Pay Inequality in Turkey in the Neo-Liberal Era: 1980-2001

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Abstract

This paper examines pay inequality in Turkish manufacturing annually from 1980 to 2001. Using the between-group component of Theil's T statistic, we decompose the evolution of inequality by geographic region, province, sub-sector and by East-West distinction both for private and public sectors. The decompositions show that while inequality remains approximately the same between regions, it increases in the late 1980s in the private sector between provinces, between East and West, and as well as between manufacturing sub-sectors.

1. Introduction

This paper analyzes pay inequality in the manufacturing sector of Turkey between 1980 and 2001. By doing so, we attempt to sketch a general picture of Turkish income distribution, for the dispersion of manufacturing pay has been shown to be a broadly effective instrument for the movements of inequality writ large. The Turkish economy can be associated with a persistently unequal income distribution and a true dichotomy between the wealthier West and the poorer East. With the adoption of the neo-liberal model in 1980, inequality rose substantially, particularly in the 1990s.

In international comparisons of income distribution, Turkey generally has a high value when compared with other upper-middle income countries (World Bank 2000; Gürsel et. al 2000). While inequality appears to have declined through the 1970's, by the 1980's this was no longer the case; by the 1990's inequality had worsened. Cited causes for this deterioration (WB 2000) include the negative trend of real wages, a change in tax policies benefiting the rich, a failure of redistributive tax policy, high real interest rates, unequal education (Köse and Güven, 2007; Duygan and Guner, 2006), and excessive migration to urban areas due to both economic and political pressure.

This study makes two contributions to the literature on economic inequality in Turkey. First, rather than dealing with micro-level data for a very limited number of years, we focus on pay in the manufacturing sector so as to develop annual measures between 1980 and 2001. Second, we exploit the decomposition properties of Theil's T statistic to provide a detailed picture of the evolution of pay inequality in the manufacturing sector by sub-sectors, geographical regions, provinces, and the East-West divide.

Following this section we present our methodology and data. The third section provides a brief history of the Turkish economy. In section four, we review the literature on income inequality in Turkey. A detailed analysis of payment inequality is provided in section five. Finally, we summarize our findings in the conclusion.

2. Methodology and Data

We use the between-groups component of Theil's T statistic to analyze the overall evolution of pay inequality in the manufacturing sector as well as the contributions to inequality of each manufacturing sub-sector, region and province in Turkey.

Theil's T statistic has two components, the between-group (T^B), and the within-group component (T^W).

$$T = T^B + T^W$$

Since we have aggregated data, the within-group component of inequality is unobserved; the between group-component, on the other hand, provides the lower-bound estimate of general pay inequality in this case (Theil 1972). T^B can be stated as

$$T^B = \sum_{i=1}^{n} \left\{ \left(\frac{p_i}{P} \right) * \left(\frac{y_i}{\mu} \right) * \ln \left(\frac{y_i}{\mu} \right) \right\}$$

where i indexes groups, p_i is the population of group i, P is the total population, y_i is the average wage in group i, and μ is the average wage of the entire population.

This measure provides a robust indicator of the trend of overall inequality and demonstrates the evolution of the contribution to inequality of various groups for whom data on average income and population weights are available (manufacturing sub-sectors, regions, and provinces in this case).

We use the Annual Manufacturing Industry Statistics (AMIS) provided by the Turkish Statistical Institute. The data is provided at a two-digit level and is disaggregated according to provinces. It covers establishments that have more than 10 employees. In order to prevent an arbitrary increase in the Theil's T statistic due to an increase in the number of provinces throughout the period (i.e. currently there are 81 provinces), we recalculated the data based on 67 provinces. We also analyzed seven geographical regions (namely Marmara, Aegean, Mediterranean, Central Anatolia, Black Sea, Southeast Anatolia, and Eastern Anatolia), and the East-West distinction, so as to clarify the geographic duality of the Turkish economy.

We made all calculations separately for the private sector, the public sector and for both sectors together. All results are provided in the Appendix. Nominal values are deflated according to the consumer price index, which does not affect the inequality calculations but may be useful for some other purposes.

3. The Evolution of the Turkish Economy

The Turkish economy can be analyzed in two main periods. Before 1980 the country adopted economic liberalism, *étatism*, and import substitution industrialization policies, in that order. The post-1980 period is associated with an export-led regime in conjunction with the emerging dominance of the neoliberal paradigm.

The economic policy implemented immediately after Turkey became a republic was based on liberal principles, which emphasized the role of the private sector, with agrarian production at its center. Self-sufficiency was the economic philosophy during this early period (around 1920). Turkey, however, did not have the proper environment to succeed with such a development policy. Several problems existed at this time, including a shortage of national capital, underdeveloped financial institutions, inadequate policies for introducing foreign capital, as well as a shortage of entrepreneurs and an underdeveloped infrastructure (Öniş 1999a:457). The economic liberalism of the new state did not last long, as the deteriorating world economic conditions at the end of the 1920s pushed the regime to revise its economic policy and to adopt rigid state-led industrialization (*étatism)*. The government established State Economic Enterprises (SEEs) for industries needing large amounts of capital. SEEs were the focal point of planned industrialization.

From the early 1960s to 1980, Turkey followed a strategy of industrialization through import substitution policies, coupled with intensive government intervention under the Development Plans (Aktan, 1997; Okyar, 1965, 1979; Hershlag, 1968; Keyder, 1987). However, the sub-period of 1960-1980 is distinguishable from the beginning of *étatism* by the introduction of Five-Year Development Plans after 1963. The import-substitution strategy of the 1960s and 1970s generated an economy highly dependent on imports and foreign borrowing but with limited capacity to export (Öniş and Webb, 1999:325). Consequently, following a period of rapid economic growth and structural transformation, the economy experienced severe disequilibria towards the end of that period.

With the military coup of 1980 in Turkey came the onset of neo-liberal economic policies. The military, by repressing the voice of civil society, was able to push through a neo-liberal agenda without any resistance. The civilian successor of the military government, which was elected in 1983, followed the same neoliberal model, as was made evident by the government's complete commitment to the IMF and World Bank's policies. The creation of a "peaceful" environment through anti-labor legislation and the 1982 constitution benefited corporations rather than labor by shutting down the country's largest labor union. As a result of such conditions, the main characteristic of the post-1980 period in Turkey (i.e. the export-led regime) was massive shrinkage in real wages.

A stabilization program with the IMF was implemented to deal with a severe balance of payment crisis in January 1980. The crisis, according to the consensus view, reflects the limits of development policies that are based on import substitution and was also a result of some strategic policy errors. The package consisted not only of internal but also of external liberalization recommendations. In essence, the policy package put into effect in 1980 and reinforced in the following years was more than just a stabilization and adjustment package; it also marked a shift in development strategy from inward to outward orientation. Removing price controls and subsidies, reducing the role of the public sector in commerce, emphasizing growth in the private sector, stimulating private investments and savings, liberalizing foreign trade, reducing tariffs, easing capital transfer exchange controls, privatizing the Central Bank and reforming the taxation system were elements of the new economic philosophy in this era.

The reform process started with liberalization of the foreign trade regime and the financial sector and culminated in the liberalization of the capital account during the

latter half of 1989. This last action changed the whole pattern of the policy-making environment radically. More specifically, Turkey liberalized its foreign trade regime, removed price ceilings on goods and services and other "distortions" in product markets, and deregulated the financial sector. The initial outcome of the reform process was promising and was accepted as an impressive development by the domestic authorities and international financial institutions (Ekinci, 1990; Akyüz and Boratav, 2003).

Despite these movements toward a more open market, the degree of privatization remained limited. Toward the end of the decade, the export-led regime -- powered by suppressed wages, depreciation of domestic currency, and extremely generous export subsidies -- reached its economic and political limits (Boratav and Yeldan 2006). Public sector deficits and inflation had come back with full force. The policy response was to liberalize fully the capital account in 1989. While macroeconomic instability and political uncertainty prevailed, the decision to liberalize capital accounts was ill-timed (Rodrik, 1990; Cizre and Yeldan, 2002; Alper and Öniş, 2002).

After the capital account liberalization, disinflationary efforts --based on monetary tightening and real appreciation -- became much more pronounced. However, the government did not take corresponding measures on the fiscal side. As a result of the unsustainable nature of fiscal policy and the external deficit, the economy witnessed a major crisis in early 1994. In response, the government launched a broad stabilization and reform program focusing on fiscal adjustments. It also provided for a range of public sector reforms, notably divestiture of the state-owned enterprises. With the EU Customs Union Agreement in 1995 the import liberalization that started in 1984 was carried up to a higher stage (Elveren and Kar 2008).

In July 1998, under the guidance of the IMF, the Turkish government started to implement another disinflation program, which achieved some improvements regarding the inflation rate and fiscal imbalances. However, the program could not relieve the pressures on interest rates. The fiscal balance of the public sector was further harmed by the Russian crisis in 1998, the general election in April 1999 and by two devastating earthquakes in August and October in 1999. In particular, the area affected by the earthquakes was the country's industrial heartland and the immediate and adjacent provinces (including Istanbul), accounting for around one-third of Turkey's overall output. It was assessed that their initial effects would have a severe negative impact on GDP during the short term, but that recovery and reconstruction would probably result in stronger growth in 2000.

In December 1999, the government started to implement an ambitious stabilization program, aimed at achieving single-digit inflation by 2002, supported by an IMF stand-by agreement. Central to the program had been firm monetary and exchange rate policies, set so as to provide a nominal anchor for reducing inflation expectations; also sounder public finance aimed at eliminating the principal source of inflation pressures, and wide-ranging structural reforms designed to liberalize and modernize the economy (OECD 2001). The program produced significant progress in 2000, but a severe banking crisis blew up in late November, accompanied by massive capital outflows. Furthermore, in early 2001, the second wave of the banking crisis deepened and caused the collapse of the three-year exchange rate-based stabilization program only 14 months after it had been launched (Akyüz and Boratav 2003; Cizre and Yeldan 2002).

A new program was presented in May 2001 and was further elaborated and redefined during the course of the year and into 2002. This was also supported by the IMF with a commitment of new funding in autumn 2001, followed by a substantial disbursement in February 2002. The new program represents a deeper attempt than previous ones to address the fundamental weaknesses in the economy. In particular, the program encompasses key structural reforms that aim at including a strong focus on public sector reform, building a sound banking system and liberalizing markets for private sector-led growth (OECD 2003). After November 2002, the newly elected single-party government maintained the same program. Although the economic program seems to have made some progress in recent years in strengthening public finance, lowering inflation, and reviving growth, it has been severely criticized on several grounds (Yeldan, 2004).

In 2004 period the government made another standby agreement with IMF. With this agreement the government – taking advantage of its single-party status and unprecented support in the international arena- started to implement the boldest neo-liberal agenda in the history of the Turkish economy. A high growth rate (see Figure 1) and lower inflation (below 10% in the last three years) are two indicators of success for this period. However, growth came by means of the inflow of hot money and with increasing unemployment (i.e. over 10%). Simply stated, it was jobless growth (Pamukcu and Yeldan 2005), and there is no reason to be confident that it will be sustained, any better than growth based on speculative financial inflows ever can be.

Figure 1: Growth Rate: 1970-2007
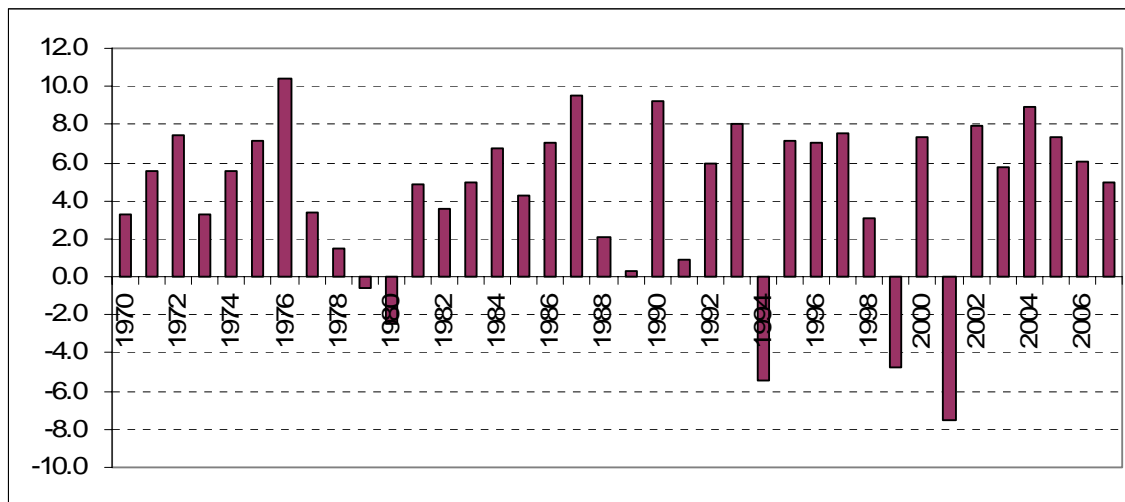
Source: The Turkish Statistical Institute, www.tuik.gov.tr.

4. Income/Payment Inequality: A Brief Review

Table 1 shows the Gini coefficient for Turkey, calculated from survey data for the years available. The table appears to show that while inequality declined through the 1970s, it increased in the 1980s, and particularly from 1987 to 1994. For the same period, Gürsel et. al (2000) found that the Theil Index increased from 0.430 to 0.506. However, while the general contours of changes appear reasonably well-accepted, the data coverage is extremely sparse, and differences in sources suggest that numbers from the earlier period may not be strictly comparable to numbers from the later one.

Table 1: The Gini Coefficient for Turkey

Percentage of Households	1963 (SPO)	1968 (Bulutay et. al 1971)	1973 (SPO)	1973/4 Rural (TSI)	1978/9 Urban (TSI)	1986 (TSI)	1987 (TSI)	1994 (TSI)
First 20	4.5	3	3.5	3.5	6.3	3.9	5.2	4.9
Second 20	8.5	7	8.0	11.5	12.0	8.4	9.6	8.6
Third 20	11.5	10	12.5	14.4	13.0	12.6	14.1	12.6
Fourth 20	18.5	20	19.5	18.7	21.0	19.2	21.1	19.0
Fifth 20	57.0	60	56.5	52.2	47.0	55.9	49.9	54.9
Gini Coefficient	0.55	0.56	0.51	0.47	0.40	NA	0.43	0.49

Source: Adopted from Yeldan (2000), SPO: State Planning Organization, TSI: Turkish Statistical Institute (i.e. Turkstat)

Persistent income inequality between urban and rural and geographical regions of Turkey has been studied extensively. Main findings of this literature (using different surveys for different years) yield some not-unexpected facts about income inequality in Turkey in comparison with other developing countries. These are summarized in Table 2)[1]. Köse and Bahçe (2007) provide an excellent discussion of the "poverty of literature on poverty" in Turkey. After analyzing the Household Budget Surveys, they argue that a poverty/income distribution study that ignores the concept of "social class" does not present the core issue, which is the distribution of poverty within and between these classes, or identifiable groups in Turkish society.

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[1] Also, Tansel and Güngör (1997) state that there is a convergence across 67 provinces between 1975 and 1990, in terms of income per labor force, whereas Filiztekin (1998) concludes that there is a divergence across provinces in terms of income per capita in the same period (cited in Temel et al (1999). Erlat (2005) using the unit root tests with panel data shows that except for provinces in East and Southeastern regions, other provinces converge in terms of GDP per capita (cited in Kirdar and Saracoglu 2006). Ozmucur (1986) and Temel and Associates (1999) show a deteriorating functional distribution of domestic factor income in the post-1980 period in that agricultural and wage incomes and salary have reduced persistently (cited in Yeldan 2000). Atalik (1990) shows that for functional regions the coefficient of regional income variation raised from 0.32 in 1975 to 0.43 in 1985 (cited in Gezici and Hewings 2003).

Table 2: Literature on Payment/Income Inequality in Turkey

Study	Period	Data	Method	Findings
Temel et al (1999)	1975-1990	Gross Provincial Product Data Data Source: Özötün 1980, 1988 and TURKSTAT	Markov Chain model	Polarization among provinces
Selim and Küçükçiftçi (1999)	1994	1994 Household Income Distribution Survey	Gini coefficient	Increasing inequality between 19 provinces in study. While Zonguldak has the least unequal distribution of income distribution Istanbul and Adana have the most unequal distribution.
Gürsel et. al (2000)	1987 and 1994	1987 and 1994 Household Income and Consumption Surveys	Gini coefficient and several other indices	Theil index rose from 0.43 in 1987 to 0.506 in 1994 and squared coefficient variation rise from 1.87 to 6.29 in the same period. Gini coefficient and mean log deviation, however, declined from 0.46 to 0.45 and from 0.372 to 0.358, respectively in the same period.
World Bank (2000)	1987 and 1994	1987 and 1994 Household Income and Consumption Surveys	Gini coefficient and several other indices	Inequality between regions between 1987 and 1994 increased Gini coefficient for household money income rose from 0.411 in 1987 to 0.453 in 1994. Gini coefficient for total income remained same Theil index for total income rose from 0.44 to 0.49
Silber and Ozmucur (2000)	1994	1994 Household Income Distribution Survey	Gini coefficient	In 1987 Gini coefficient is 0.44 and 0.33 for urban and rural areas, respectively; for 1994 they are 0.58 and 0.46, respectively. In terms of contributions to overall inequality, in rural areas the main contribution is from the within-categories component while in urban areas it is from the between-categories component.

Source: Authors' Review

Table 2: Literature on Payment/Income Inequality in Turkey-Cont.

Study	Period	Data	Method	Findings
Erk et al. (2000)	1979-1997	Özötün (1988) TURKSTAT	β-convergence σ-convergence	Except for the Marmara region, all regions are converging as well as provinces of the Southeastern Anatolian Project.
Altinbas et al (2002)	1987-1998	GDP per capita by provinces, TURKSTAT	β-convergence σ-convergence	No convergence among provinces under the "Priority Regions in Development" program. Declining discrepancy among other provinces.
Gezici and Hewings (2003)	1980-1997	GDP per capita by provinces. Data source: Istanbul Chamber of Industry and TURKSTAT	Theil index	Numbers refer Theil Index at 1980 and 1997, respectively . Provincial level: Especially after 1986 inequality declines (0.116 – 0.109) Functional and geographical regions levels: Inequality slightly decreasing *within* regions (0.40 – 0.27, 0.45 – 0.34 respectively), increasing *between* regions (0.60 – 0.73, 0.55 – 0.66, respectively).
Ozcan and Ozcan (2003)	2001	TURKSTAT	Gini coefficient and Standard income distribution methods	Improvement in distribution of income from 1994 to 2001.
Gezici and Hewings (2004)	1980-1997	GDP per capita by provinces. Data source: Istanbul Chamber of Industry and TURKSTAT	β-convergence σ-convergence	No convergence. East-West dualism.
Karaca (2004)	1975-2000	Gross Provincial Product. Data source: Özötün 1980, 1988 and TURKSTAT	β-convergence σ-convergence	No convergence among provinces.

Source: Authors' Review

Table 2: Literature on Payment/Income Inequality in Turkey-Cont.

Study	Period	Data	Method	Findings
Memis (2005)	1980-2000	The annual Manufacturing Industry Statistics by TURKSTAT	Clustering Analysis	Wage patterns experienced a substantial change with the year 1988. After 1988, the high-wage cluster increases while the lowest and the low-wage clusters decrease.
Baslevent and Dayioglu (2005a)	1994 and 2003	1994 Household Income Distribution Survey, TURKSTAT 2003 Household Budget Survey, TURKSTAT	Gini coefficient The squared coefficient of variation	The Gini coefficient dropped from 0.54 in 1994 to 0.44 in 2003.
Aldan and Gaygisiz (2006)	1987-2001	Provincial GDP by TURKSTAT	β-convergence Markov Chain model	No convergence among provinces.
Yıldırım and Öcal (2006)	1987-2001	GDP per capita by provinces, TURKSTAT	Theil index	Interregional inequalities decline. Theil index increases in economic expansion and declines in recession.
Kirdar and Saracoglu (2006)	1975-2000	GDP per capita by provinces. Data source: Özötün 1980, 1988 and TURKSTAT	Nonlinear least squares estimation and instrumental variables method	Conditional convergence. No convergence by provinces and regions.
Sari and Guven (2007)	1979-1998	GDP per capita by provinces. Data source: Istanbul Chamber of Industry and TURKSTAT	Generalized entropy inequality measure and the Theil index	Consistent increase in inequality. Priority Regions in Development program has no improving effect on inequality.
Guven (2007)	1979-2000	GDP per capita by provinces. Data Source: Istanbul Chamber of Industry and TURKSTAT	Generalized entropy inequality. Gini and Theil indices	Consistent increase in inequality. Priority Regions in Development program has no improving effect on inequality.

Source: Authors' Review

It is a persistent fact that the income inequality is significantly higher in urban areas (Silber and Özmucur 2000, WB 2000, Gürsel et. al 2000). In addition, according the World Bank (2000), the rural-urban distinction explains more than 10 percent of total inequality in Turkey. Silber and Özmucur (2000) state that while rural areas contribute to the overall inequality mainly through "the within-groups" component, in urban areas the main component of inequality is that measured "between-groups". They also stated that the main source of inequality in rural areas is the earnings from primary jobs. In urban areas, however, the effect of income from other sources has considerable impact.

The research also shows that the most unequally distributed income is non-wage income that is mostly earned by the top quintile and the biggest source of income inequality is the interest component (Gürsel et. al 2000, Başlevent and Dayıoğlu 2005a).

Surprisingly, some comprehensive studies have shown that transfer incomes have had a deteriorating effect on income inequality (WB 2000 and Gürsel et. al 2000). Gürsel et. al (2000) note that "the narrows limits of social groups affected by the welfare state in Turkey, the absence of many social transfer mechanisms and intervention in market prices instead of direct transfers as a way of subsidy policies are reasons why transfers do not produce their expected results" (pp. 18). They conclude that the decreasing negative effect in 1994 compared with 1987 (two base years covered in the study) implies that increasing transfer payments has a decreasing effect on income inequality (Gürsel et. al 2000, pp.18). They also state that "agricultural support policies are in favor of relatively rich farmers producing in big scales, rather than poor ones having limited opportunities" (WB 2000).

Dayıoğlu and Başlevent (2006) and Başlevent and Dayıoğlu (2005b), on the other hand, show that ownership of squatter houses among relatively poor families has an equalizing effect on income inequality, not just for a given province or in major cities but in all regions.

The Turkish economy has a remarkable dual structure. While the relatively more industrialized West has a higher income per capita, the East is mainly involved in agrarian production and has poor standards of living and development indicators. When one considers that the East is where the Kurdish people mainly live, this difference becomes more significant in terms of high migration into urban areas due to political and economic pressures, which in turn creates high unemployment and contributes to inequality. Indeed, regional factors explain 11 percent of inequality overall (WB 2000).

This substantial regional discrepancy is a persistent problem in the Turkish economy. Several studies that address this issue have shown that there has been no convergence between the regions in Turkey (Şenesen 2003, Doğruel and Doğruel 2003), and East and West (Gezici and Hewings 2004).

Gezici and Hewings (2003), using the provincial GDP time series, have shown that while at the province level inequality is increasing after 1992 at the geographic regional level there is persistent inequality. In a comparison of coastal and interior provinces there is increasing inequality in favor of the former. In terms of "within" inequality, it is declining in the former while there is slightly increasing inequality among interior provinces (Gezici and Hewings 2003).

To reduce this regional gap has been one of the main interests of policy makers for decades. Regional development projects and "Priority Regions in Development", a

program for less developed regions, has been implemented to reduce this income gap. However, it has shown that these programs have not been effective (Aldan and Gaygisiz 2006, Gezici and Hewings 2004, Sari and Guven 2007).

Starting from the fact that wages are a major component of wealth for majority of society, it therefore follows that trend in wages reflect the change in income inequality across the whole population. By using Theil's T statistic, this study contributes to the literature by examining inequality in payment of wages in the manufacturing sector and analyzes the contribution to inequality by region, by the East-West divide, by province and more importantly, by sub-sectors of the manufacturing sector.

5. Pay Inequality in the Manufacturing Sector

Contrary to the conventional wisdom, the openness of the 1980s did not lead to increased economic competition in Turkish manufacturing (Boratav and Yeldan 2006). While real wages increased in the 1970s, there was a trend of decline in the export-led regime era in post-1980 (Erdil 1996, Voyvoda and Yeldan 2001). The ownership differentials among different sectors between private and public sectors is a major factor in wage differentials (Bayazıtoğlu and Ercan 2001, Ozmucur 2006, and also see Kızılırmak 2003). Memis (2007), in a comprehensive study, analyzed the determinants of inter- and intraclass income distribution in the manufacturing sector at the sub-sector level between 1970 and 2000, and confirmed an increase in inequality for the same period.

Figure 2 and Figure 3 show the change in real average payment in the manufacturing sector and the share of private and public sectors, respectively. These two figures together show the limited positive impact of an increase in average pay in the

public sector, since the share of that sector is shrinking substantially. Of course, what are more important in terms of inequality are sectoral and regional/provincial discrepancies in wage levels. These will be demonstrated below.

Figure 2: Percentage Change in Real Average Payment in Manufacturing Sector
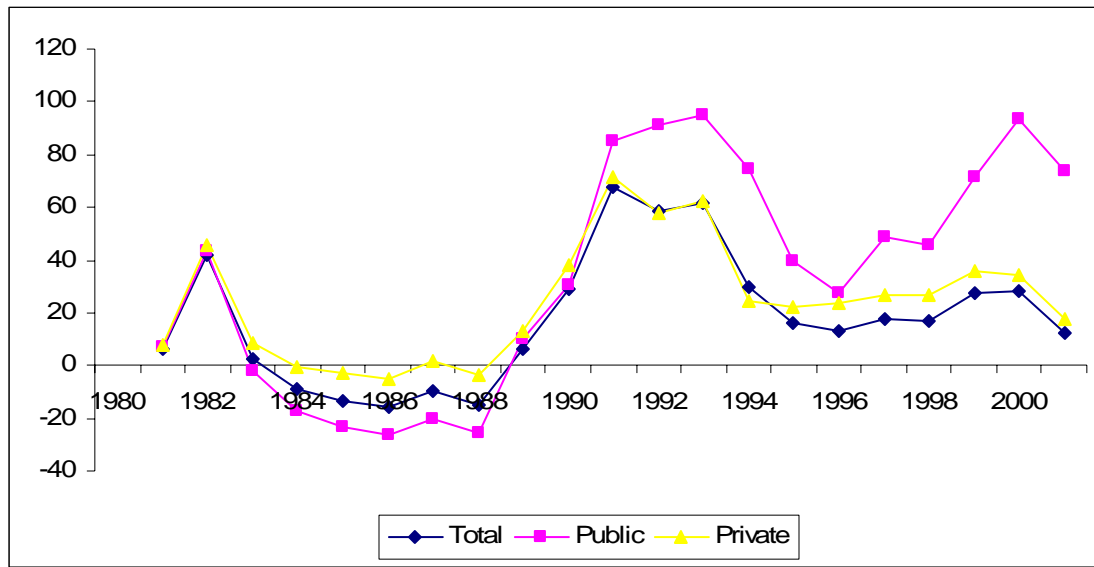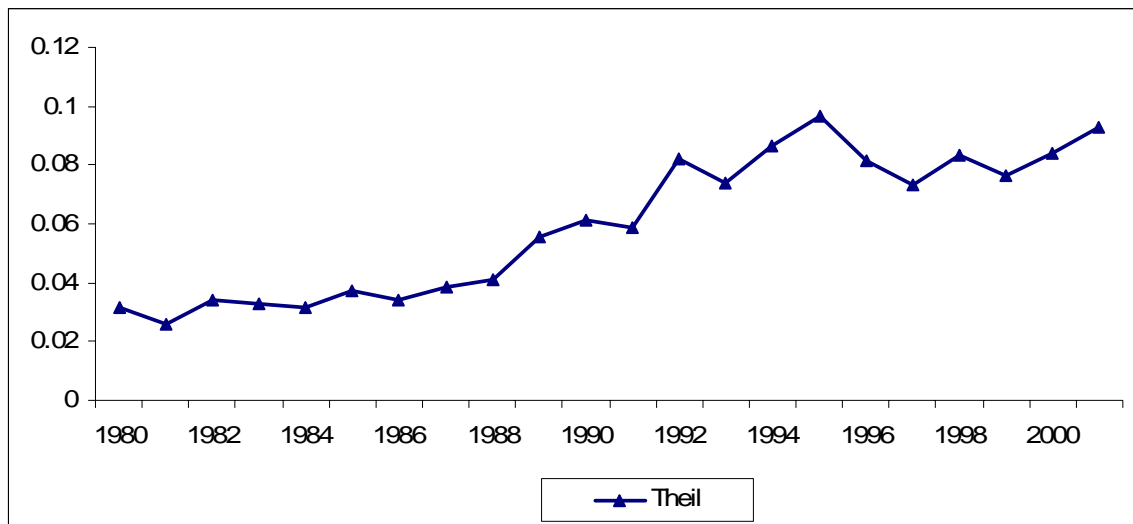

Source: Authors' calculation based on AMIS

Figure 3: Share of Private and Public Sectors in the Manufacturing Sector
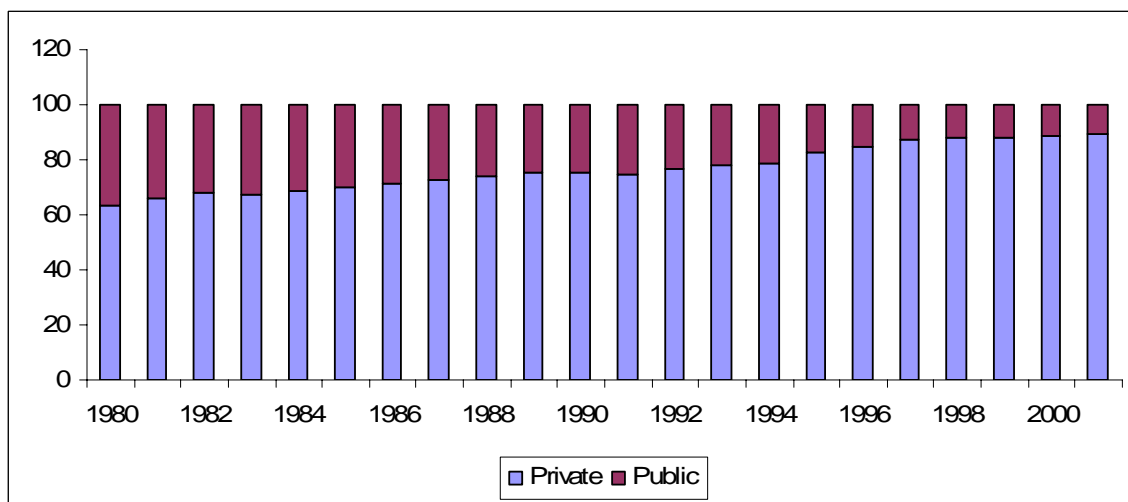
Source: Authors' calculation based on AMIS

Figure 4 shows the overall payment inequality in the Turkish manufacturing sector, measured across sub-sectors.

Figure 4: Pay Inequality in the Turkish Manufacturing Sector: 1980-2001

Source: Authors' calculation based on AMIS

The figure shows that there is a slight increase in payment inequality until 1988, and after that inequality rises more rapidly.

Inequality by Sectors

Figure 4 shows that inequality begins to accelerate beginning in 1988. In Figure 5, we see a detailed decomposition. Sectors that have above-average pay appear above the x-axis, and the size of the bars show the relative contribution to inequality of each sector. In the same manner, the sectors that are located below the zero line have a lower average wage than the mean wage. However, it is worth noting that changes may be caused by changes in either wages and/or in the employment level.

Accordingly, while sectors of *chemicals, machinery and equipment, glass and pottery, metals,* and *paper* are "winners", the sectors of *wood, food,* and particularly *textiles* suffer from lower wages compared with the manufacturing sector entirely. Although the gender gap is not the focus point of this study, it is worth noting that food and textiles are two sectors where women are over-represented (Elveren and Hsu 2007). Thus an increasing contribution of the textile sector can be caused either by a decline in wage level and/or an increase in the size of the sector. Considering existing literature on wage levels in the textile sector in Turkey, we argue that this confirms the fact that the wage level in the textile sector, one of the major export sectors in the Turkish economy, has been pushed down, in relative terms, in the ELR period.

Figure 5: Pay Inequality by Manufacturing Sub-sectors (Region-Private Sector)
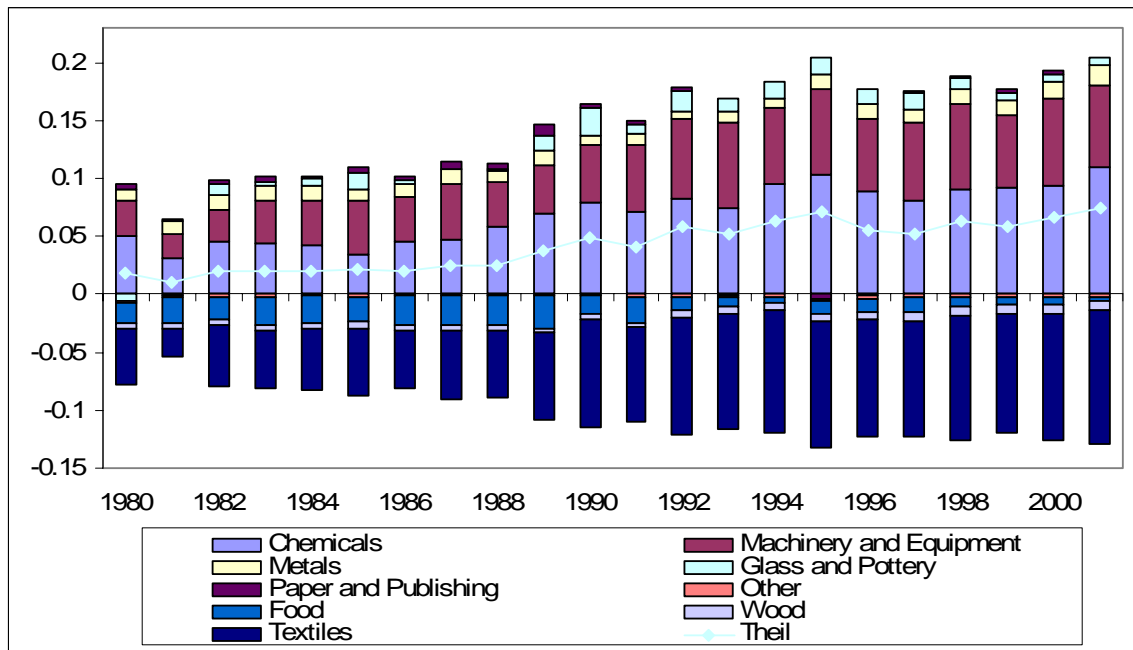
Source: Authors' calculation based on AMIS

The same pattern of inequality is observed at the provincial level and at the East-West levels (see Figure 17 and Figure 20 in Appendix).

For the public sector, however, there are two crucial aspects that need to be emphasized (see Figure 6). First, as expected, there was not an increase in inequality; this is the opposite of what was observed in private sector. Second, we observe that the metals and chemicals are the major contributors to inequality inside the public sector.

Figure 6: Pay Inequality in Manufacturing Sub-sectors (Public Sector)
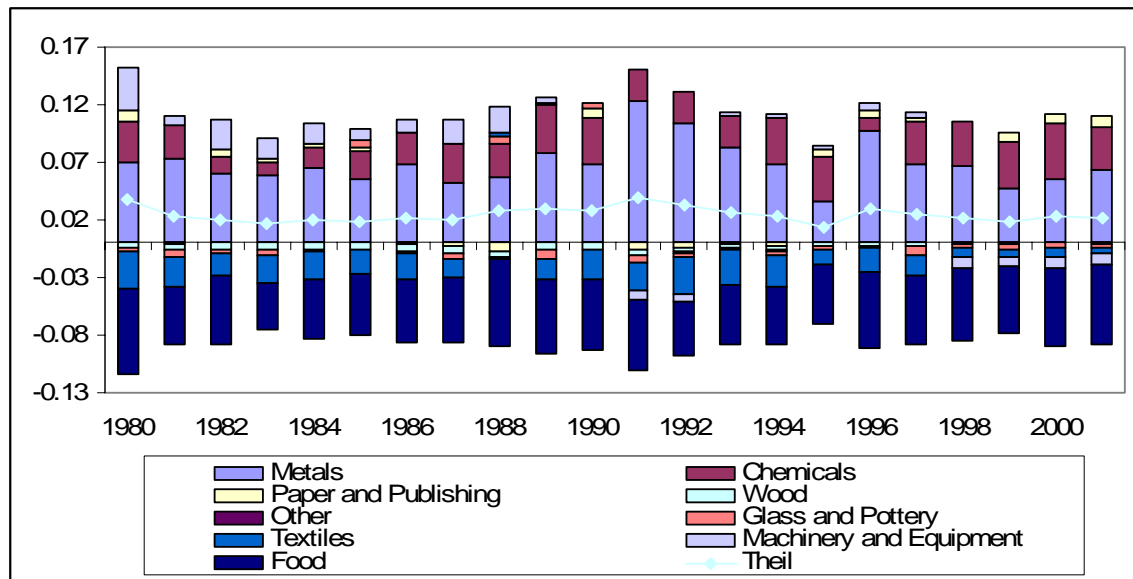
Source: Authors' calculation based on AMIS

Inequality by Provinces

Figure 7 shows inequality by 67 provinces. Overall, inequality increases from 1987 to 1995, then it declines in 2001 to levels also seen in 1991. The major part of inequality is caused by developed cities that have a substantial share of manufacturing and are located in the most developed area of the country. The biggest contribution is made by Kocaeli, Adana, Kirklareli, Ankara, Sakarya, Mersin, Bilecik, Balikesir, and

Zonguldak, who have above mean wage levels, and by other developed provinces such as

Denizli, Gaziantep, Kayseri, Konya, Izmir, and Bursa, who have lower wages than

average.

Figure 7: Pay Inequality by Provinces (Private Sector)
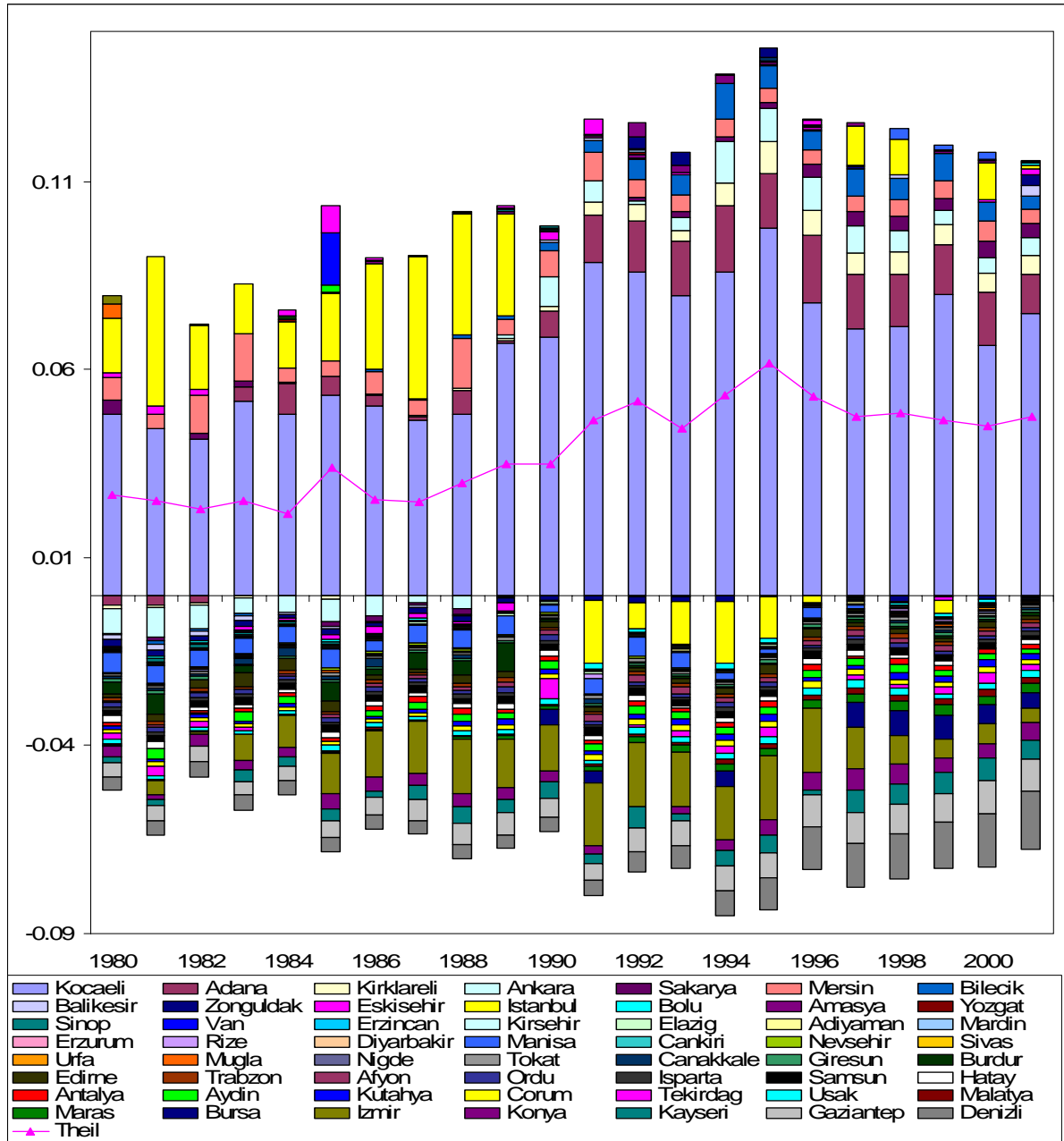
Source: Authors' calculation based on AMIS

As shown in Figure 8, in the public sector, the major contributor to inequality is Zonguldak, where mining is the major sector, followed by Izmir, Hatay, Burdur, Mersin, and Ankara. For the negative side, Rize is the biggest contributor to inequality, followed by Trabzon, Istanbul, and Eskisehir.

Figure 8: Pay Inequality by Provinces (Public Sector)
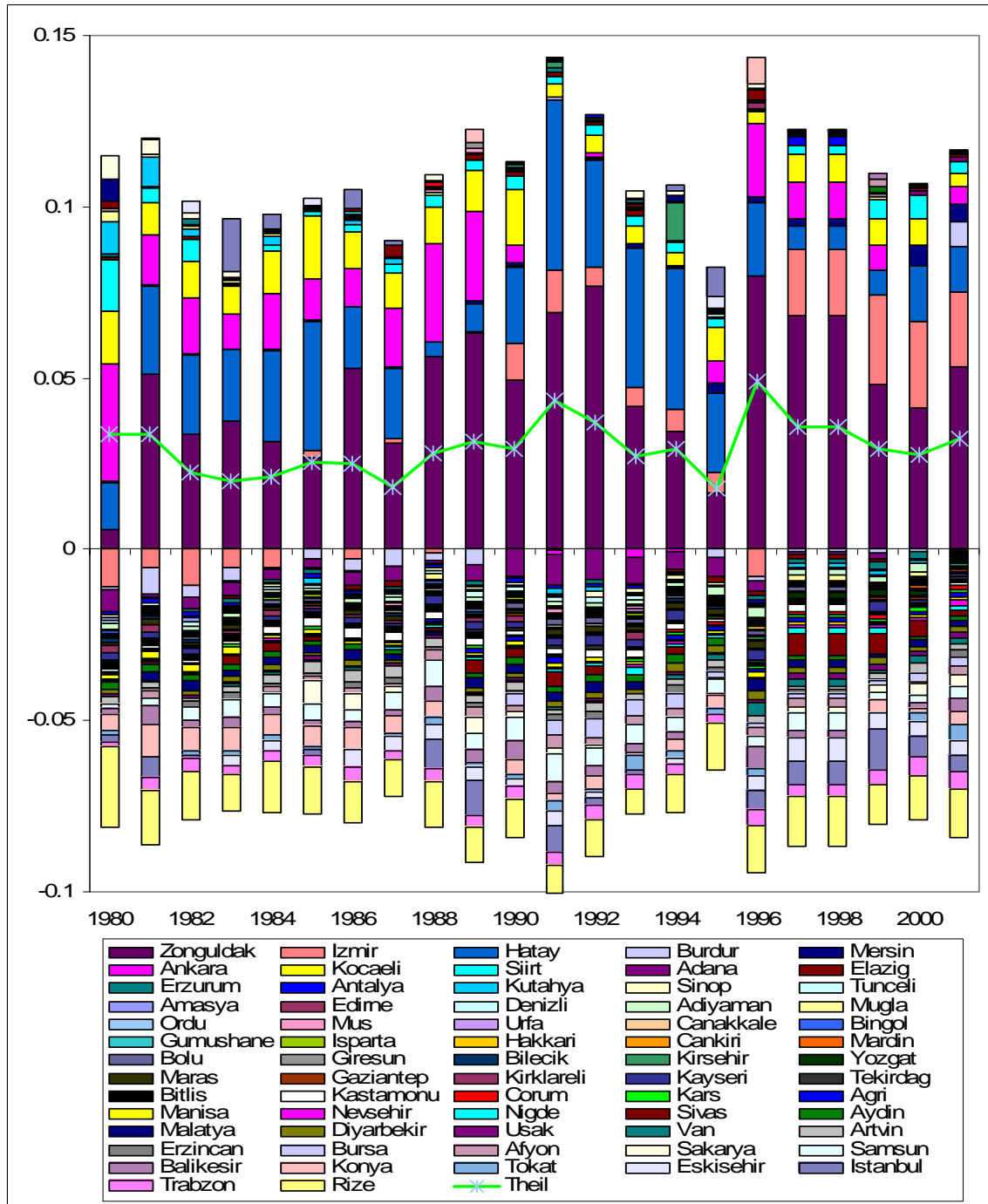
Source: Authors' calculation based on AMIS

Inequality by Geographic Regions

Figure 9 shows inequality by seven major geographic regions for the period between 1980 and 2001. What is clearly observed is that inequality remains almost the same throughout the period. The Marmara region, the most developed area of the country which involves big cities such as Istanbul, Bursa, Kocaeli, and Sakarya, is the main component in this picture of inequality. Another key observation is the fact that the size of the Southeast Anatolia region increased in the second decade. This is partly due to the fast-growing province of Gaziantep.

**Figure 9: Pay Inequality by Regions (Private Sector)**
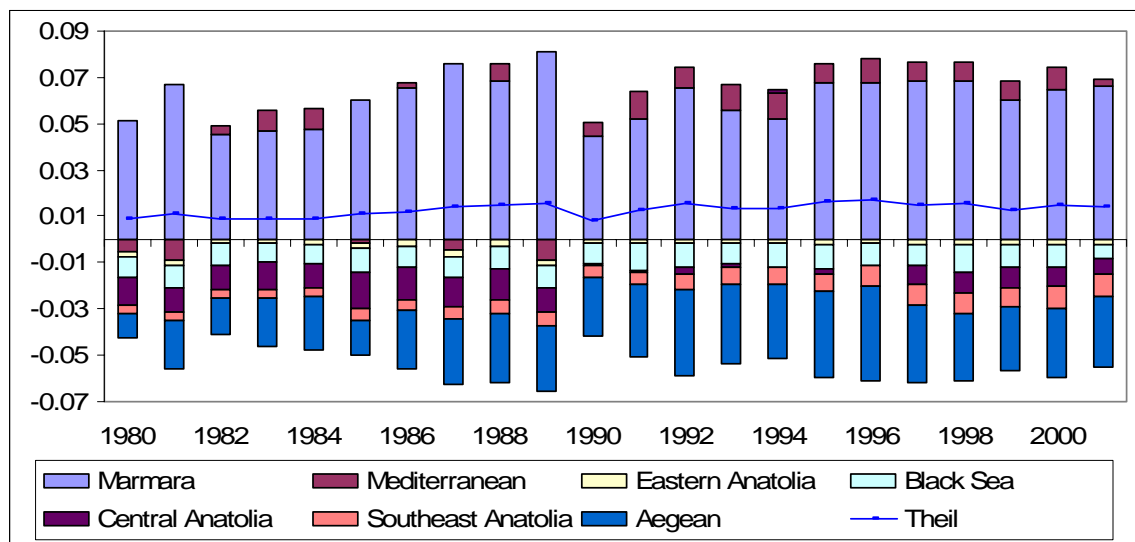
Source: Authors' calculation based on AMIS

Inequality across the East-West Divide

       The dual structure of the Turkish economy is a persistent problem. While the West relatively consists of more developed areas, the Eastern part is where mostly Kurdish citizens live and consists of the least developed provinces in the country. We believe this distinction is of importance since excessive migration to urban areas forced by both economic and political pressures, is an important aspect of income inequality. We define the "East" as those provinces whose majority of population call themselves Kurdish and thus we have categorized them accordingly. The rest of the country is categorized as "West." Figure 10 demonstrates inequality according to this East-West distinction. What we observe is that inequality increases in the second decade. However, no similar increase in inequality occurs within the public sector during this period (see Figure 14 in Appendix).

Figure 10: Pay Inequality by East-West (Private Sector)
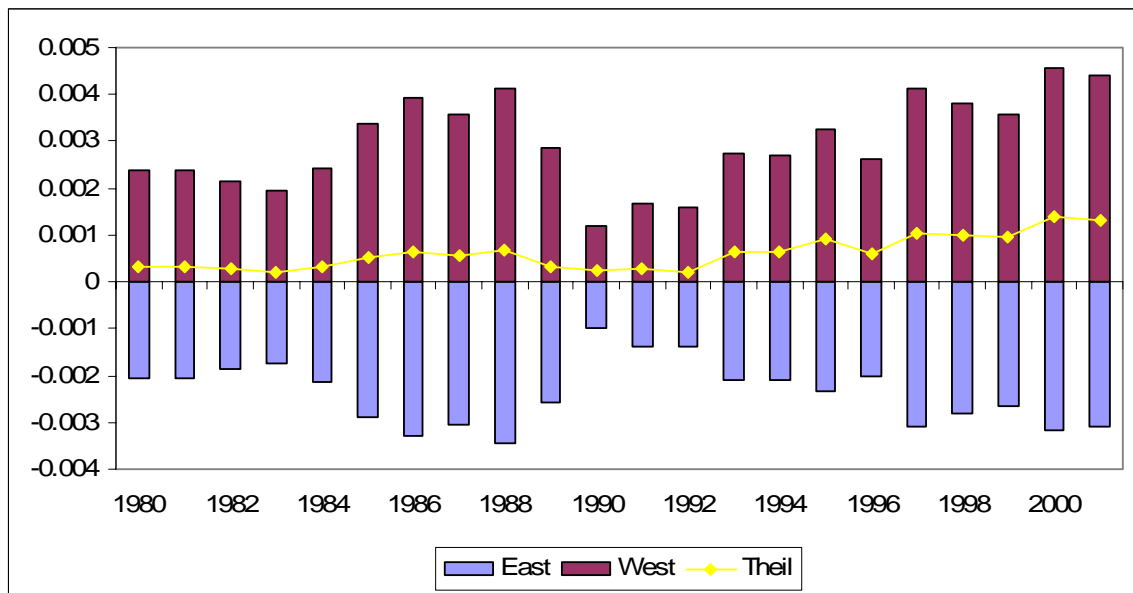
Source: Authors' calculation based on AMIS

6. Conclusion

We have investigated pay inequality in the Turkish manufacturing sector between 1980 and 2001. By doing so, we contribute some useful new information on the overall trend of income distribution in the economy; since wages are a major component of income and manufacturing is a major part of all economic activity, we expect trends broadly similar to those we can observe directly from these data to hold throughout the entire economy. Our findings showed that overall inequality in pay in Turkey in the post-1980 era, under the neo-liberal model, has deteriorated particularly beginning in the late 1980s. Even though the public sector has displayed unchanged inequality throughout the period at both the provincial and regional levels, the shrinking share of the public sector downplays any positive effect that stability may have.

In the context of provinces, we observed the same trend of deepening inequality, which increases sharply between 1987 and 1995 and then declines slightly to its 1991 level in 2001. However, we also showed that inequality between the broader geographical regions remains almost the same in the study period. This confirms the main findings in the literature that there is no convergence between regions. Also, we showed that the dual structure in the Turkish economy, namely between an impoverished East and affluent West, has been perpetuated during the years of neoliberalism in Turkey.

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Appendix

Figure 11: 7 Geographical Regions

Table 3: Manufacturing Sectors at 2-digit ISIC categorization

Code	Industry
3	Total Manufacturing
31	Food, Food Products and Beverages
32	Textiles, Textile Products, Leather and Footwear
33	Wood and Products of Wood
34	Pulp, Paper and Paper Products and Publishing
35	Chemicals, Chemical Products
36	Manufacture of glass and pottery
37	Basic Metals, Iron and Steel
38	Machinery and Equipment
39	Other Manufacturing

Source: UN Statistics Division

Table 4: Provinces and Regions

Province Code	Name of Province	Region
1	Adana	Mediterranean
2	Adiyaman	Southeast Anatolia
3	Afyon	Aegean
4	Agri	East Anatolia
5	Amasya	Black Sea
6	Ankara	Central Anatolia
7	Antalya	Mediterranean
8	Artvin	Black Sea
9	Aydin	Aegean
10	Balikesir	Marmara
11	Bilecik	Marmara
12	Bingol	East Anatolia
13	Bitlis	East Anatolia
14	Bolu	Black Sea
15	Burdur	Mediterranean
16	Bursa	Marmara
17	Canakkale	Marmara
18	Cankiri	Central Anatolia
19	Corum	Black Sea
20	Denizli	Aegean
21	Diyarbakir	Southeast Anatolia
22	Edirne	Marmara
23	Elazig	East Anatolia
24	Ercinzan	East Anatolia
25	Erzurum	East Anatolia
26	Eskisehir	Central Anatolia
27	Gaziantep	Southeast Anatolia
28	Giresun	Black Sea
29	Gumushane	Black Sea
30	Hakkari	East Anatolia
31	Hatay	Mediterranean
32	Isparta	Mediterranean
33	Icel	Mediterranean
34	Istanbul	Marmara
35	Izmir	Aegean
36	Kars	East Anatolia
37	Kastamonu	Black Sea
38	Kayseri	Central Anatolia
39	Kirklareli	Marmara
40	Kirsehir	Central Anatolia
41	Kocaeli	Marmara
42	Konya	Central Anatolia
43	Kutahya	Aegean

44	Malatya	East Anatolia
45	Manisa	Aegean
46	Kahramanmaras	Mediterranean
47	Mardin	Southeast Anatolia
48	Mugla	Aegean
49	Mus	East Anatolia
50	Nevsehir	Central Anatolia
51	Nigde	Central Anatolia
52	Ordu	Black Sea
53	Rize	Black Sea
54	Sakarya	Marmara
55	Samsun	Black Sea
56	Siirt	Southeast Anatolia
57	Sinop	Black Sea
58	Sivas	Central Anatolia
59	Tekirdag	Marmara
60	Tokat	Black Sea
61	Trabzon	Black Sea
62	Tunceli	East Anatolia
63	Uurfa	Southeast Anatolia
64	Usak	Aegean
65	Van	East Anatolia
66	Yozgat	Central Anatolia
67	Zonguldak	Black Sea

Figure 12: Number of Employees in Manufacturing Sector
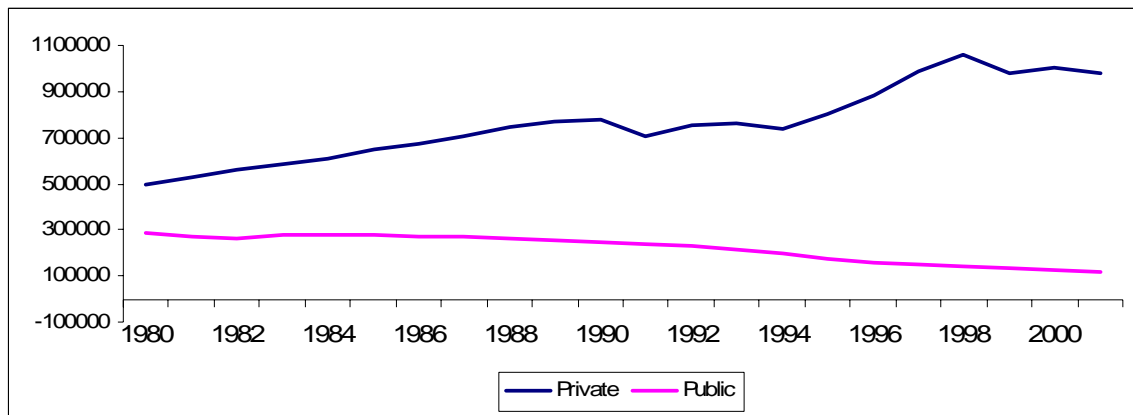
Source: AMIS

Figure 13: Contribution to Inequality by Provinces (Total)
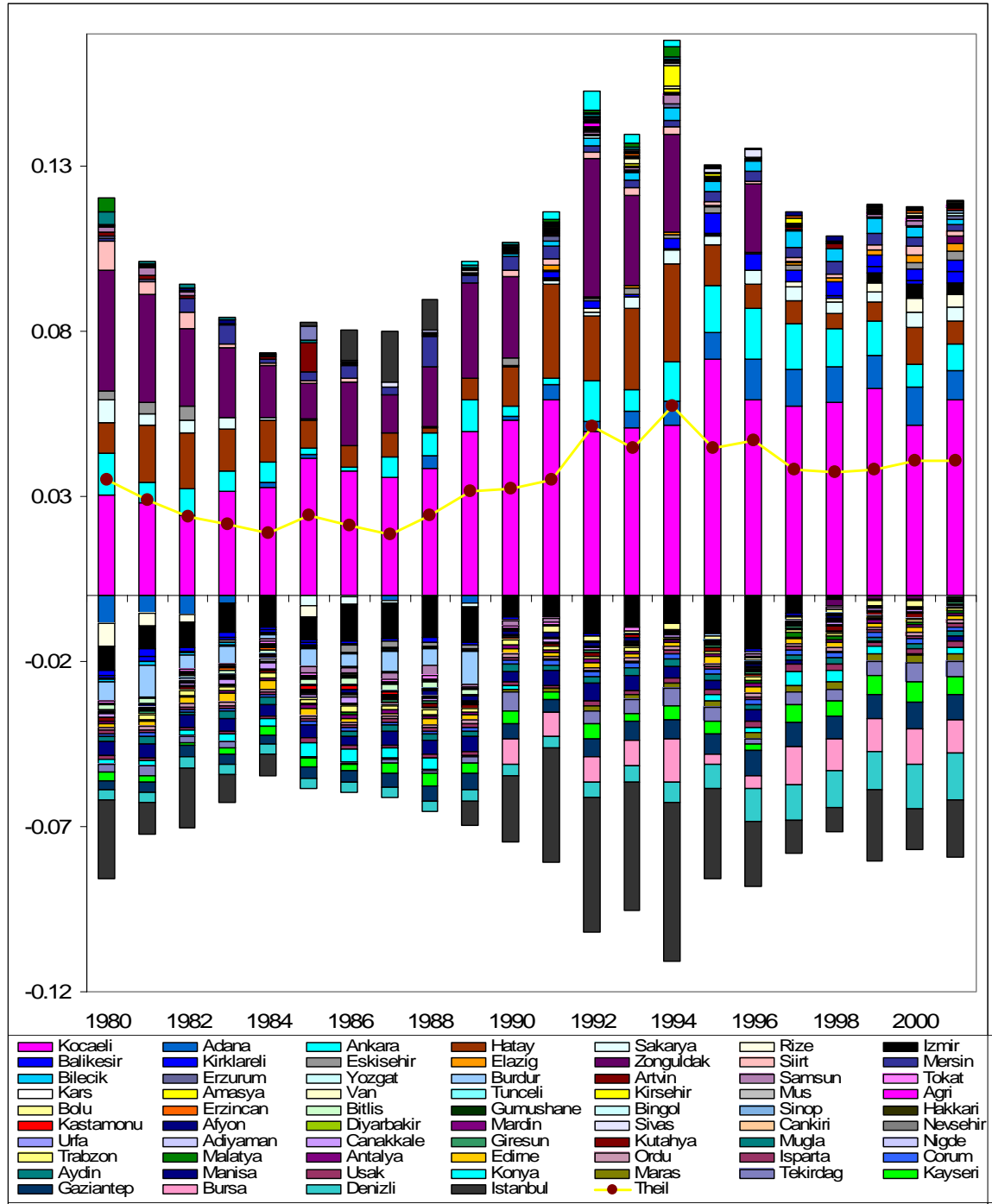
Source: Authors' calculation based on AMIS

Figure 14: Pay Inequality by East-West (Public Sector)
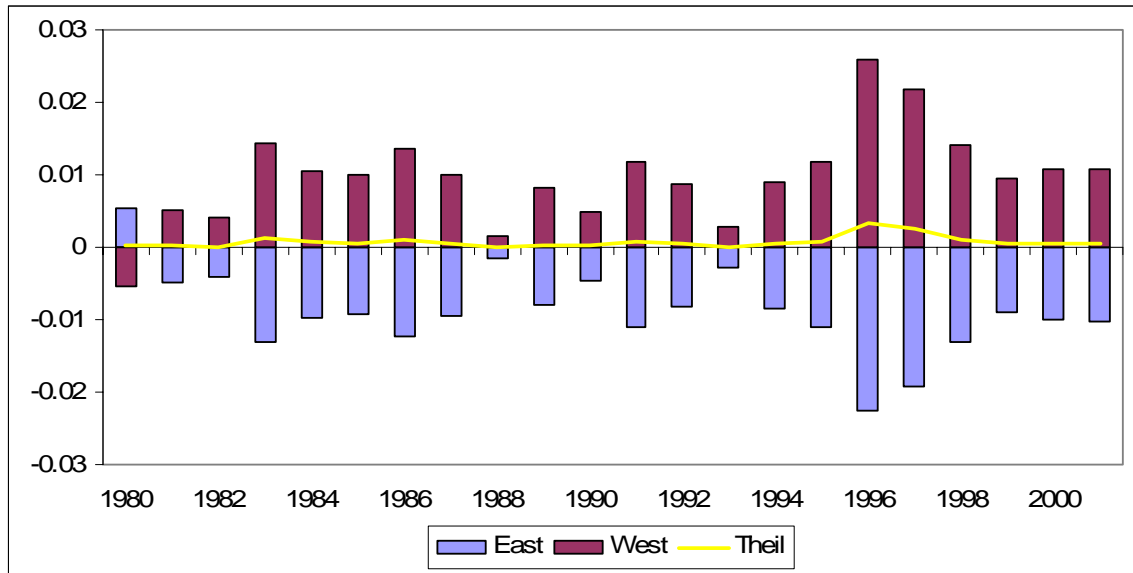
Source: Authors' calculation based on AMIS

Figure 15: Pay Inequality by East-West (Total)
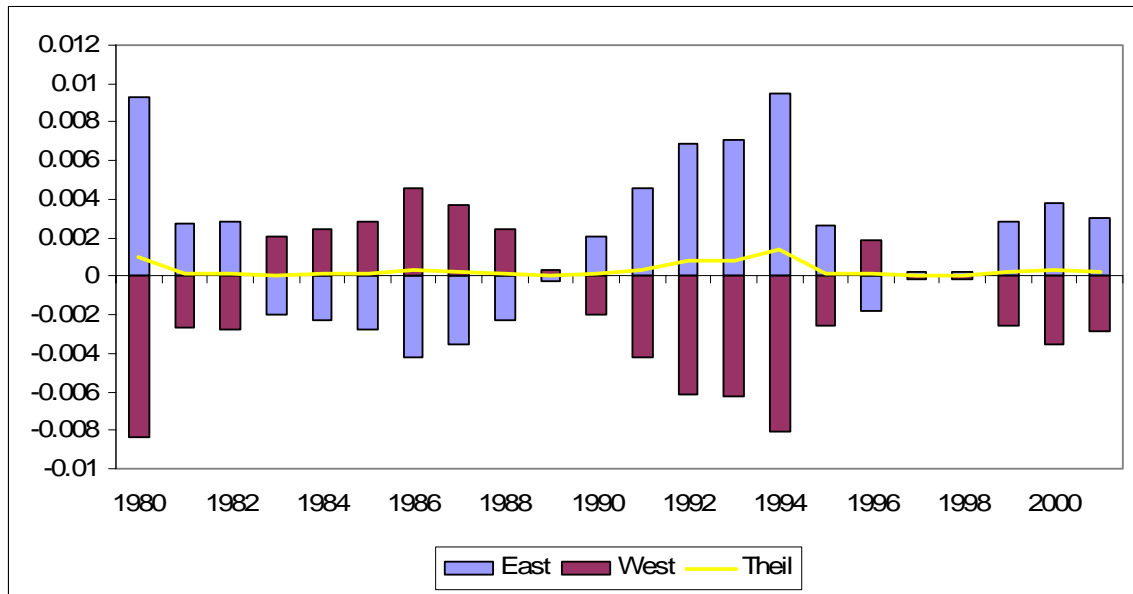
Source: Authors' calculation based on AMIS

Figure 16: Pay Inequality by Manufacturing Sub-sectors (Region-Total)
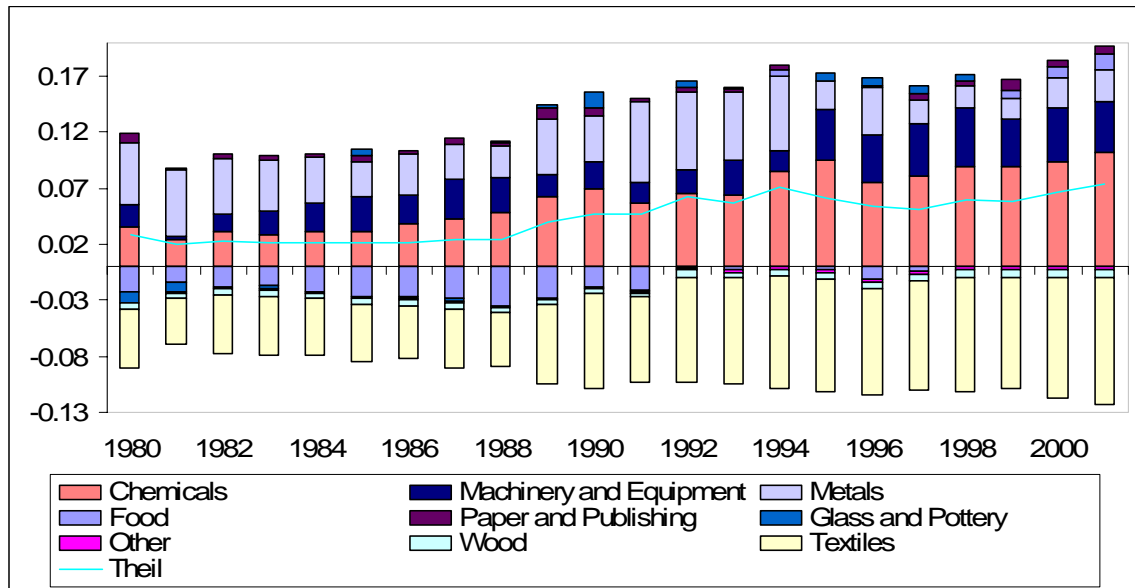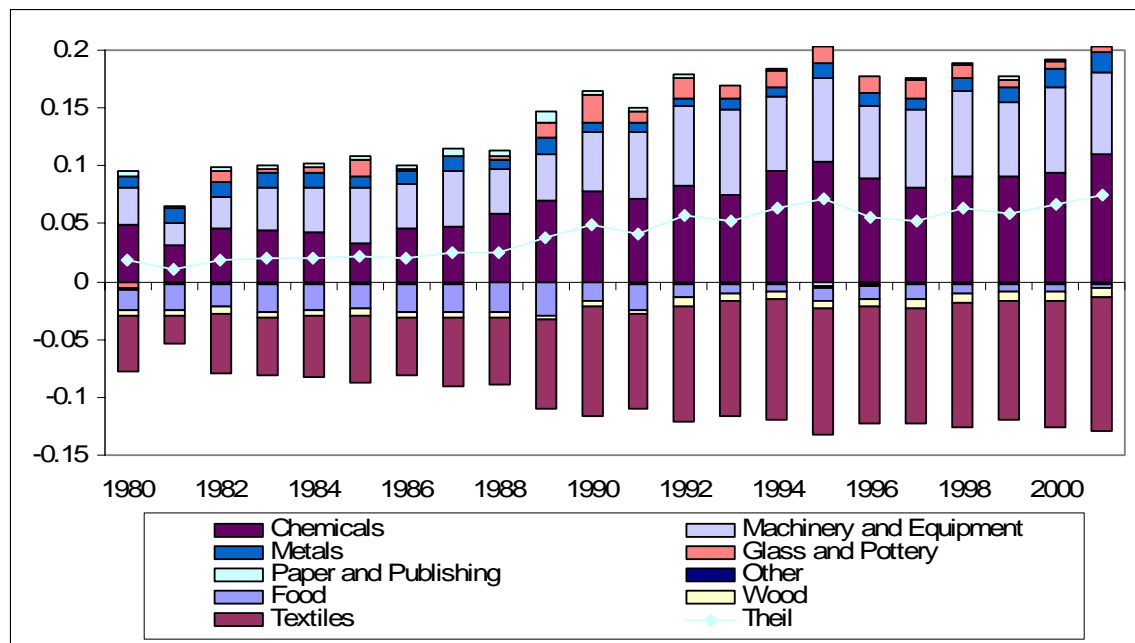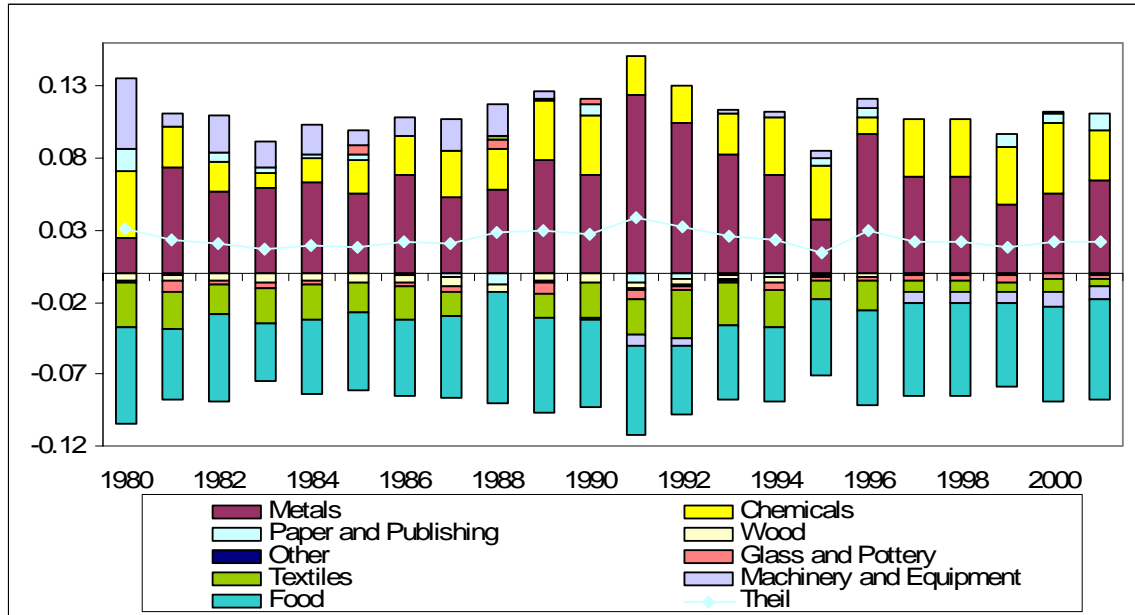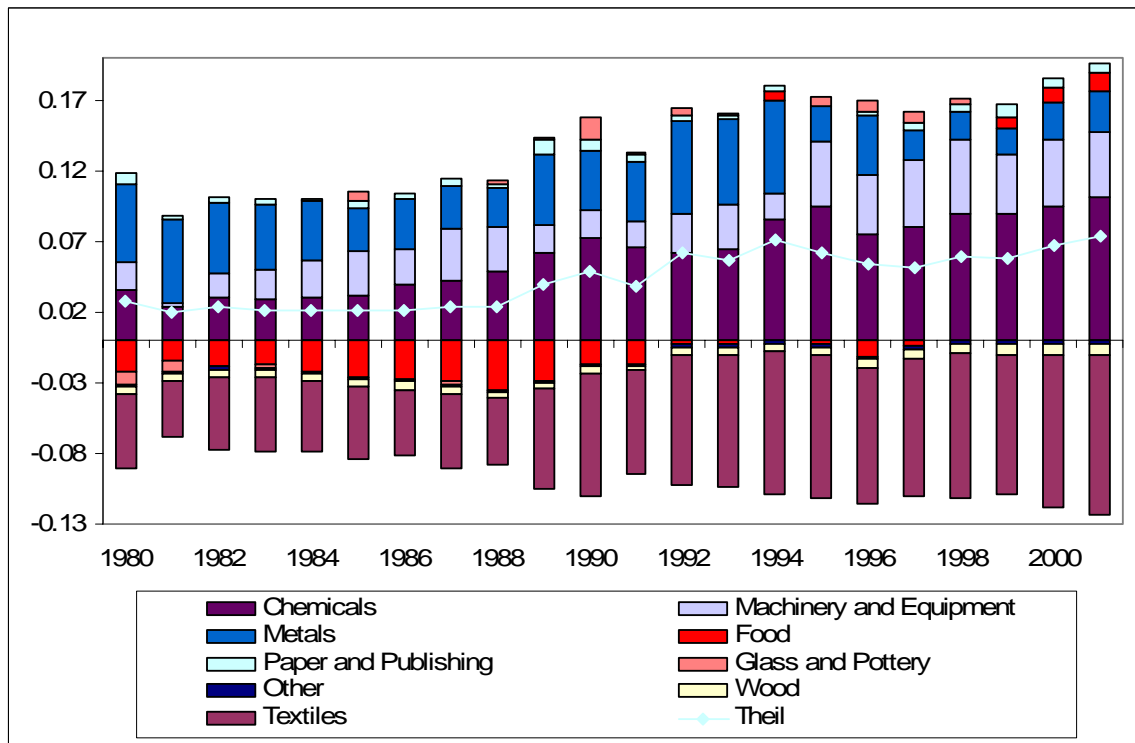

Figure 17: Pay Inequality by Manufacturing Sub-sectors (Province-Private Sector)

Source: Authors' calculation based on AMIS

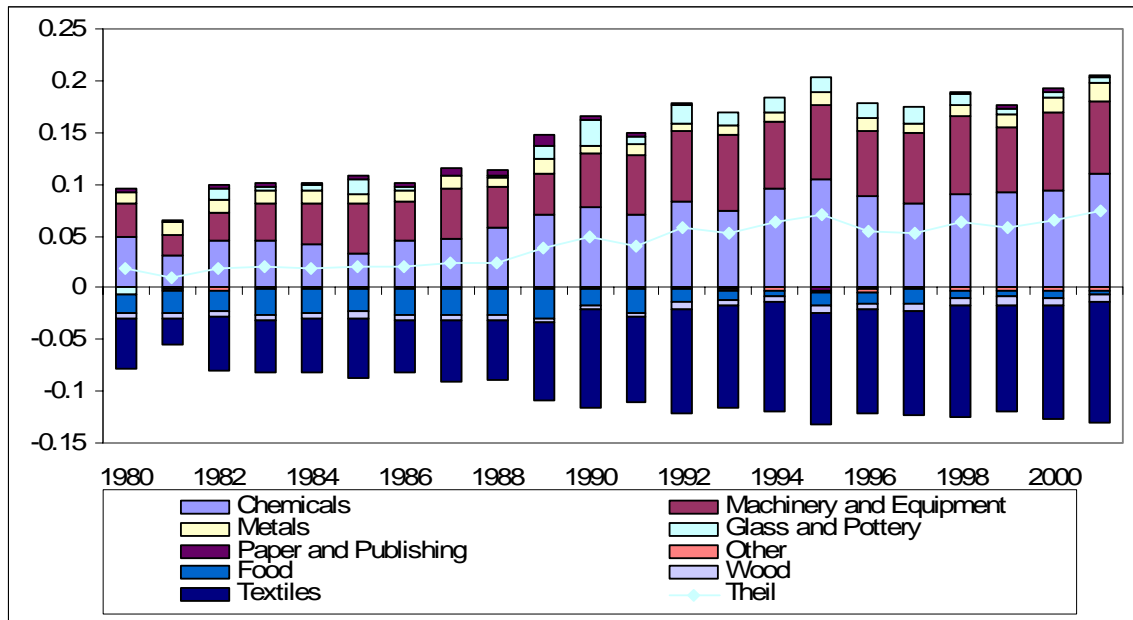**Figure 18: Pay Inequality by Manufacturing Sub-sectors (Province-Public Sector)**

Source: Authors' calculation based on AMIS

Figure 19: Pay Inequality by Manufacturing Sub-sectors (Province-Total)
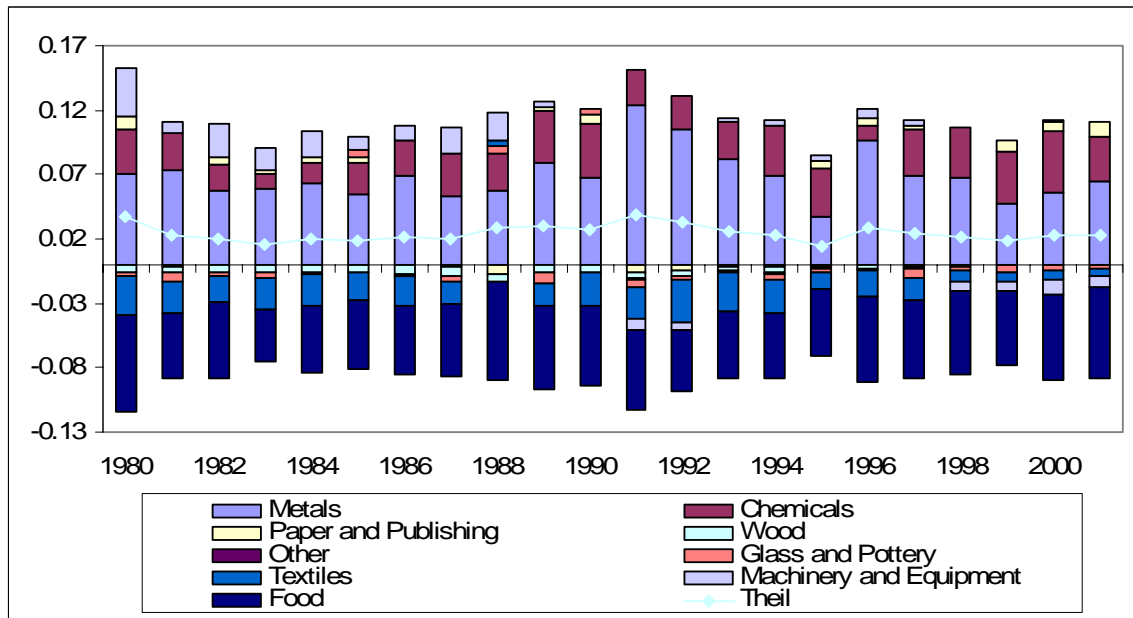

Source: Authors' calculation based on AMIS

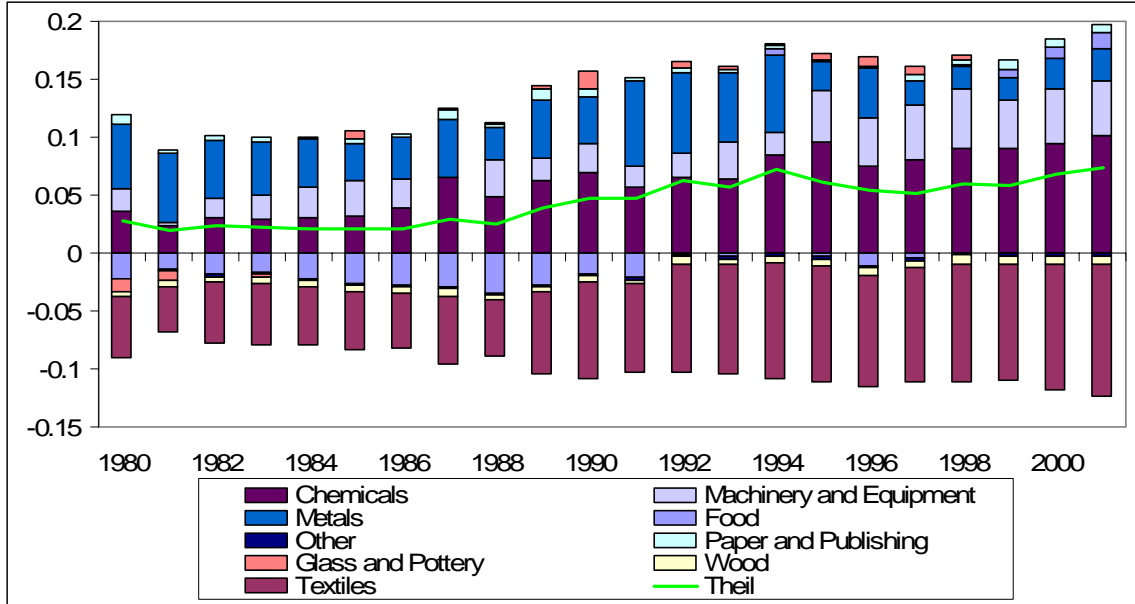**Figure 20: Pay Inequality by Manufacturing Sub-sectors (East-West; Private Sector)**

Source: Authors' calculation based on AMIS

Figure 21: Pay Inequality by Manufacturing Sub-sectors (East-West; Public Sector)

Source: Authors' calculation based on AMIS

Figure 22: Pay Inequality by Manufacturing Sub-sectors (East-West, Total)

Source: Authors' calculation based on AMIS