

## **A Brief Note on Deunionization and Pay Inequality in Turkey**

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### **Abstract**

Utilizing cointegration and causality methods, this study reveals that there exists a negative relationship between union density and pay inequality and that causality runs from inequality to union density in Turkey during the 1963-2008 period.

**Key Words:** unions, pay inequality, cointegration, causality, Turkey

**JEL Classification:** C22, J31, J51

## Introduction

Rising pay inequality and a decline in union density in the last decades are two remarkable patterns in Turkey, as is the case in many major countries.

The effects of unions on pay inequality can occur in four ways (Lemieux 1993). First, unions reduce pay inequality within firms among blue-collar workers; and, secondly, among firms by setting a common wage scale for all firms in a given product market. Thirdly, unions lessen inequality when they pursue decent pay for their members, because it is blue collar workers who comprise the majority of union members and whose average wages are considerably lower than those of white collar workers. Finally, while pushing up wages for their members unions cause higher pay inequality because some cannot be employed at an ongoing high wage level and switch to nonunion sectors, increasing the labor supply and lowering wages in those sectors, in the so-called the spillover effect. Also, those who cannot find a job in either sector receive unemployment benefit that is less than the wage level, adding to pay inequality (Checchi and Garcia-Penalosa, 2008, 2010). Therefore, whether unions bargain over wages alone or both the wage and the level of employment is crucial in the context of the effect of unions on pay inequality<sup>1</sup>. In the case of the latter, unions can push up wages without impacting employment when profits are lowered (Alogoskoufis *et al.*, 1988; Herzer, 2014).

The ambiguous role of unions on pay inequality has long been investigated; the results are inconclusive (see Checchi and Garcia-Penalosa, 2008, 2010; Tongur and Elveren, forthcoming). It is stressed that results of panel data studies cannot be applied to individual

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<sup>1</sup> In the *right-to-manage model* the monopoly union bargain over the wage level and the firm sets the effective level. In the *efficient bargains model*, on the other hand, bargaining occurs over both the wage level and the level of employment.

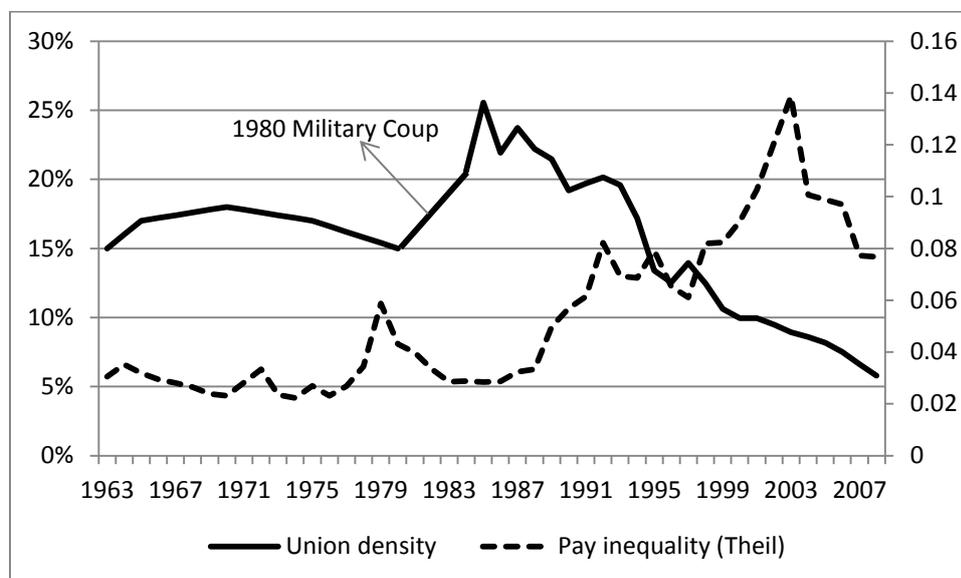
countries because of some methodological shortcomings (Checci and Garcia-Penalosa, 2008). As Herzer (2014) noted, studies using panel data cannot capture heterogeneity in the unionization-income inequality nexus across countries. These results are misleading in dynamic models in terms of parameters produced when the slope coefficients vary across cross sections. Conclusions drawn from these studies cannot therefore be easily generalized (Pesaran and Smith, 1995).

Moreover, studies that are based on cross-country data provide correlation without identifying causation between variables. In fact, it can be argued that the literature in general suffers from the endogeneity problem. This is because there might be a causality running from inequality to unionization. One reason is that, if ‘inequality-averse’ union members believe union impact in reducing inequality is not strong then increasing inequality might lead to a decline in union density (Herzer, 2014). Another reason is that, as Acemoglu *et al.* (2001) suggest, increasing productivity differentials resulting in higher pay inequality might weaken the coalition between skilled and unskilled workers over joining the unions because the desirable competitive market return reduces the incentives of skilled workers to join the union. As a matter of fact, in a recent study Tongur and Elveren (forthcoming) found significant evidence that there exists causality running from inequality to unionization for the OECD countries for the period of 1963-2000.

Unionization in Turkey begins with the 1963 law that grants unions the right to collective bargaining and to strike for the first time. The second period of unionization, as well as the fall of it, overlaps with the neo-liberal model, which came into force with the so-called January 24 Decision in 1980, followed by the 1982 Constitution of the military coup, which had very strong anti-labor and antiunion characteristics. The same era has also

witnessed increasing pay inequality (see Figure 1). Although there exists a sizable literature on the causes of the deterioration of pay inequality that accelerated in the late 1980s (Elveren and Galbraith, 2009) there is no study that examines the effect of unionization in a long-run time series structure in Turkey. Duman (2012), a single relevant study, using the 2004 Household Income and Consumption Expenditure Survey, shows that unionization has no significant effect on reducing within group wage inequality.

**Figure 1: Deunionization and pay inequality, 1963-2008**



This present work is the first study that directly examines the relationship between union density and pay inequality in Turkey between 1963 and 2008; and it is relevant for two reasons. First, considering that it is not plausible to generalize the results of panel data studies to all individual countries, the study deals with a single country case to better understand the linkage between variables in question. Second, Turkey is a highly significant country in this context since the unionization rate steadily fell from over 20 % in the late 1980s to 5.8 % in

2008, the lowest and far below the OECD average of 27.7 % (OECD). Also, the country suffers from high inequality: among OECD countries, regarding pay inequality while it has the highest inequality, regarding income inequality it has the highest third after Chile and Mexico (OECD, 2001; UTIP).

## 2. Data and Empirical Analysis

We adopt manufacturing pay inequality data set provided by Elveren (2012). Elveren merges the manufacturing pay inequality data set provided by the University of Texas Inequality Project and Elveren (2010)'s calculations. The unionization density statistics are computed by Celik (2004) according to the ILO method, and are in line with OECD trade union density statistics. We prefer using data of Celik (2004) rather than the one by the Ministry of Labor and Social Security of Turkey because the latter has severe problems, as acknowledged by both OECD and ILO.

Following the procedure adopted by Herzer (2014) we set a bivariate model as follows.

$$Inequality_t = a_1 + a_2t + a_3Union_t + \varepsilon_t \quad (1)$$

where *Inequality* and *Union* refer pay inequality and union density, respectively.

The first step is to test the stationarity of the variables in order to avoid spurious regression. As Table 1 shows, for both variables the unit root hypothesis can be rejected for the first differences. That is, *inequality* and *union* are integrated of order one, allowing one to proceed further in analysis.

**Table 1. Unit root tests**

Variables	Deterministic terms	ADF statistic	PP statistic
Levels			
Inequality	Constant, trend	-3.129250 (0.1130)	-2.560930 (0.2992)
Union	Constant, trend	-1.443386 (0.8356)	-1.443488 (0.8349)
First differences			
$\Delta$ Inequality	Constant, trend	-4.265804 (0.0087)	-6.705208 (0.0000)
$\Delta$ Union	Constant, trend	-6.849686 (0.0000)	-6.849686 (0.0000)

*Notes:* Optimum number of lags is chosen as 1 according to all basic information criterions; and numbers in parentheses are *p*-values.

The second step is to investigate the existence of cointegration between variables. Table 2 provides the results of Engle-Granger (1987) and Phillips-Ouliaris (1990) tests. Although the former test suggests relatively weak evidence for cointegration, considering the superiority of the PP test in that it corrects for any serial correlation and heteroskedasticity in the errors non-parametrically it is concluded that there exists a long-run relationship between two variables.

**Table 2. Cointegration tests**

	t-statistic	p-value
Engle-Granger ADF test	-3.671561	0.0995
Phillips-Ouliaris PP test	-3.897838	0.0618

*Notes:* Optimum number of lags is chosen as 3 according to Akaike information criterion.

The third stage is to examine this long-run relationship in order to see the effect of (de)unionization on pay inequality. To this end we employ the dynamic ordinary least square (DOLS) method suggested by Stock and Watson (1993) in following form

$$Inequality_t = a_1 + a_2t + a_3Union_t + \sum_{j=-k}^k \phi_j \Delta Union_t + \mu_t \quad (2)$$

where  $\Phi_j$  are coefficients of both lead and lag differences, which can make up for possible serial correlation and endogeneity of the regressor(s) to provide unbiased estimates. Because of short time period of data, we consider one lead and lag ( $k = 1$ ) period to preserve degrees of freedom. The estimated equation is as follows ( $t$ -statistics in parenthesis):

$$Inequality_t = 0.0539 + 0.00145t - 0.0022Union_t + \sum_{j=-1}^1 \phi_j \Delta Union_t \quad (3)$$

(2.73)      (4.48)      (-2.47)

The estimation shows a statistically significant negative effect of unionization on inequality, suggesting that a fall in the unionization rate (i.e. deunionization) leads to higher pay inequality. In order to investigate the short-run dynamics of variables we check for the vector error-correction model (VECM) in Equation 4.

$$\Delta Inequality_t = \beta_0 + \beta_1 \Delta Union_t + \lambda (Inequality_{t-1} - \alpha_0 - \alpha_1 Union_{t-1}) + \varepsilon_t \quad (4)$$

The error correction term, ECT, refers to the deviation from the equilibrium, and the adjustment coefficients capture how *inequality* and *union* respond to deviations from the equilibrium. In the VECM settings at least one of the adjustment coefficients must be negative and significant in order for a long-run relationship between the variables to hold.

$$\Delta Inequality_t = 0.00075 - 0.322824ECT_{t-1} + 0.136602Inequality_{t-1} - 0.000269Union_{t-1} \quad (5)$$

(0.4427)      (-2.3418)      (0.8126)      (-0.2229)

Equation 5 confirms that the model of the long-run relationship between variables holds ( $t$ -statistics in parentheses). The VECM model shows that *union* responds to

discrepancies from the long run equilibrium relationship, adjusting around one third of inequality.

Finally, Granger causality tests are employed to capture the direction(s) of long-run causality among the variables. Table 3 shows that there is unidirectional causality from *inequality* to *union*. This finding provides evidence for the existence of possible effect of inequality on unionization, a rarely considered linkage in the literature (Acemoglu *et al.*, 2001; Henzer, 2014; Tongur and Elveren, forthcoming).

**Table 3. Granger causality tests**

Null Hypothesis	Obs.	F-Statistic	Prob.
DUNION does not Granger Cause DINEQUALITY	44	0.12882	0.8795
DINEQUALITY does not Granger Cause DUNION		2.73935	0.0771

### 3. Conclusion

The study shows that the fall of unionization leads to higher pay inequality in Turkey during the time period that covers the implementation of the first trade union law and the fall of unions that overlaps with the neoliberal period in Turkey from 1980 to up until 2008, the most recent inequality data available. We acknowledge that the relationship between unionization and pay inequality requires further investigation by considering some other crucial factors such as unemployment.

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