income or a future loss or reduction of income). The exposed EAP is estimated as the total EAP of the affected area, multiplied by the percentage of primary and secondary affected population

¹ The timing of such research will depend on the extent of access to and communication with the affected area; furthermore, analysts should avoid bombarding disaster victims with multiple surveys and questionnaires during critical moments of the emergency period.

One must then determine the vulnerable EAP by combining the figure on exposed EAP and the percentage of total poverty or poverty index.

Later, it is necessary to determine the factors aggravating employment and income vulnerability. This requires information on the percentages of female employment, general unemployment and the damage to housing within the affected areas. The population's vulnerability is aggravated by such factors as the specific challenges faced by women workers employed outside the home, the difficulties in finding employment in the post-disaster situation and the economic burden of repairing and reconstructing housing.

The following table presents an example of an analysis of the global impact on employment and income, using the case of the January 13, 2001, earthquake in El Salvador to illustrate how to estimate the economically active population left vulnerable by a disaster.

Table 1
ESTIMATION OF THE ECONOMICALLY ACTIVE POPULATION VULNERABLE TO LOSS OF EMPLOYMENT AND INCOME IN EL SALVADOR AS A RESULT OF THE JANUARY 13, 2001, EARTHQUAKE

Departments	Primary secondary affected population %	Exposed EAP	Total poverty %	Vulnerable EAP	Factors aggravating vulnerability ⁴		
					EAP/Women %	Unemployment %	Damaged housing %
Usulután	96.1	120,230.0	55.8	67,088.0	36.5	8.7	71.3
La Paz	76.0	82,624.0	49.3	40,734.0	38.0	6.3	63.0
La Libertad	21.2	57,093.0	32.9	18,783.0	42.4	6.5	20.4
Sonsonate	21.4	37,151.0	60.5	22,476.0	37.6	7.2	25.9
San Vicente	55.9	33,117.0	39.9	13,213.0	32.3	7.3	64.4
Ahuachapán	21.0	22,884.0	60.3	13,799.0	28.2	8.5	14.3
San Miguel	12.8	22,226.0	44.6	9,912.0	36.4	6.5	11.7
San Salvador	2.0	16,920.0	28.4	4,805.0	45.1	7.0	2.7
Santa Ana	6.9	14,892.0	45.7	6,846.0	36.3	7.7	6.2
Cuscatlán	18.1	14,349.0	39.9	5,725.0	41.8	6.9	20.6
TOTAL		421,486.0		203,381.0			

Source: ILO estimates based on official information and the mission's own estimates.

The above table shows the vulnerable EAP broken down by affected geopolitical unit. The basis for these calculations includes the prior determination of the primary and secondary affected population (as described in the chapter on affected population in Section Two of this Handbook) and the use of the poverty index (usually available in official statistics offices or in the human development reports presented by the United Nations Development Program UNDP). Furthermore, one must obtain information on paid female employment and total unemployment, which is generally contained from in the aforementioned sources. Lastly, the employment analyst must work closely with the team's housing and human settlements specialists to acquire the housing damage assessment.

2 Identifies the sector of the EAP that might have been affected by lost employment, fall in income, and income susceptible to loss or reduction. Estimated as: Total EAP x % of primary and secondary affected population.

3 Identifies the sector of exposed EAP whose poverty serves as a drag on recovery. Estimated as: Exposed EAP x poverty rate.

4 The conditions of working women, the difficulty of finding employment and the economic burden of rehabilitating or reconstructing dwellings aggravate the situation of vulnerability.

3. Estimates of losses of employment and income at the sectoral level

Occasionally it is possible to obtain or develop coefficients linking the volume or value of production lost in each sector with the number of jobs involved, but time constraints usually make such analysis impossible. Therefore, indirect procedures must be used to estimate loss of employment in each affected sector or activity, together with the job implications of reconstruction activities, which tend to expand demand for both skilled and unskilled labor.

Let us look at some examples of how to calculate or estimate employment and income loss for typical productive sectors; the employment specialist need make only minor adjustments to apply the same methodology to other sectors.

a. Micro, small and medium-sized enterprises (MSMEs)

In developing countries, dwellings commonly accommodate a range of productive activities that generate income for their occupants. Therefore, references to “productive homes” are common.

108 Among the lowest-income population groups, such productive homes may serve as informal markets, wholesale stores, service establishments and so forth. Damage to housing may interrupt such productive activities and lead to the total or partial loss of stocks or product inventories; meanwhile, transportation costs may be greatly magnified when access roads have been blocked or severely damaged. In addition to the resulting loss of sources of employment or income, other population groups run the risk of relative income erosion under the impact of greater costs, reduced supply and price speculation on inputs and basic goods. Thanks to the timely distribution of food aid and relief supplies, price spikes and supply shortages generally do not appear until after the initial emergency stage, generally around the time reconstruction activities get underway. This means the affected population suffers a double penalty or loss as the cost of “family reconstruction” increases.

Estimating the loss of employment or income in this sector requires the availability of basic statistical information (normally available from business surveys of micro, small and medium-sized enterprises) regarding the number of people employed by type of enterprise and the relationship between the number of such enterprises and the housing accommodating them.⁵ Sometimes business associations conduct rapid surveys in the aftermath of a disaster to determine the damage suffered by members; ideally, these must be properly directed or at least coordinated by the mission’s employment specialist. The final picture can be filled out by combining the resulting data with the information produced by the housing and human settlements specialist about the number of dwellings damaged or destroyed. To this end, it is necessary to determine the wages paid and estimate the time required for production to recover in each kind of enterprise. Obviously, the employment specialist must cooperate closely with the specialist in productive sectors to produce these estimates.

⁵ For example, 1.5 employees per subsistence and simple-accumulation microenterprise; 3.5 employees per broad accumulation microenterprise; 25 employees per small enterprise. Moreover, statistics show that in this case there is one such enterprise for every 20 dwellings.

Our estimate example yields the following results:

- An average of 1.82 jobs per establishment in the 11 820 housing units destroyed that housed enterprises = 21 500 lost jobs;
- Thirty percent of jobs lost per establishment in the 20 218 damaged housing units that accommodate enterprises = 11 040 lost jobs;
- An additional 25% of jobs put at risk in the damaged 20 218 units = 9 200 jobs at risk;
- In the 30% of the establishments destroyed that are to be rebuilt in a three-month period, workers lose an average of 1.5 months' wages/income. In the 40% of establishments to be rebuilt in six months, workers lose an average of 4.5 months' income; in the 30% of establishments that are to be rebuilt after six months, income is lost during the first six months while income falls an average of 25% in the succeeding year. At a rate of one legal monthly minimum wage of 144 dollars, lost income totals 16 254 000 dollars.
- Fifty percent of establishments damaged are repaired in the first six months, with an average loss of three months' wages per employee; the remaining 50% are repaired in the following six months, with an average loss of six months per worker. Combining these figures with the same legal minimum wage, we arrive at a total loss of income of 7 153 900 dollars.

109

The mission thus estimated that 32 540 jobs were lost and another 9 200 jobs are at risk, implying approximately 23.4 million dollars in lost income in the period of six to 18 months required for establishments to be repaired. The scope of the impact on women can be inferred as they accounted for 65% of those employed in the sector. The following table summarizes the results of the previous estimates, with losses broken down by geopolitical division.

Table 2

IMPACT ON THE EMPLOYMENT AND INCOME OF WORKERS IN MSMEs AFFECTED BY THE JANUARY 13, 2001, EARTHQUAKES IN EL SALVADOR

	Enterprises destroyed	Enterprises damaged	Jobs lost	Jobs at risk	Loss of wages, US\$
Usulután	3,880	3,398	8,345	2,359	6,117,887
La Paz	2,853	3,668	7,557	2,137	5,485,730
La Libertad	1,985	1,633	4,936	1,396	3,624,167
Sonsonate	1,404	2,242	1,852	524	1,270,555
San Vicente	477	3,801	3,047	862	2,071,840
Ahuachapán	87	440	351	99	242,233
San Miguel	582	2,510	2,975	841	2,066,072
San Salvador	175	842	1,020	288	702,281
Santa Ana	128	156	335	95	242,935
Cuscatlán	229	1,265	1,257	355	864,864
TOTAL COUNTRY			32,540	9,200	23,407,920

Sources: 99 Survey of homes (unpublished), 1998 Directory of establishments, 2001 CONAMPYE report, and ILO estimates based on the mission's complementary figures.

b. Agricultural sector

The impact on employment in the agricultural sector comprises two factors. The first consists of losses in production and farmland, as well as damage to infrastructure. The second has to do with a combination of indirect factors, such as the farm workers losing access to housing when farm work is suspended or partially curtailed.

The number of jobs lost in each agricultural productive activity must be inferred from the shortfall in production resulting from the disaster. This information is normally obtainable from agriculture ministries.

The figures above must be combined with the estimated recovery period and the impact on wage levels for each activity.

It is not possible to directly measure the impact on wages, making it very difficult to arrive at an estimate of jobs at risk in this sector.

The El Salvador mission made the following job-loss estimates:

- Coffee picking, 2 015 jobs;
- Work in coffee processing plants, 630 jobs;
- Artisan fishing, 1527 jobs;
- Irrigation districts, 1 240 jobs; and
- Dispersed small irrigation systems, 215 jobs.

110

The following recovery estimates were made in line with the opinions of experts and local authorities:

- Twelve months for coffee picking, which in this case actually represents the period required for migrating other labor sectors, as non - disaster factors are expected to prevent a full recovery of activity;
- Six months for the repair of the coffee processing plants that were severely damaged, three months for those that were seriously damaged, and no impact for those that suffered less significant damage;
- Three months for the return of biomass to areas accessible to artisan fishermen, and to repair the sector's infrastructure; and
- Three months to repair irrigation districts and small irrigation systems.

Taking into account the wages paid in each activity, it was possible to estimate losses from the January 13, 2001, earthquake in El Salvador totaling 4 716 jobs and 2.9 million dollars in income (see the geopolitical distribution of these losses in the following table).

Table 3
EMPLOYMENT AND INCOME LOSSES IN THE AGRICULTURAL SECTOR CAUSED BY
THE JANUARY 13, 2001, EARTHQUAKE IN EL SALVADOR

Department	Totals		Irrigation districts		Small irrigation		Coffee processing plants		Coffee plantations		Fishing	
	Jobs	1,000 US\$	Jobs	1,000 US\$	Jobs	1,000 US\$	Jobs	1,000 US\$	Jobs	1,000 US\$	Jobs	1,000 US\$
National total	4,716	2,859	1,840	795	235	102	630	467	484	836	1,527	660
Usulután	1,166	571	515	223			70	52	35	60	546	236
La Paz	7	12							7	12		
La Libertad	2,691	1,687	1,325	572	76	33	440	320	305	527	545	235
Sonsonate	549	282			45	19	50	43	18	31	435	188
San Vicente	9	16							9	16		
Ahuachapán	165	94			114	49	50	43	1	2		
San Miguel	1	2							1	2		
San Salvador	20	9					20	9				
Santa Ana	108	187							108	187		

Source: ILO and ECLAC estimates based on official figures and own calculations

The examples above, taken from two key economic sectors in a developing country, provide guidelines on how to estimate disaster-related employment and income losses. In light of the huge variety of effects produced by different disasters, employment specialists –in close cooperation with housing and productive sector specialists– should adapt the procedures outlined here to specific situations.