

The Impact of Privatization on the Earnings of Restructured Workers: Evidence From the Oil Industry

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Abstract We study the long-term impact of job displacement from a big state owned enterprise as a result of its privatization in a developing country. Our results suggest large reductions in earnings, which persist throughout the years. However, we also find that the displaced worker's post-displacement earnings are in line with competitive market wages, and unrelated to sector of employment or to tenure losses, indicating that the long-term reduction in earnings as a result of displacement because of privatization can be traced to the loss of wage rents. Our results indicate that job displacement in SOEs may have very large redistributive implications for the workers involved but that this loss does not necessarily reflect the loss of specific human capital associated to these jobs.

Keywords Privatization · Structural reform · Displaced workers and earning losses

JEL Classification J63 · J65 · O12 · O15

Introduction

Privatization has become a global stampede in the last two decades. Countries of every geographic region, income level, and ideology have joined the rush. The main objective of these reforms was to grant markets a larger role in the allocation of resources. Privatization of State Owned Enterprises (SOEs) has been at the core of this reformist strategy.

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Several studies have shown that privatization resulted in large gains in productivity and profitability (Megginson et al. 1994; Barberis et al. 1996; Frydman et al. 1992; La Porta and Lopez-de-Silanes 1999; Galiani et al. 2005a, *inter alia*). And, it has been also shown that, at least in Latin America, it also caused large direct household welfare gains (Galiani et al. 2005b; McKenzie and Mookherjee 2003; Torero et al. 2003, *inter alia*). Nevertheless, recent public opinion polls report growing discontent with privatization in Latin America (see, among others, IADB 2002 and McKenzie and Mookherjee 2003). In addition to the alleged corruption associated to some privatizations in the region, a standard criticism of the privatization programs in Latin America focuses on their disruptive effects on the labor market. One of the reasons privatized firms improved their financial performance so fast in Latin America, is that they were heavily overstaffed before privatization, a situation that was reverted as a result of privatization. Thus, privatization is also associated with massive lay-offs. For example, in the case of Argentina, Galiani et al. (2005a) report that, on average, labor reductions were close to 40% of total employment in SOEs.

In this paper, by exploiting a survey constructed by Argentina's oil giant YPF 10 years after its internal reorganization in 1991; we are able to study the impact of job displacement on long-term earnings for a large public enterprise. Our results suggest large reductions in earnings, which persist throughout the years. In fact we find that displaced workers' earnings are about 40% lower than what they would have been in the absence of displacement, and they are only partially compensated by the returns obtained from severance payments made at the time of displacement. These earnings losses are larger than those previously found in the literature and are unrelated to sector specific skills or tenure losses. We also find that the displaced worker's earnings are in line with competitive market wages after displacement, indicating that the long term reduction in earnings endured can be traced to the loss of wage rents generated by a powerful union that bargained with a soft-budget SOE, as was typical of this and other SOEs prior to restructuring. Thus, the results of this paper, even though they do not generalize to the average long-term impact of job displacement in the whole population in developing countries, since SOEs tend to provide large rents to their employees, they might apply more generally to SOEs restructuring process.

The impact of job displacement on workers earnings has been the subject of substantial research both in the US and in Europe. This literature assesses the impact of displacement on earnings and the length of time during which this earning loss persists (see, among others, Fallick 1996). Worker displacement is generally defined as the separation of workers "without cause", which does not involve recall. This type of involuntary rupture in employment relationships is usually associated with the consequences of structural change, sectoral reallocation or technological innovation. Displacement is usually followed by a period of slow rebuilding of employment relationships, as workers displaced from long-term jobs require time to find a new acceptable match (see Hall 1995).

The literature has pointed out four main reasons why earnings decrease after displacement: loss of human capital specific to the job or sector, loss of a high quality match between the worker and the job, loss of industrial or union wage premiums, and loss of seniority. Most of the literature has focused on the estimation of the average effect of displacement on earnings, and, when possible, in identifying

their source. The results, while differing in their quantitative estimates, are found to be relatively consistent: displaced workers face earnings losses that are large and last long. For the US, Ruhm (1991) finds earning losses of 15% 4 years after displacement, Jacobson et al. (1993) find losses of about 25% 6 years after displacement and with relatively little prospect for further recovery, and Babcock et al. (1994) also find losses of 25% lasting up to 10 years after displacement.¹ Similar results are reported by Margolis (1999) for France. Only Couch (2001) reports small losses after displacement for the German labor market, with earning losses of about 6% in the second year after displacement. Additionally, Addison and Portugal (1989), Carrington (1990) and Ong and Mar (1992) show that moving out of the sector carries substantial earnings losses but Jacobson et al. (1993) conclude that losses occur only if the new jobs are outside manufacture, and not if workers switch between four digits SIC industrial sectors. Finally, results from the Displaced Worker Surveys show that the wage cost of switching industries following displacement is strongly correlated with pre-displacement measures of both work experience and tenure. Workers apparently receive compensation for some skills that are neither completely general nor firm specific but rather specific to their industry or line of work (Neal 1995).

The issue has been analyzed also for developing countries, and an excellent survey is provided in Rama (1999). However, most previous studies for developing countries do not attempt to identify the causal effect of displacement on earnings. Rama and MacIsaac (1999), for example, exploit a detailed survey of displaced workers from the Central Bank of Ecuador to study the determinants of earnings losses, but are not able to find a control group to assess what would have happened to displaced workers in the absence of displacement. Finally, Assaad (1999) studies an episode of displacement from the Egyptian public sector but does not explicitly look at losses from displacement for the workers that were actually displaced.

The rest of the paper is organized as follows. In the “[A Brief on the Privatization of YPF](#)” section, we briefly describe the privatization of YPF. In “[Identification Strategy](#)” section, we discuss the parameters of interest and our identification strategy. The “[Data Sets](#)” section presents the datasets used, while the “[Empirical Findings](#)” section presents the results. The “[Conclusion](#)” section concludes.

A Brief on the Privatization of YPF

In the late 1980s Argentina experienced growing inflation, driven mainly by money printing to finance large fiscal deficits that averaged approximately 9% of GDP during the decade (Heymann and Navajas 1989). While federal and provincial overspending generated the lion’s share of these deficits, a non-trivial portion was due to significant SOE losses. By the end of the decade as the government was unable to balance the budget the country plunged into hyperinflation. In reaction to these events a newly appointed government immediately launched an ambitious structural reform program designed to reduce the budget deficit and control inflation. The program included financial and trade liberalization, a monetary currency board,

¹ See also Hamermesh (1987) for a good survey of previous studies for the US.

the decentralization of the educational services, the reform and privatization of the national pension system, the independence of the Central Bank, a general deregulation of economic activities, and the privatization of SOEs.

One of the key privatizations was that of the oil industry. While it eventually led to a doubling of production in a few years, this also came with larger-than-average layoffs. At the time of privatization the company was the sole responsible for oil and gas production in the country and had a total payroll of about 50,000 employees, considering both YPF employees and contracted workers. The privatization implied the spinning off of non-strategic assets, the sale of strategic assets to other firms (to insure a competitive environment once the market was deregulated), and a massive internal restructuring. The description of the process is outlined carefully in a series of Harvard Business School cases.²

The reduction in employment was pretty much spread throughout the country. However, in some enclaves where oil production was the main activity, the displacement of workers led to a significant labor disruption. The employment problems of two of these enclaves were featured in the press several times during the 90s. This led the privatized company to commission a study of the labor market effects of displacement. In this paper, we exploit the data set collected for that study.

Identification Strategy

Our objective is to estimate the average earnings losses of displaced workers as a result of privatization. This parameter differs from the simple before–after change in average earnings of the displaced workers, since earnings normally change over the life cycle of an individual, and because other exogenous factors could also affect their earnings.

Consider the simplest case where we observe earnings at time t_0 before displacement and at time t_h . At time t_j , where $h > j > 0$, a group of workers is displaced from their jobs. If a longitudinal data set were available, we would estimate the displaced workers' earning losses as the difference between their actual and expected earnings had the events that led to their job losses not occurred. Thus, we would estimate the following two-way fixed effect error component model:

$$y_{it} = \alpha dDP_{it} + \beta_t X_{it} + \lambda_t + \mu_i + \varepsilon_{it} \quad (1)$$

where $t=0$ and h ; y_{it} is the earnings of worker i in period t , x_{it} is a set of control variables—standard human capital variables included in an earnings equation—that vary both across individuals and time, and dDP_{it} is a zero–one indicator that equals unity in period h if individual i in period j was displaced from his or her job. Finally, μ_i is a time-invariant effect unique to individual i , λ_t is a time effect common to all individuals in period t , and ε_{it} is an individual time-varying error distributed independently across individuals and time, and independently of all μ_i and λ_t .

² See particularly, Harvard Business School (1998a, b). See also Gadano and Sturzenegger (1998).

Consider the data generating process of the earnings of a typical displaced worker. In period 0, it is given by:

$$y_{i0} = E(y/x, t = 0) + \mu_i + \varepsilon_{i0} \quad (2)$$

while in period h it is given by:

$$y_{ih} = E(y/x, t = h) + \alpha + \mu_i + \varepsilon_{ih} \quad (3)$$

If the conditional expectation functions (CEF) $E(y/x, t)$ were known, and assuming that displacement is uncorrelated with the transitory shocks to earnings, a consistent estimate of α would be given by the following before and after estimator: $\hat{\alpha} = \overline{\Delta\omega_{it}}$ where $\omega_{it} = y_{it} - E(y/x, t)$. However, we do not observe these CEFs.³

In order to circumvent this difficulty, we assume that in the absence of displacement, the average earnings of the treated workers would have behaved as those of the population having the same observable characteristics as the treated group. This identification assumption seems plausible, given that to construct a counterfactual what we need to estimate is the life-cycle earnings profile of the displaced workers and the common aggregate shocks to wages, which are most likely to be similar for both the group of displaced workers and the population of workers with similar observable characteristics. This is specially the case for the aggregate shocks, which in Argentina are quite large and tend to dominate any sector specific shock. To scrutinize the validity of the control group in assessing the life-cycle earnings profile of the treatment group, we apply a Heckman and Hotz (1989) test and evaluate whether treatment and control groups have the same profile in the pre-intervention data. We do not reject this hypothesis at conventional levels of statistical significance. Using the sample of treated and control groups for 1991 (see next section), we estimate an earnings equation that includes a set of educational dummy variables and a quadratic polynomial in age. Then, we test that the parameters for the age and age squared variables are the same for both groups and do not reject this hypothesis at conventional levels of statistical significance (P value=0.21). We also test that the expected slope of the earnings function evaluated at the average age of the treated sample in 1991 are the same for both groups. The result is similar. We do not reject the null-hypothesis at conventional levels of statistical significance (P value=0.53).

$E(y/x, t)$ is estimated nonparametrically using cell means. In some of the specifications we report in the “Empirical Findings” section below we include individuals with zero earnings, turning y into a limited dependent variable. Thus, we cannot use the standard logarithm transformation of earnings. In order to report our estimates as percentage change in earnings, we always report the mean of the difference in differences of displaced workers earnings relative to the pre-displacement wage:

$$\hat{\alpha}_M = 100 \text{ Mean} \left(\frac{\Delta\omega_{it}}{y_{i1991}} \right). \quad (4)$$

³ It is precisely because we do not know these CEFs that we need a control group.

Some outliers, however, maybe because of truly large changes in earnings or because of measurement error might drive the results. In order to avoid this problem, we also report the median of the percentage change in earnings due to displacement:

$$\hat{\alpha}_{\text{Md}} = 100 \text{ Median} \left(\frac{\Delta \omega_{it}}{y_{i1991}} \right). \quad (5)$$

Finally, we need to assess the sample variability of these two point estimates. Two sources of sample variability have to be addressed. Firstly, the earnings of the displaced workers are gathered from a sample of its population. Second, CEFs are estimated from random samples of the population control group. Thus, to assess both sources of variability, we compute bootstrap standard errors of the point estimates reported in this study. In each bootstrap replication, we resample with replacement from both samples independently. Displaced workers are resampled in blocks at the individual level. In contrast, the control group comes from two independent samples, one for each year.

Data Sets

In this study we use two data sets: the survey of YPF displaced workers conducted during August 2001 and the Ongoing Household Survey (*Encuesta Permanente de Hogares*).⁴ The displaced workers survey provides the information for the displaced workers while the household survey is used to obtain the information for the control group.

The literature on job displacement has relied on several data sources. The standard exercise uses panel data on income from displaced workers and a control group of similar workers that were not displaced. In some cases, to avoid selection bias, the sample is restricted to those cases in which displacement occurs from plant closures or mass layoffs (firms that reduce their employment by more than a given share in any particular year). While most authors use publicly available surveys, some work with more specific databases. Jacobson et al. (1993), for example, used administrative records from the state of Pennsylvania that provide official information on employment and income for a large sample of workers throughout the state.

The target population of the displaced worker survey was the population of displaced workers at the end of 1991, the year in which the major adjustment in the labor force of the company took place. The privatized company provided the sampling frame. It contained information on job description, tenure, demographic characteristics, home addresses at time of displacement and year of displacement. The population of workers dismissed at the end of 1991 was stratified in the five regions where displacement had taken place and a two-stage random sample was drawn.⁵ The survey was conducted during the first week of August 2001. Displaced workers were interviewed face to face at home. A small group (less than 3 % of the

⁴ YPF S.A. hired the Novum Milenium Foundation, a not-for-profit research organization specialized in designing and conducting business surveys, to collect the data from the displaced workers.

⁵ These regions are the greater city of Buenos Aires, La Plata, Mendoza, Salta, Neuquen and Comodoro Rivadavia.

original sample) of workers who had moved outside the geographical area where the survey was conducted were randomly replaced using the stratified frame.

The survey collected information on labor income and employment status (including whether they were in the labor force or not) at the time of the survey, as well as retrospective information on wages at the time of displacement.⁶ It also collected information on severance payments.

Displaced workers earnings in 1991 come from recall information. This is surely subject to error, which might potentially bias the estimates of the parameters of interest in this paper. While there is no reason to suspect that measurement error in the dependent variable is systematic, in order to substantiate that this is the case, we obtained the earnings of YPF workers at the end of 1991 from the firms account system records and tested that, on average, they were not statistically different from those reported by the surveyed displaced workers. We do not reject the null hypothesis at conventional levels of significance (P value=0.29). Since there are also differences in the average level of tenure between our sample of displaced YPF workers—higher—and that of YPF workers at the time of displacement, we also estimate that there are no differences in the average earnings coming from our sample and from the account records of the firm once we control for tenure—and tenure squared—in a regression function. Again, we do not reject the null hypothesis at conventional levels of statistical significance (P value=0.51).

Table 1 shows the sample sizes for different exercises. The survey collected information for 504 displaced workers. As expected, a large fraction of our surveyed population (close to a third) had retired by the time the sample was taken. This is an expected drawback from looking at very long run effects of job displacement. Thus, by 2001, 154 interviewed are 60 or older. Of those remaining, 11.7% were out of the labor force, 64.3% were employed and 24.0% were unemployed. Although the sample is not very large, our sample sizes are similar to the ones in other studies. For example, it is similar to the sample size used by Couch (2001) for the analysis of earning losses of displaced workers in Germany.⁷ The control group is built from the ongoing household survey for Greater Buenos Aires, Mendoza, Salta and Neuquen.⁸ The household survey is conducted twice per year, in May and October.⁹

Empirical Findings

In order to estimate the parameters of interest in Eqs. 4 and 5, we first need to estimate the conditional expected earnings functions for each displaced worker for the years 1991 and 2001. We estimate them non-parametrically using cell means.

⁶ Labor income was collected to be comparable between the displaced workers' survey and the household survey (used to construct the counterfactual scenarios).

⁷ Couch (2001) uses sample sizes going from 209 up to 272.

⁸ The household survey is not conducted in Comodoro Rivadavia. Thus, the control group for displaced workers from this region is estimated using data from Neuquen, which is the closest urban agglomerate for which we do have data.

⁹ For a brief description of the Household Survey see Galiani and Hopenhayn (2003).

Table 1 Displaced workers survey

| | Total | As a percentage of workers 60 or younger (%) |
|---|-------|---|
| Number of interviewed displaced workers | 504 | |
| Number of interviewed individuals who were 60 or older in 2001 | 154 | |
| Number of interviewed individuals who were younger than 60 in 2001 | 350 | |
| Out of the labor force | 41 | 11.7 |
| Employed | 225 | 64.3 |
| Unemployed | 84 | 24.0 |

Summary statistics

Cells are constructed on the basis of age and educational attainment, for age groups: (18–24), (25–29), (30–34), (35–39), (40–44), (45–49), (50–54) and (55–59); and educational categories: complete primary, incomplete secondary, complete secondary or incomplete tertiary or university, and complete tertiary or university. Mean wages are computed for each of these 32 groups in the household survey for each of the five urban agglomerates from which there are displaced workers. The samples are restricted to male workers since we only have a very few female displaced workers, which are excluded from the main analysis.¹⁰

Table 2 presents the main results. The baseline specification in column (1), which uses the non-parametric estimates of the CEFs described above, shows a dramatic and statistically significant reduction in average earnings as a result of displacement equal to 40.5%. The median reduction in earnings is a bit larger and equals 49.8%. Thus, the conclusions are similar irrespective of the (conditional) location parameter considered.

We also compute the CEFs by estimating standard earnings equations where the dependent variable is the logarithm of workers' monthly earnings in their main occupations. The conditioning variables are a set of schooling dummies, sex, age and age squared of the sampled individuals. In order to estimate the ω 's, we compute the antilogarithm of the expected estimated earnings. The results are quite similar.¹¹ Average earnings decreased 38.6% as a result of displacement—as opposed to 40.5% when we estimate the CEF using cell means.

One possibility is that YPF workers are losing their return to tenure. In order to explore this possibility, we regress $\left(\frac{\Delta \omega_{it}}{\omega_{i,1991}}\right)$ for each displaced worker against his tenure in 1991 and find no significant effect of tenure on the earning losses experienced by these workers (coefficient = -0.005, P value = 0.57).

In columns (2) and (3) of Table 2 we split the sample between displaced workers who stayed in the oil sector and those who did not. As we mentioned above, there is some evidence from the US that workers that are re-employed in their own sector suffer lower reductions in earnings. Our evidence is consistent with previous work.

¹⁰ Only 12 women with valid information are not included in the main analysis. We also exclude a few family workers from the analysis.

¹¹ These results are not reported in the Table.

Table 2 Percentage change in earnings as a result of privatization

| | Employed in 2001 (1) | Employed in 2001, in oil sector (2) | Employed in 2001, outside the oil sector (3) | Employed in 2001, interest from severance payment imputed (4) | Employed in 2001, in oil sector, interest from severance payment imputed (5) | Employed in 2001, outside the oil sector, interest from severance payment imputed (6) | Employed and unemployed in 2001 (7) | Employed and unemployed in 2001, interest from severance payment imputed (8) |
|----------------------|----------------------------|--|---|---|--|---|--|--|
| Mean | -40.5*** (4.7) | -21.5 (16.7) | -47.3*** (5.7) | -29.8*** (4.7) | -10.7 (16.4) | -37.1*** (5.8) | -49.6*** (4.7) | -38.6*** (4.4) |
| Median | -49.8*** (3.5) | -40.9*** (5.8) | -52.4*** (5.1) | -39.9*** (3.7) | -30.4*** (5.2) | -46.4*** (5.7) | -58.6*** (3.7) | -48.4*** (3.6) |
| Displaced workers | 150 | 27 | 101 | 150 | 27 | 101 | 212 | 211 |

Bootstrapped standard errors in parentheses. 100 bootstrap replications.

Displaced workers sample sizes:

Male displaced workers with valid information either employed or unemployed in 2001: 212.

Male displaced workers with valid information employed in 2001: 150. Only 118 of these workers report the sector they work in 2001, and only 27 of these individuals worked in the oil sector.

All earnings are in September 1991 pesos.

*** Significant at 1%.

Individuals reemployed in the oil sector show lower earning losses as a result of displacement. Nevertheless, even these workers suffered large drops in earnings as a result of displacement. For example, the (conditional) median reduction in earnings is 40.9% for those who stayed in the oil sector and 52.4% for those that move out of the sector, although the difference between these two estimates is not statistically significant at conventional levels of significance. The (conditional) mean reductions in earnings for both groups are lower (21.5% and 47.3% respectively) and the difference between them larger, but still they are not statistically significant.¹² At any rate, what is transparent is that even those that remained in the oil industry experienced reductions in earning as a result of displacement.

Argentina has a relatively generous system of severance pay (see Galiani and Nickell 1999). Thus, at the time of displacement, YPF workers received a non-ignorable severance payment that they might have invested to obtain a flow of income. This income has to be computed when evaluating the effects of job displacement. Naturally, workers may have invested it differently and with dissimilar success. Nonetheless, they could have invested it in a secure coupon bond with fixed interest rate and constant, regular repayment of interest (e.g. US Treasury Bonds). Thus, an alternative estimate of displaced workers' earnings incorporates in their actual earnings the potential flow of interests on a coupon bond over the severance payment received at the time of displacement.¹³ For the 11 workers who do not report their actual severance payment, we estimate the legal payment based on their tenure and salary at time of displacement.

Column (4) incorporates the potential interest income earned on severance payments. Taking this into account reduces the estimated loss in approximately 10 percentage points, from 40.5% to 29.8%. Columns (5) and (6) present the result by whether the worker is in the Oil sector or not. It still appears that even those that remained in the oil industry experienced reductions in earnings as a result of displacement.

So far, we have only considered displaced workers who held a job at the time the displaced worker survey was conducted. In column (7) we also include workers who were unemployed. We therefore also include unemployed workers in the samples used to construct the counterfactuals. Since displaced workers are more likely to be unemployed than the population, we find that average losses are higher than in the baseline specification –49.6% as opposed to 40.5%. Finally, in column (8) we add the potential income earned from interest on the severance payment. The average estimated loss for displaced workers is in this case 38.6%.

In Table 3 we present two robustness checks of the estimates in Table 2. First, we impute earnings at the end of 1991 to displaced workers with missing wages at the time of displacement. We use the information on wages of the other displaced workers to estimate an earnings equation for this group. Since their earnings in 1991 were bargained collectively, this seems to be a reasonable assumption. As can be seen in the first row of the table earning losses are basically unaffected by this

¹² Again, parametric estimates are very similar (21.9% and 43.4%) to the mean nonparametric estimates.

¹³ We estimate the potential monthly income from interest as 0.005 times the severance payment, implying an annual rate of return of 6.17%. This is close to the average yield of the 5-year US Treasury Bonds over the period 1991–2001.

Table 3 Robustness checks

| | Employed in 2001 (1) | Employed in 2001, in oil sector (2) | Employed in 2001, outside the oil sector (3) | Employed in 2001, interest from severance payment imputed (4) | Employed in 2001, in oil sector, interest from severance payment imputed (5) | Employed in 2001, outside the oil sector, interest from severance payment imputed (6) | Employed and unemployed in 2001 (7) | Employed and unemployed in 2001, interest from severance payment imputed (8) |
|--|----------------------------|--|--|---|--|---|--|--|
| Including displaced workers with missed earnings in 1991 | -41.0*** (4.6) | -21.5 (15.0) | -47.2*** (5.2) | -30.5*** (5.2) | -10.7 (14.4) | -37.3*** (5.1) | -51.2*** (3.2) | -40.4*** (3.9) |
| Including displaced workers with missed earnings in either 1991 or 2001 | -32.3*** (4.0) | -18.1 (12.9) | -41.8*** (5.3) | -23.5*** (3.8) | -9.0 (12.7) | -32.1*** (5.2) | -43.2*** (3.1) | -33.2*** (3.2) |

Mean percentage change in earnings as a result of privatization.

Bootstrapped standard errors in parentheses; 100 bootstrap replications.

All earnings are in September 1991 pesos.

Missing displaced earnings for 1991 are imputed using point estimates from an earning equation estimated for the sample of displaced workers with earnings information.

*** Significant at 1%.

correction. Second, we want to explore if our results are robust to missing information on earnings in 2001. In order to test this, we assume that the displaced workers with missing data did not suffer any loss in earnings—i.e., their wages increased as those of the population counterfactual group. Although the estimated average earning losses are somewhat lower, they still are quite high. For example, for those employed in 2001, they are 32.3% instead of 40.5%. As the others columns in this table also show similar results to those in Table 2, we conclude that missing information does not drive our results.

In order to further understand the factors behind such large earning losses Figs. 1 and 2 show the correlation of our estimates of the economic rents of the displaced workers both for 1991 and 2001 (ω_{1991} and ω_{2001}). Remember that ω_t measures the rent of a worker (i.e., the difference between what an employed worker got from his employment relationship and his *outside option*). Figure 1 considers only displaced workers that were employed in 2001, while Fig. 2 includes both those employed and unemployed.

As can be observed, almost all workers extracted positive rents in 1991 while the number of workers with positive or negative rents is more evenly distributed in 2001. In fact, average rents just dissipate when considering all displaced workers in 2001. This implies that, on average, displaced workers have earnings, 10 years after displacement, comparable to the average market earnings for workers that have similar observable human capital characteristics. How is this compatible with the very large earning losses compared to the pre displacement situation? The only possibility is that pre-privatization workers were earning wages much above market

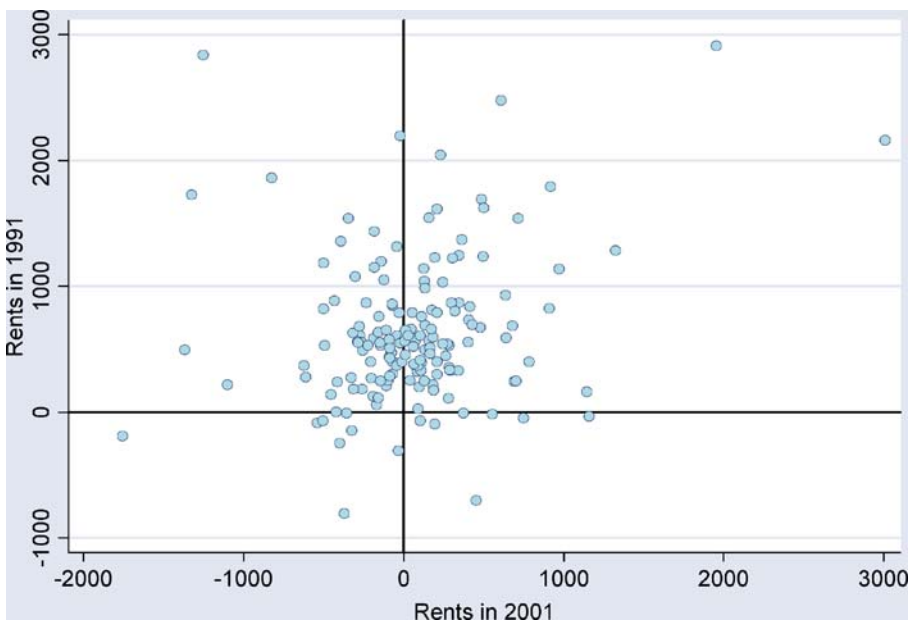


Fig. 1 Rents in 1991 and 2001. Male workers employed in 2001. Education-age cell means using all conglomerates. Earnings in 1991 were imputed using an earnings equation for all workers

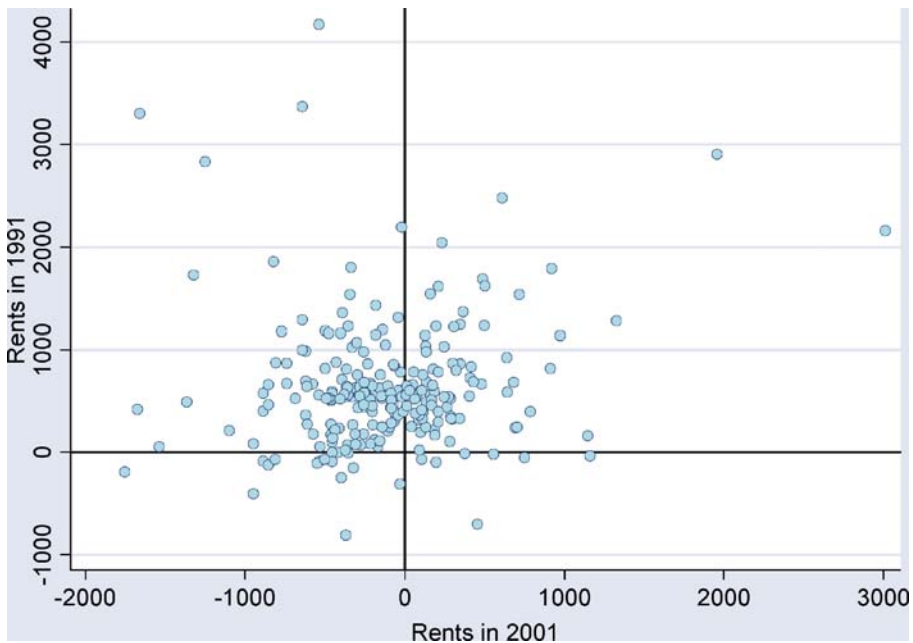


Fig. 2 Rents in 1991 and 2001. Male workers employed or unemployed in 2001. Education-age cell means using all conglomerates. Earnings in 1991 were imputed using an earnings equation for all workers

clearing levels. Thus the privatization did entail a loss in earnings, but from an artificially high-income level.¹⁴

Conclusions

In this paper we have used a new database of displaced workers to estimate the earning losses for a group of displaced workers from a large privatization experience in a developing country. Our results suggest large reductions in earnings, which persist throughout the years. In fact we find that displaced workers' earnings are about forty percent lower than what they would have earned in the absence of displacement, and they are only partially compensated by the returns obtained from severance payments made at the time of displacement.

These earnings losses are more striking than those previously found in the literature, particularly for developing countries, as these losses remain 10 years after displacement. However, while these results show a hefty loss for the employees that

¹⁴ One concern is that YPF displaced workers were just having transitory high earnings before displacement in 1991 and that this accounts for part of the result. However, the evidence available indicates that up to the reform process the unions had commanded a strong and unchallenged bargaining power in wage settlements. This suggests that there is no reason to believe 1991 wages were not consistent with historical wages. Other concern would be that wage inequality might have decreased during the period, relatively harming the higher than average wages of YPF workers, but precisely the opposite occurred.

might reflect a social welfare loss (for example a loss of sector or job specific human capital) the fact that displaced worker's earnings are in line with competitive market wages after displacement and that the losses are not associated to the sector of employment or the loss of tenure, suggest rather that the long term reduction in earnings endured by workers displaced from YPF can be traced to the loss of wage rents generated by a powerful union that bargained with a soft-budget SOE, as was typical of this (and other SOEs) prior to its restructuring. If so, our results indicate that job displacement in SOEs may have very large redistributive implications but smaller social welfare costs. Nevertheless, it is worth noting that strictly, our results do not necessarily generalize to all cases of job displacement from SOEs in developing countries. In other words, our results are derived from a case study and as such, they might lack external validity.

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