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SECTORAL COMPOSITION AND UNEMPLOYMENT IN TURKEY*

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ABSTRACT

Unemployment is the crucial social problem of Turkey. We assume that the high unemployment in Turkey, which stems from technological shifts in manufacturing as a whole and variations across sectors, is structural in nature. The paper explores the factors affecting the unemployment in two stages. First, a comparative analysis is used in order to search similarities and differences between Turkey and other middle-income countries. The sources of the unemployment differ in many ways in the developed and developing countries. Therefore, to ensure homogeneity, developing countries from the different geographic regions are selected for the international comparison. Second, the paper focuses on two dimensions of unemployment in Turkey. One of them is the effect of the changes in the sectoral composition on the total employment demand. The other one is the variations in skilled to unskilled labor ratio across manufacturing industries.

Key words: sectoral composition; sectoral shifts; employment; unemployment; Turkish unemployment

JEL codes: O10, J21, J23

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1. INTRODUCTION

Industrialization has increased in many middle income countries over the last half century. Sectoral composition has changed and the share of agricultural sector diminished in these countries. The shift toward manufacturing in middle income countries created many jobs in urban areas. Another implication of sectoral transformation from agriculture to manufacturing is the increasing productivity. The changes in sectoral composition are expected to affect the employment level.

In the paper, unemployment is defined as an aggregate function of indicators which represent overall development level. The main focus of the paper is to observe the effects of sectoral composition on the aggregate unemployment. The model also considers some long-term institutional and policy variables which may affect unemployment. Policy variables indicate macroeconomic policies that may cause unemployment. Although the focus is Turkey, the paper adopts a comparative approach, by examining selected middle income countries and Turkey together.

The paper consists of five sections. The following section explains the theoretical background of the paper. The third section displays the basic facts of unemployment in Turkey and other selected countries. The fourth section describes the model and gives the results. And, the last section concludes the paper.

2. THEORETICAL BACKGROUND

The literature on unemployment is mostly related to the macroeconomic dimension of the problem. Johnson and Layard (1986: 923) defined the unemployment as the difference between total labor force and employed people, and explained the issue using three types of models. The first model considers the case where there is no government intervention; supply and demand are equal in the long-run. However, in this condition (although there is no intervention) involuntary unemployment may occur due to market failures. On the other hand, the second and third type models consider the market failures, which are classified by Johnson and Layard (1986: 923) as “wages set by firms” and “wages set by unions”. From the macroeconomic perspective, the link

between the excess supply and wage rigidity is the main concern in the theory. The failure of market clearing forces in the labor market can be related to the structural factors. Mankiw and Romer (1991) call attention to the factors generating wage rigidity: They state that "wage rigidity reflects social, institutional, and other forces that prevent the labor market from clearing" (Quoted by Howitt (2002) from Mankiw and Romer (1991)). Howitt (2002) reviews wage rigidities from two perspectives; Keynesian and new classical economics. Moreover, he focuses on why market-clearing forces do not work in labor markets, by emphasizing some explanation for wage stickiness as:

> "…bargaining, monopoly unions, market misperceptions, hold-up problems, multiple equilibria, dual labor markets, adverse selection, the stigma of unemployment, shirking, intersectoral reallocation, search and recruiting costs, fairness, insiders versus outsiders, menu costs, and so on." (Howitt, 2002: 125).

The related literature demonstrates that wage-unemployment relation is crucial in the unemployment theory.[1] At this point, we can also cite a well-known model created by Lucas and Rapping (I969). Nickell (1990) developed an aggregated unemployment model, which based on Lucas and Rapping (1969) and Sargent (1979). Micro economic dimensions of unemployment are also widely discussed in the literature. Micro based unemployment models can be seen frequently after 1990s.

Another literature is related to the effects of trade on wage inequality and unemployment. Helpman, Itskhoki and Redding (2010) develop a model in order to analyze "*the complex interplay between wage inequality, unemployment and income inequality, and their relation to international trade* ".

However, the approaches outlined above are not sufficient to explain the unemployment problem in developing countries. Behrman (1999) focuses on unemployment problem from the developing countries' perspective. Development theory establishes, in general, a link between unemployment level and the development stage of a country. The development models in the 1950s, 1960s and 1970s have focused on the dual structure of the economy. Among others, it is

[1] However, an empirical study which employs micro data from Britain and the U.S in 1980s shows that wage determination process does not work in a similar way at different unemployment levels (Blanchflower and Oswald, 1990). Blanchflower and Oswald continue to debate on this issue in Blanchflower and Oswald (1993) and (1995).

possible to refer Lewis to (1954), Ranis and Fei (1961), and Harris and Todaro (1970) as the pioneering studies for the development perspective.[2] Mingo (1974) defines the migration of labor force from the low-wage rural sector to the high-wage urban sector as the crucial elements of development process.

Nevertheless, the developing world is not homogeneous. Low and middle income countries differ in many ways, and unemployment problem may have different institutional roots in developing countries. We think that the homogeneity in the labor market of the developing economies can be captured by considering two basic propositions: First, by recalling Mankiw and Romer (1991), structural factors are important in wage rigidities. Second, labor markets in developing countries have different institutions (as Behrman (1999)). In this paper, we focus only on the institutional issues with some selected macroeconomic control variables.

3. FACTS OF UNEMPLOYMENT IN SELECTED COUNTRIES

The section is devoted to explain basic facts of unemployment in selected countries and Turkey. Some middle and high income countries were selected from different geographic regions for comparison. Descriptive analyses cover all selected countries. The countries are Argentina, Brazil, Egypt (Arab Rep.), Korea, Mexico, Malaysia, Philippines, Poland, and Portugal, Spain and Turkey. However, the panel data model in the following section does not include the selected high income countries, Korea, Poland, Portugal and Spain due to data incompatibility.

Table-1 displays the basic characteristics of labor force and unemployment for the last available year in the selected countries. In addition to this snapshot data, there is a figure illustrating unemployment changes by education level during the period of 1991-2007 (Figure-1).

In Table-1, total unemployment rates demonstrate that Mexico, Korea and Malaysia are in a better position than other selected countries. These three countries keep having their position in the female unemployment rate. Egypt has the worst youth and female unemployment rates in

[2] We may also refer to Findlay (1980) and Kirkpatrick and Barrientos (2004) on Lewis (1954).

selected countries. Egypt is followed by Spain, Argentina, Brazil, and Turkey with the high youth and female unemployment rates.

Korea has a qualified (skilled) labor force although its labor force with tertiary and secondary education rates is relatively high (35 percent and 42 percent, respectively). Korea is followed by Spain in consideration of the labor force with tertiary education (32 percent). However, the total labor force with tertiary and secondary education in Poland exceeds the total share of Korea. Labor force by education level in Turkey is similar to those of the Mexican and Portuguese cases: the share of labor force with the primary education exceeds a half of total labor force in these three countries. Hence, the share of skilled labor is lower in Turkey, Mexico and Portugal, compared with other selected countries (Table-1).

Selected Latin American (Argentina, Brazil and Mexico) and European countries (Portugal, Spain and Turkey) have the most striking condition: the share of unemployed labor forces with the primary education constitutes nearly more than half of the total unemployed people in these countries (Table-1). Although, there is a decreasing trend in the unemployment with primary education during the period of 1991-2007, Figure-1 (first graph) shows that the worst situation happens in Portugal. The case of selected East Asian countries is different: Malaysia's unemployment with primary education decreases substantially during the 1995-2005. In addition, its share reduces from 46 percent in 1995 to 13 percent in 2007 (Figure-1). Korea and Philippines, and Poland display the same pattern in unemployment with primary education: the share fluctuates between 13-16 percents in these countries.

The worst case happens in Poland considering unemployment with secondary education (73 percent). The other worst cases arise in the East Asian countries. In Malaysia, the share of labor force with secondary education considerably rises: the share is 42 percent in 1995 and 62 percent in 2007 in Malaysia. Although Korean case is not favorable, there is a decreasing trend in the share of unemployment with secondary education. Argentina and Brazil have increasing trend in the share of unemployment with secondary education; Mexico's case remains flat (Table-1 and Figure-1 (second graph)). Portugal, Spain and Turkey have lower rates of unemployment with secondary education.

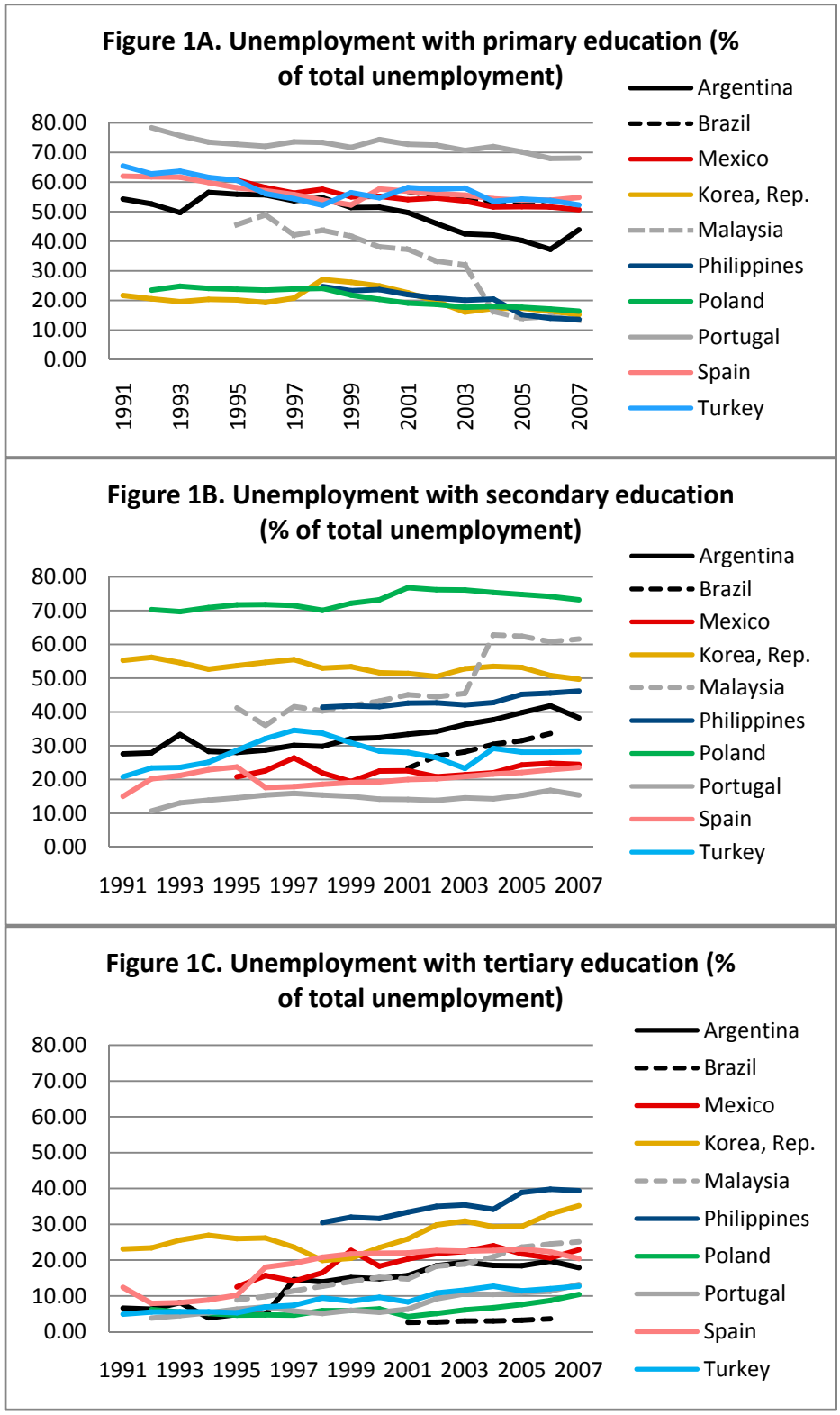
Unemployment with tertiary education is also worst in the East Asian countries, Korea, Malaysia, and Philippines (Table-1 and Figure-1 (third graph)). One of the likely reasons of this result is that the share of labor force with tertiary education is very high in these countries. Except Brazil, the share of unemployment with tertiary education is tending to increase in almost all selected countries (Figure-1).

Table 1. Labor force and unemployment indicators

	Unemployment			Labor force by education level (% of total labor force)			Unemployment by education level (% of total unemployment)		
	Total	Youth	Female						
	Total unemployment (2008) (% of total labor force)	(% of total labor force ages 15-24) (2007)	(% of female labor force) (2007)	primary (2007)	secondary (2007)	tertiary (2007)	primary (2007)	secondary (2007)	tertiary (2007)
Argentina	7.25	23.40 [a]	8.93	35.3 [a]	33.6 [a]	29.5 [a]	48.1 [b]	36.7 [b]	15.3 [b]
Brazil	7.90	18.10 [c]	10.00	42.9 [a]	28.9 [a]	8.6 [a]	51.6 [a]	33.6 [a]	3.6 [a]
Mexico	4.00	6.70	4.20	57.0	20.0	17.3	50.7	24.5	22.9
Korea, Rep.	3.20	8.90	2.60	23.0	42.0	35.0	15.2	49.7	35.2
Malaysia	3.20 [e]	10.90	3.40 [e]	19.3	56.3	20.3	13.3	61.6	25.1
Philippines	7.40	14.90	7.10	31.7	38.7	27.7	13.6	46.2	39.4
Poland	7.10	17.30 [b]	8.00	10.2	68.3	21.5	16.4	73.2	10.4
Portugal	7.60	16.50 [b]	8.80	65.7	15.1	14.1	68.1	15.4	13.2
Spain	11.30	24.60 [b]	13.00	43.8	24.0	31.8	54.8	23.6	20.4
Egypt, Arab Rep.	8.70	34.10 [d]	19.30	na	na	na	na	na	na
Turkey	9.40	18.10 [b]	9.40	56.0	21.9	13.1	52.3	28.2	12.7

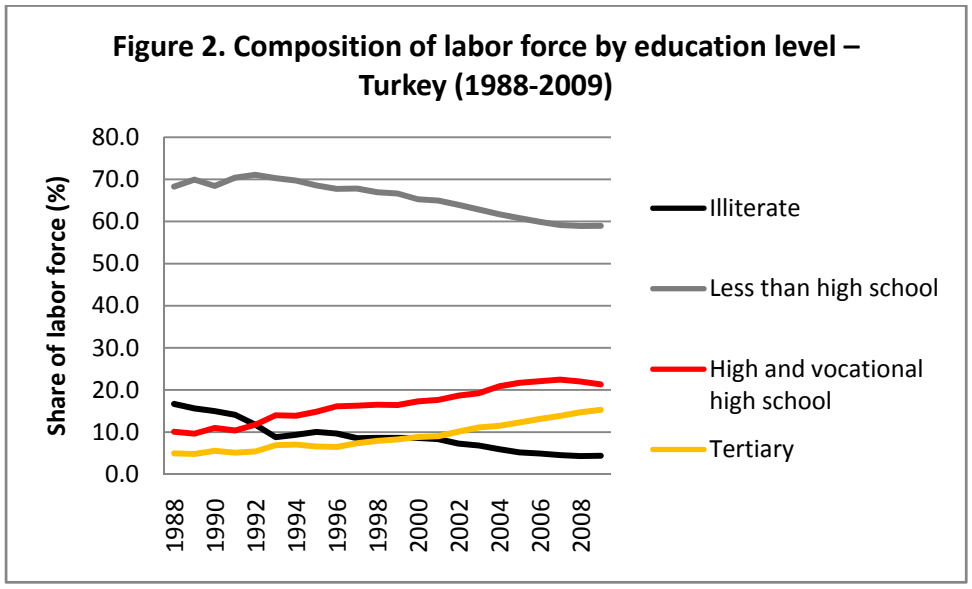
Source: WDI&GDF (2010)
a) 2006, b) 2008, c) 2004, d) 2005, e) 2007

Figure 1. Unemployment by education level



Source: WDI&GDF (2010)

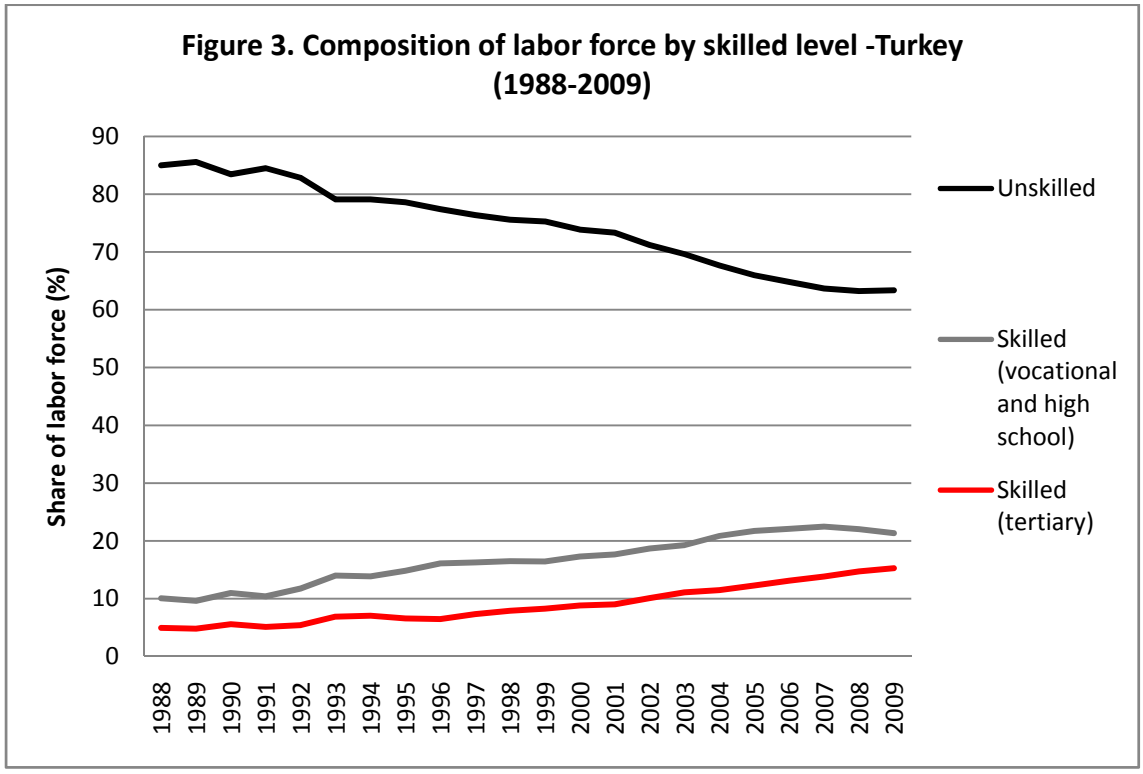
The figures (from 2 to 6) display the basic facts of unemployment in Turkey. Figure-2 demonstrates the composition of labor force by education level in four groups: i) illiterate labor forces (the share in the total), ii) labor force with education less than high school, iii) with high and vocational high school, and iv) with tertiary education. The data cover a longer period (1988-2009) considering WDI&GDF (2010) data. Furthermore, it permits to see unskilled education level under two groups as illiterate and labor force less than high school. The 2000 and later period also capture labor force with high and vocational school separately. However, we have combined two series in order to keep comparability with the previous period.

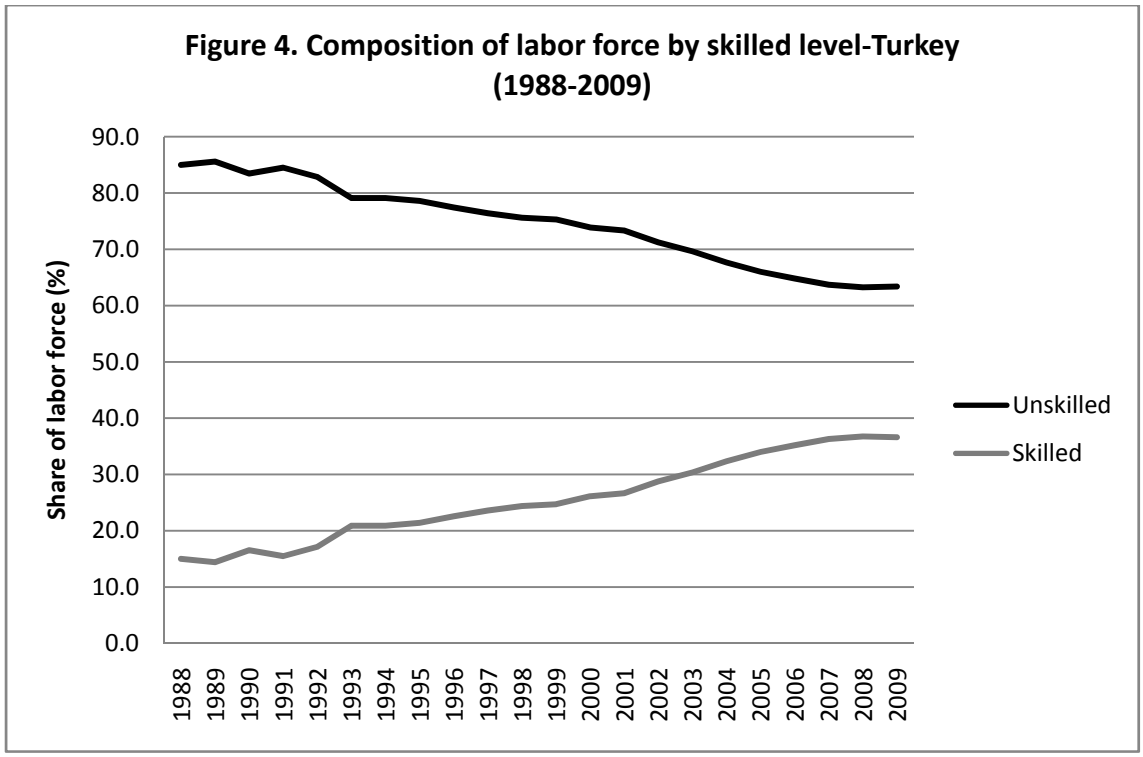


Source: TURKSTAT, The results of Household Labor Force Survey

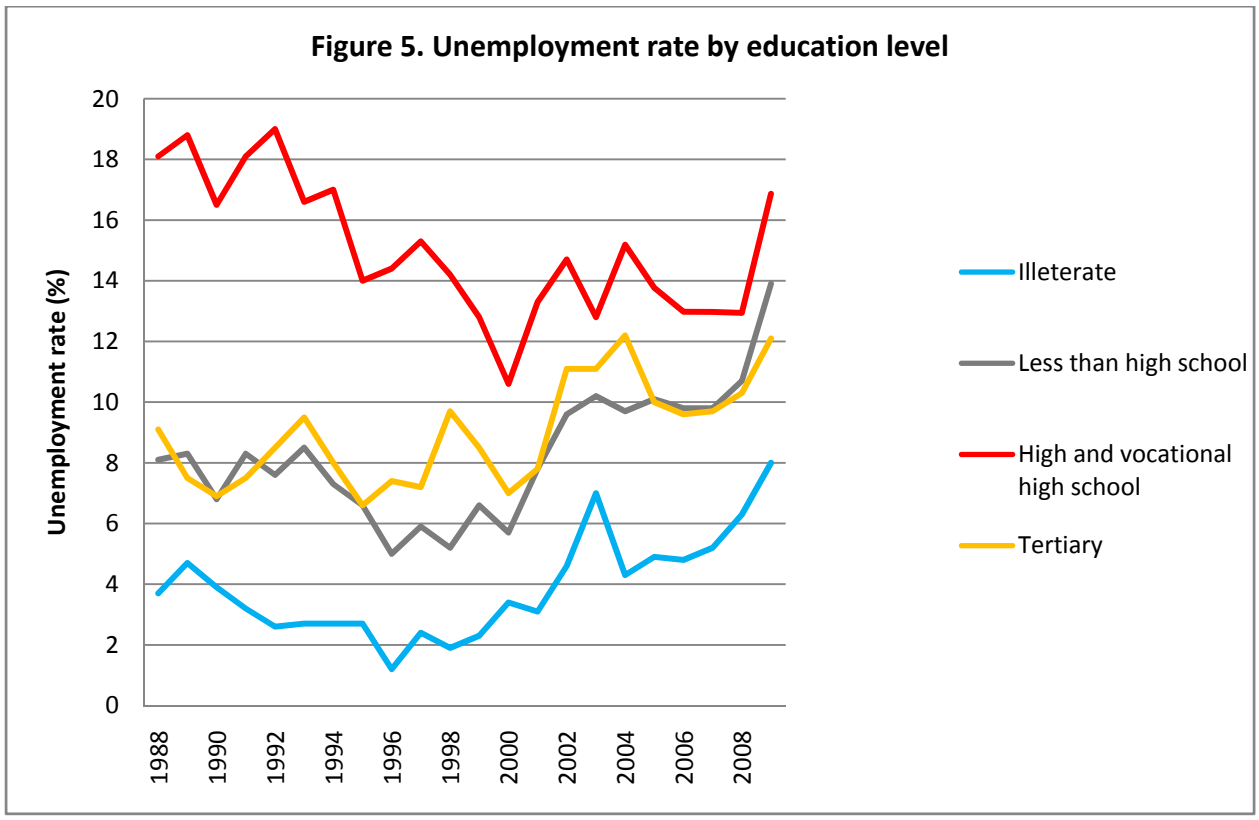
Figure-3 and Figure-4 exhibit unskilled and skilled labor changes over the period of 1988-2009. Unskilled labor consists of the sum of illiterate labor forces and labor force with education less than high school. We define skilled labor in two ways. First, skilled labor consists of labor

force with high school and labor force with tertiary education. Second, this separation for skilled labor is removed in the Figure-4. Figure-3 shows that the share of labor force with high and vocational school slightly decreases, while the share of labor force with tertiary education displays a little increase. Unemployment rates by all education levels rose over the two decades (Figure-5).



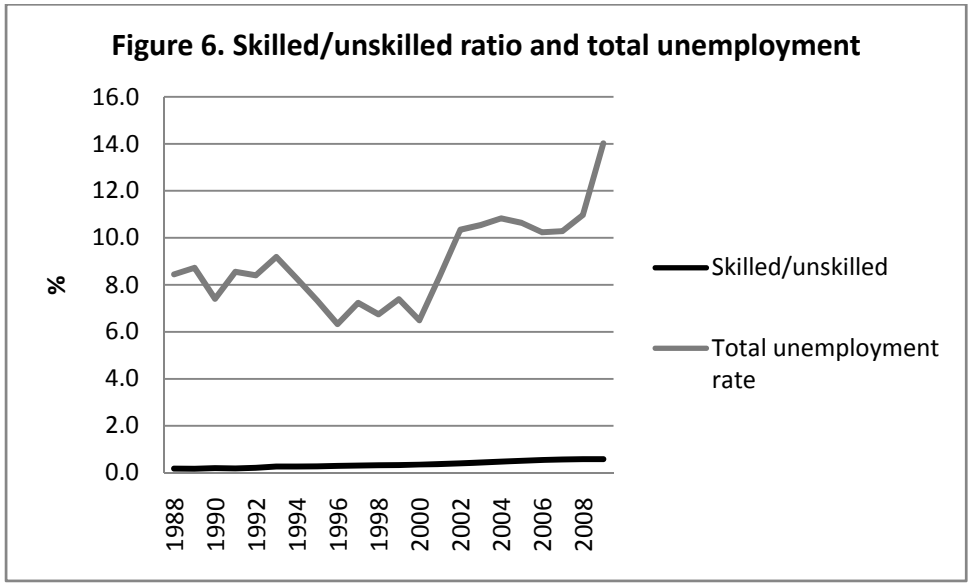


Source: TURKSTAT, The results of Household Labor Force Survey



Source: TURKSTAT, The results of Household Labor Force Survey

One of the focuses of the paper was to examine the relation between skill level of labor force and unemployment. Figure-6 displays the relation between skilled/unskilled ratio and unemployment in Turkey. We also calculated correlation for this relationship: The correlation is positive and strong. Therefore, the observation shows that there is a positive link between skill level of labor force and unemployment. They move together during the last decades in Turkey.



Source: TURKSTAT, The results of Household Labour Force Survey

4. MODEL AND RESULTS

Based on the arguments outlined in Section 2, this paper attempts to investigate the effects of change in sectoral composition on unemployment. The relation between unemployment and wages is the core of the unemployment theory. However, in the paper, the analysis does not include wages because of dissimilar wage generating institutional structures of the economies covered. While comparing unemployment in Turkey with other similar countries, we start out from the standpoint of development economics. We limit our analysis to sectoral composition and some control variables. Besides sectoral composition, we use two different groups of variables. The first group includes institutional variables capturing long-term changes. The other group incorporates variables that enable us to see the effects of macroeconomic policies.

In the paper, short-term capital movements are considered as the indicator of macroeconomic policies. Foreign direct investment and manufactures imports are other variables selected in order to capture the effects of macroeconomic policies. We expect a negative impact of short-term capital flows on employment. Thus, we anticipate a positive sign on the coefficients of the variables which represent short-term capital flows. Another macroeconomic policy variable expected to move in conjunction with unemployment is manufactures imports. It is expected that rising share of manufactures imports in merchandise affects domestic manufacturing production adversely, thereby reducing employment and increasing unemployment. The only macroeconomic variable that is expected to cause a decline in unemployment is foreign direct investment. Therefore, the expected sign of this variable is negative.

The share of manufacturing industry can be regarded as an institutional variable which may reflect the level of development. Moreover, increasing share of manufacturing industry has job creation potential and the job creation process in urban area can be associated with sectoral composition. Another variable for sectoral composition is the share of nonagricultural sectors. We expect both sectoral composition variables to have negative impact on unemployment. The model employs the percentage change of unemployment instead of the unemployment share in total labor force. However, our expectations do not change for the percentage change of unemployment. The paper also considers labor force and urbanization as institutional variables. Labor force participation rate and urban population growth are the other variables used in the

analysis, which represent the mentioned institutional variables. Since these variables lead to an increase on labor supply, we expect a positive relationship between these variables and unemployment. These discussions about institutional variables are in line with the theoretical framework in Section 2.

In this framework, general model is constructed as follows:

unemployment (unemppc) = f [sectoral composition (*sshare, ssharepc, ssharena*), macro variables (*stdgdp, stdesi, fdi, importm*), institutional variables (*lforce, urbrate*)]

UNEMP	: Total unemployment (% of total labor force)
UNEMPPC	: Percentage change of UNEMP
SSHARE	: Manufacturing, value added (% of GDP)
SSHAREPC	: Percentage change of SSHARE
SSHARENA	: Non-agricultural value added (% of GDP) (Total value added – Agricultural value added (% of GDP))
STDGDP	: (Short-term external debt stocks/ GDP)*100
STDESI	: Short-term debt (% of exports of goods, services and income)
FDI	: Foreign direct investment, net inflows (% of GDP)
IMPORTM	: Manufactures imports (% of merchandise imports)
LFORCE	: Labor participation rate, total (% of total population ages 15+)
URBRATE	: Urban population growth (annual %)

4.1 PANEL DATA MODEL

We use two types of data set in the analyses: World Development Indicators and Global Development Finance (WDI&GDI, 2010) and the results of Household Labor Force Survey from TURKSTAT. Only seven out of eleven countries selected from different geographical regions are utilized in panel data analysis. The countries are Argentina, Brazil, Malaysia, Philippines, Egypt (Arab Rep.), Turkey, and Mexico. Spain, Korea, Poland, and Portugal are high-income countries according to the classification of World Bank. The variables of *stdgdp* and *stdesi,* which enable us to observe the effects of macroeconomic policies, are not available for these countries. We first draw scatter plots (see Annex). The scatter plots illustrate the relationship

between dependent variable and each independent variable for the selected countries. The estimated models are several variants of the general model outlined above.

In the analysis, we use first generation and second generation panel unit root tests in order to detect as to whether the variables have unit roots. We use first generation panel unit root tests of Levin et al. (2002)-hereafter LLC- and Im et al. (2003)-hereafter IPS-. The test of LLC is proposed to test the null hypothesis of a common unit root when the cross-sectional units are independent of each other. The test is relevant for panels with moderate size. This test requires the coefficient of the lagged dependent variable to be homogenous across all units of the panel. On the other hand, IPS test allows heterogeneity on the coefficient of the lagged dependent variable and designs a testing procedure based on the average of the individual unit-root test statistics.

Table-2 reports the results of the first generation panel unit root tests for seven middle-income countries. The null of unit root can be rejected in the levels of the variables of *unemppc, fdi, ssharepc, stdesi,* and *ssharena* in LLC and IPS tests. In the case of *importm* and *stdgdp*, we are able to detect no unit root for 2 out of 4 cases. For the variables of *lforce* and *sshare*, the null of unit root cannot be rejected in 3 out of 4 cases. However, the first generation panel unit root tests are subject to considerable criticism. The major drawback of these tests is that they all assume that the individual processes are cross-sectionally independent. The second generation tests have been proposed to handle this restrictive assumption. Therefore, we use the second generation panel unit root test of Moon and Perron (2004) in the analysis. Moon and Perron test is likely to be applicable in the case of panels where T > N. Since the test allows for multiple common factors, the use of Moon and Perron (2004) test statistics is suggested when cross-section dependence is expected to be due to a number of common factors, which is important for our data set (Gengenbach et.al, 2004).

Table 2. Panel Unit Root Tests in Levels (First Generation)

	LLC		IPS	
	Constant	**Constant &Trend**	**Constant**	**Constant &Trend**
unemppc	-4.827* (0.0000)	-3.845* (0.0001)	-4.834* (0.0000)	-5.231* (0.0000)
fdi	-4.365* (0.0000)	-4.188* (0.0000)	-3.795* (0.0001)	-2.504* (0.0061)
importm	-3.765* (0.0001)	-0.804 (0.2105)	-2.764* (0.0028)	1.259 (0.8961)
lforce	-3.158* (0.0008)	0.008 (0.5034)	0.106 (0.5424)	0.153 (0.5610)
sshare	-0.524 (0.2999)	-2.372* (0.0088)	-0.529 (0.2982)	-0.892 (0.1861)
ssharena	-2.908* (0.0018)	-1.609** (0.0538)	-1.298*** (0.0970)	-0.196 (0.4220)
ssharepc	-6.635* (0.0000)	-4.690* (0.0000)	-4.437* (0.0000)	-2.494* -0.0063
stdesi	-2.788* (0.0026)	-0.222 (0.4119)	-1.464*** (0.0715)	-2.287* (0.0111)
stdgdp	-1.594** (0.0550)	-0.666 (0.2524)	-0.634 (0.2628)	-1.751** (0.0399)
urbrate	0.026** (0.0213)	-0.086 (0.4654)	0.489 (0.6878)	1.438 (0.9249)

Notes: i) The null hypothesis for LLC and IPS are unit root. The numbers in brackets are the p-values for the tests. (*) and (**) denote the rejection of the null of unit root at 1%, 5%, and 10% significance levels, respectively.
ii) The lag length is set to 2 for sshare and ssharena.

Table-3 shows the empirical findings of the second generation panel unit root test of Moon and Perron (2004), which uses a residual factor model to allow for the cross section dependence in the panel data. We compute t_a* and t_b* statistics of Moon and Perron for different values of k (3 and 4). Our empirical findings suggest the nonexistence of unit root in the levels of variables.[3] Therefore, we conclude that our variables exhibit stationary characteristics and perform stationary panel data analyses by running fixed-effects and random-effects models.

[3] Gengenbach et al. (2004) point out that t_b^* test of Moon and Perron (2004) is usually more powerful than t_a^*.

Table 3. Panel Unit Root Tests in Levels (Second Generation)

Moon and Perron Test Statistics (with constant)			
		k=3	**k=4**
unemppc	t_a^*	-13.676*	-8.071*
	t_b^*	-16.423*	-6.908*
fdi	t_a^*	-2.065*	-3.142*
	t_b^*	-2.062*	-4.407*
importm	t_a^*	-0.037	-0.05
	t_b^*	-0.405	-0.642
lforce	t_a^*	-0.001	-0.003
	t_b^*	-0.041	-0.191
sshare	t_a^*	-0.104	-0.193
	t_b^*	-1.166	-3.079*
ssharena	t_a^*	0.090	0.043
	t_b^*	3.155*	2.834*
stdesi	t_a^*	-2.120*	-1.895*
	t_b^*	-4.329*	-5.110*
stdgdp	t_a^*	-1.049	-1.842**
	t_b^*	-2.659*	-3.006*
urbrate	t_a^*	-0.417	-0.373
	t_b^*	-5.849*	-1.722**
Moon and Perron Test Statistics (with constant and trend)			
		k=3	**k=4**
unemppc	t_a^*	-23.040*	-24.502*
	t_b^*	-9.504*	-7.538*
fdi	t_a^*	-2.590*	-7.618*
	t_b^*	-2.584*	-9.262*
importm	t_a^*	-5.523*	-4.195*
	t_b^*	-7.176*	-4.614*
lforce	t_a^*	-5.676*	-4.499*
	t_b^*	-5.769*	-4.162*
sshare	t_a^*	-0.557	-1.883**
	t_b^*	-0.596	-1.991*
ssharena	t_a^*	-3.460*	-5.883*
	t_b^*	-3.934*	-9.424*
stdesi	t_a^*	-4.166*	-3.609*
	t_b^*	-3.882*	-2.925*
stdgdp	t_a^*	-5.806*	-4.026*
	t_b^*	-5.923*	-3.463*
urbrate	t_a^*	-4.005*	-5.254*
	t_b^*	-5.206*	-10.772*

Under the unit root hypothesis the Moon–Perron statistics are standard normal. (*) and (**) denote the rejection of the null of unit root at 5% and 10% significance levels, respectively.

4.2 EMPIRICAL FINDINGS

The results for six panel regressions for the period 1992-2008 are reported in Table-4 and 5. The results of Hausman (1978) specification test suggest fixed-effects models in four out of six models. The regression results of Model 1A indicate that *sshare, urbrate, fdi, and importm* are statistically significant and have the expected signs. The negative and significant coefficient for *sshare* shows that the increase in the share of manufacturing in sectoral composition influences unemployment negatively. The *urbrate's* positive and significant coefficient signifies that the rise in urbanization moves in the same direction with the rise in unemployment. *Stdesi* is not significant although it has the (positive) expected sign. The coefficient of *lforce* is negative contrary to expectations but it is insignificant. Then, Model 1B is regressed by excluding this variable. The estimated coefficients in Model 1B do not differ in terms of their expected signs and not much change occurs in significance levels. Since *stdesi* is not statistically significant in both Models 1A and 1B, Model 1C is constructed by substituting *stdgdp* for *stdesi*. However, all coefficients turn out to be insignificant except *lforce* and *fdi* in Model 1C.

Table-5 displays the estimation results of three fixed-effects models, in which *ssharena* is used as an explanatory variable replacing *sshare*. The coefficient of *ssharena* is positive and significant contrary to expectations in three models. *Ssharena* represents the share of non-agricultural sectors in GDP. The coefficient for *ssharena* is expected to have a negative sign since *ssharena* embodies both industry and services sectors which have potential to create job. However, its positive sign shows that *ssharena* affects unemployment in a different way: One of the likely explanations is that a change in this share reflects the decline in the share of agriculture, which implies migration from rural area. Therefore, we can assume that this variable is a proxy for labor supply *á la* Arthur Lewis (Lewis, 1954) rather than demand for. In this context, the positive sign is acceptable. Model 2B is constructed by replacing *stdesi* with *stdgdp* since the coefficient for *stdesi* has an unexpected sign in Model 2A. The only significant variables with the expected signs are *fdi* and *urbrate*.

Table 4. Regression Results (1)

Dependent variable: **unemppc**	**Period: 1992-2008**				
Model 1A: Random effects		**Model 1B: Random effects**		**Model 1C: Fixed effects**	
sshare	-1.500* (0.602)	**sshare**	-1.374** (0.593)	**sshare**	-1.394 (0.937)
stdesi	0.084 (0.069)	**stdesi**	0.068 (0.067)	**stdgdp**	-0.372 (0.582)
urbrate	5.457** (2.463)	**urbrate**	4.401** (2.286)	**urbrate**	5.946 (4.147)
lforce	-0.267 (0.233)	**fdi**	-1.714** (0.802)	**lforce**	-2.386* (0.968)
fdi	-1.813** (0.805)	**importm**	0.231*** (0.142)	**fdi**	-2.853* (0.926)
importm	0.301** (0.154)	**constant**	-1.766* (0.621)	**importm**	-0.164 (0.250)
constant	-1.500 (0.602)				
Observations	119		119		119
Countries	7		7		7
Hausman Test	10.76 (P>chi2 =0.09)		4.43 (P>chi2 =0.48)		12.60 (P>chi2 =0.04)

(*), (**), and (***) denote 1%, 5%, and 10% significance levels, respectively.

Table 5. Regression Results (2)

Period: 1992-2008					
Dependent variable: **unemppc**					
Model 2A: Fixed effects		**Model 2B: Fixed effects**		**Model 2C: Fixed effects**	
ssharena	2.724** (1.043)	**ssharena**	2.603** (1.128)	**ssharena**	2.701* (1.041)
stdesi	-0.111 (0.132)	**stdgdp**	-0.137 (0.587)	**urbrate**	12.570* (4.898)
urbrate	14.091* (5.228)	**urbrate**	12.487* (4.933)	**lforce**	-1.284 (0.245)
lforce	-1.466 (1.122)	**lforce**	-1.268 (1.107)	**fdi**	-2.589* (0.834)
fdi	-2.754* (0.858)	**fdi**	-2.585* (0.838)	**importm**	-0.261 (0.251)
importm	-0.313 (0.259)	**importm**	-0.259 (0.253)		
Observations	119		119		119
Countries	8		7		7
Hausman Test	13.07 (P>chi2 =0.04)		12.64 (P>chi2 =0.04)		12.96 (P>chi2 =0.02)

(*), (**), and (***) denote 1%, 5%, and 10% significance levels, respectively.

5. CONCLUSION

There are important differences in the structure of labor force by education level in the selected countries. Each geographic region also has no common pattern considering the structure of labor force by education level. The share of labor force with primary school is similar in the selected Latin American and European countries. Labor force with primary school is the largest segment of the labor force in the selected Latin American and European countries, excluding Poland. This segment of the labor force has low share in Poland due to its institutional characteristics: The institutional structure of Poland (i.e. education and labor institutions) is quite different than from that of other European countries due to its past political and economic history. Labor force with secondary school is widespread in the East Asian countries. However, the labor force share with tertiary education is not similar across geographical regions. This type of labor force has relatively high share in Korea, Argentina and Spain which are located at different continents. Patterns of unemployment also vary across the selected countries.

Turkey has some similarities with the European and Latin American countries in terms of labor force and unemployment structures. Turkey has a large amount of low skilled labor force, and unskilled unemployment is high. However, further observations on the Turkish labor market give additional remarks: First, the share of unskilled labor tends to decrease; second, unemployment in the labor force at all education levels tend to increase in the 2000s with fluctuations; and third, skilled labor and unemployment moved together over the last two decades.

The results of the panel data analyses show that *manufacturing value added* has an expected impact on unemployment for the selected countries. The unchanging sign of the coefficient of *this variable* in various model estimations verifies the negative effect of sectoral composition, which is in the principal focus of the paper, on unemployment. The significant coefficient for *urban population growth* might indicate that the transitions in the stages of development are not completed in the selected countries. As expected, the negative effect of *manufacturing value added* together with the positive effect of *manufactures imports* on unemployment points out to the importance of industrial policies in these countries. In addition to the outcomes of panel data analyses, the results drawn from the descriptive analysis suggest that the rise in skilled

unemployment in Turkey is a growing fact. This gives rise to thought that the mismatch between skilled labor supply and demand becomes an important issue.

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ANNEX: Scatter plots
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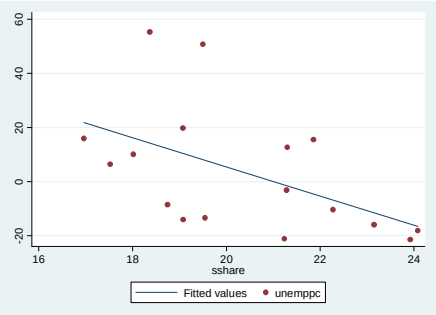

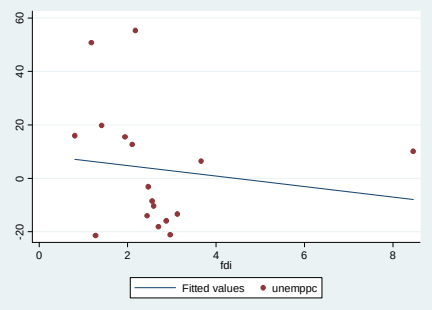

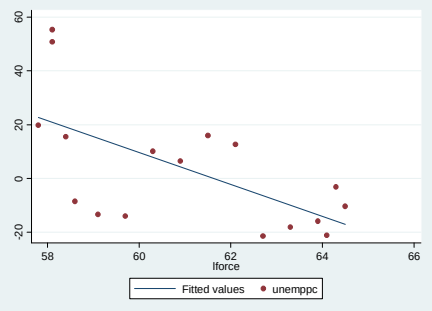

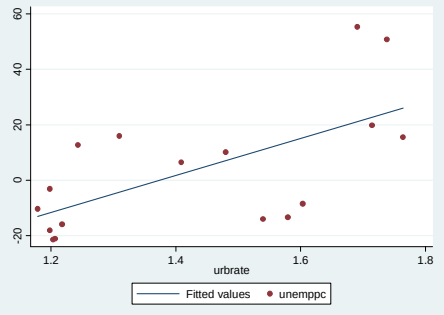

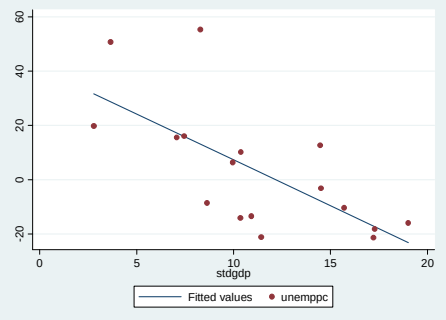

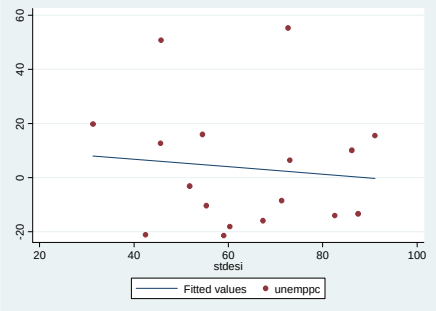

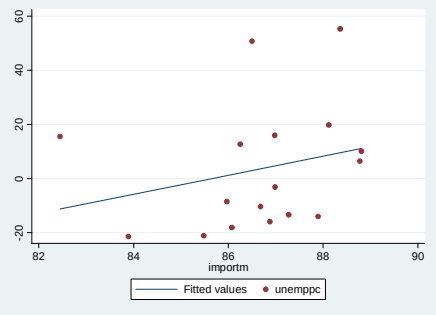

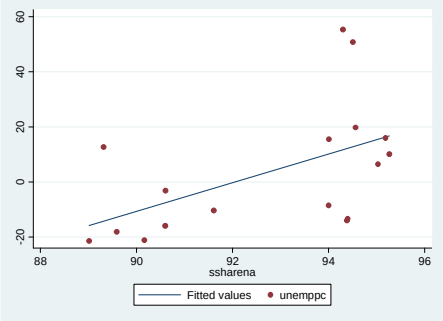

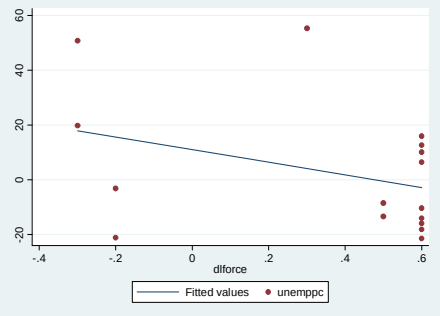

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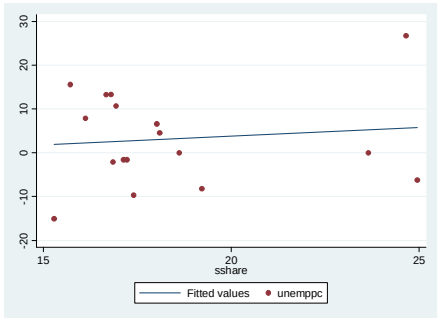
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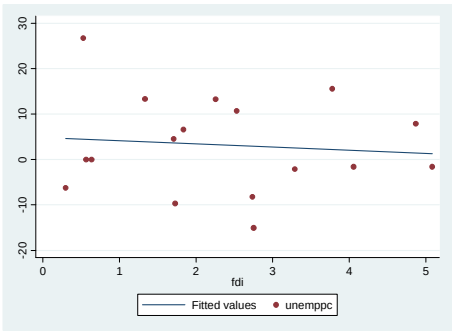
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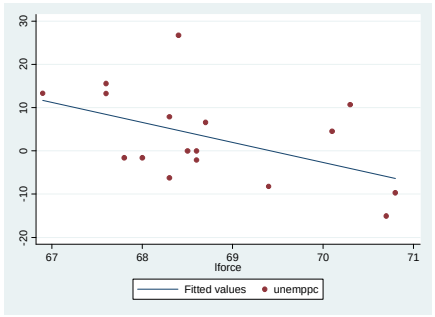
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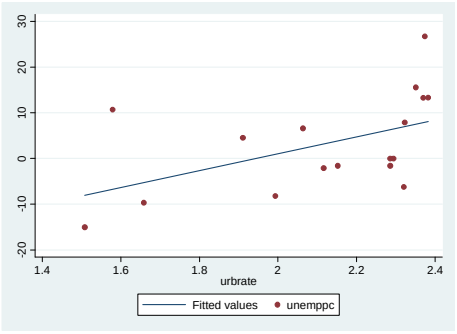
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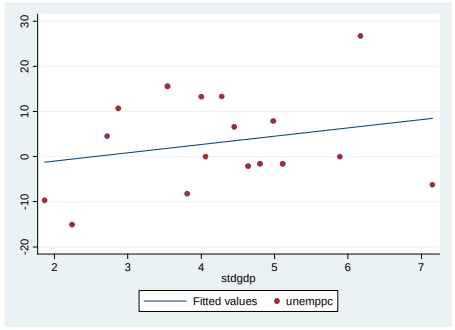
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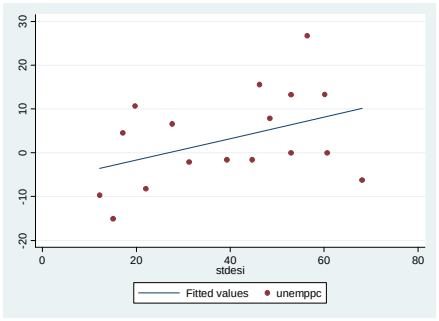
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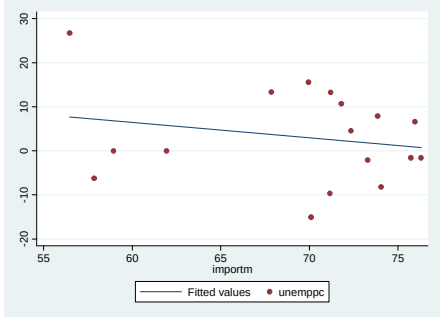
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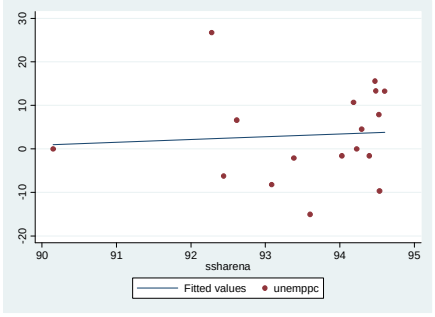
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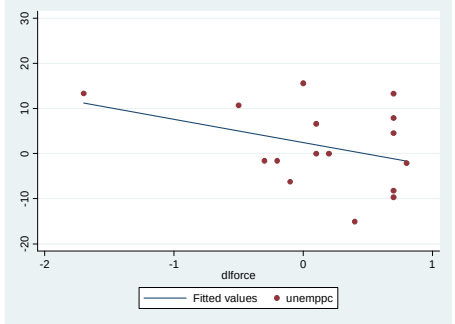
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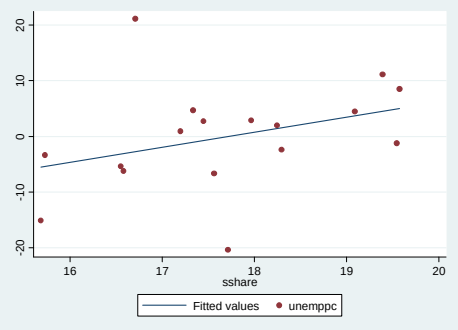
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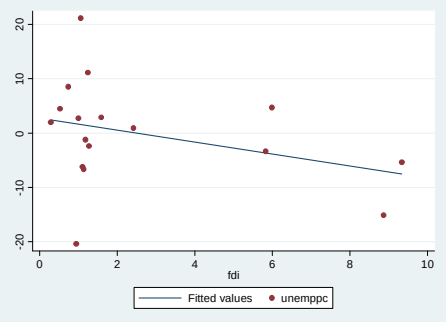
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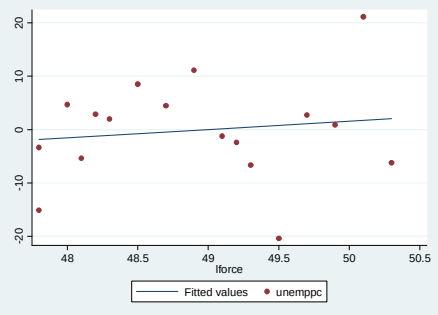
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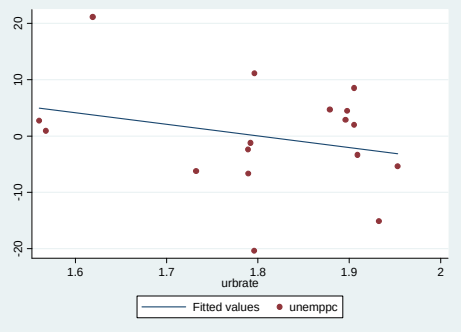
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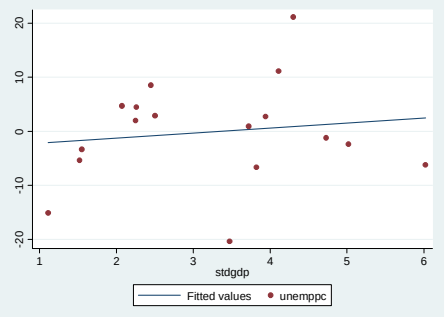
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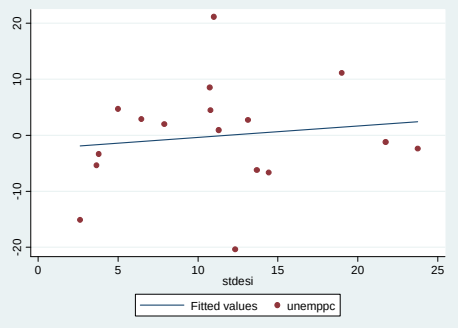
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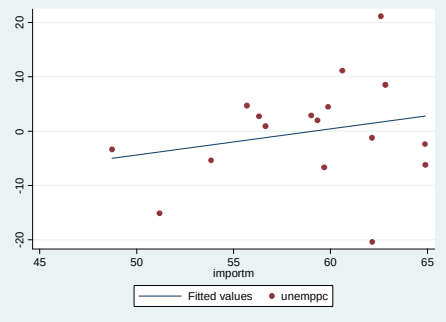
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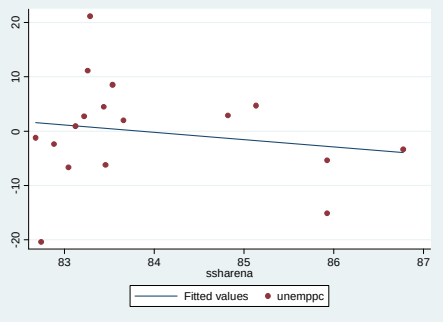
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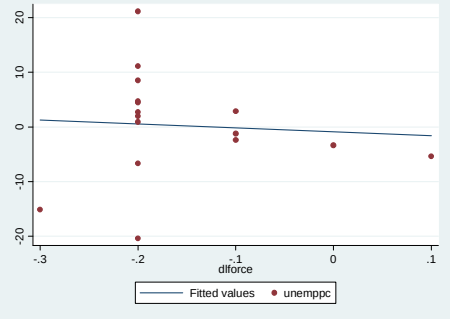
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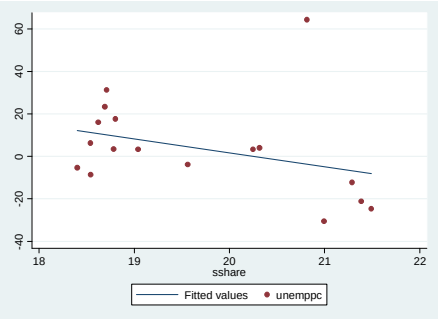
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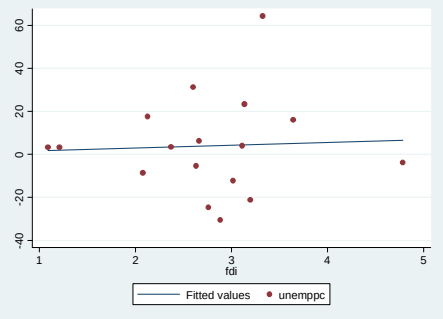
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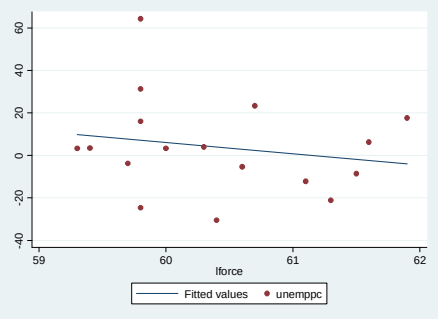
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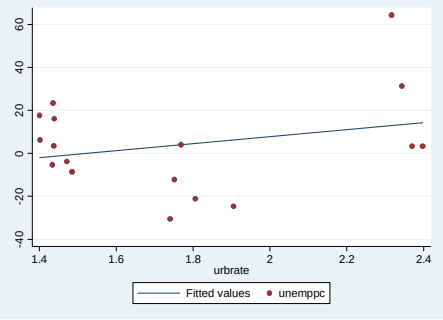
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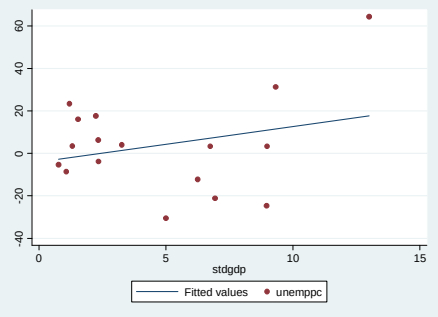
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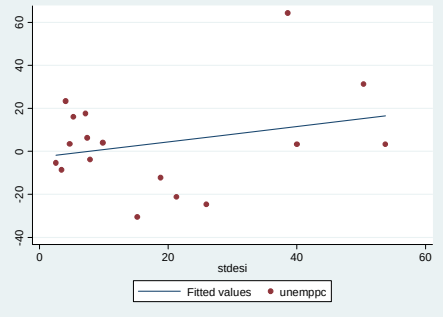
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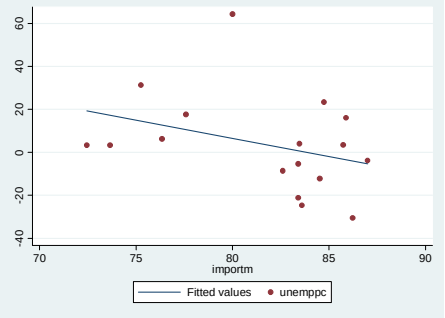
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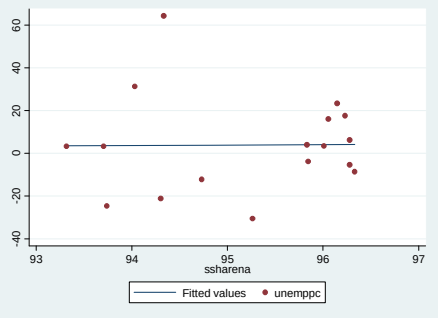
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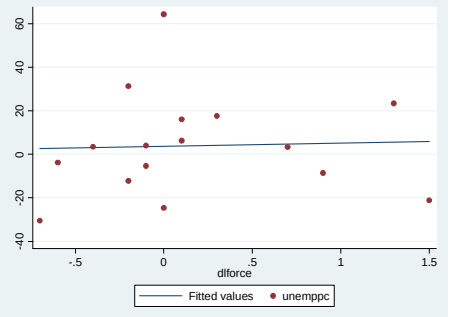
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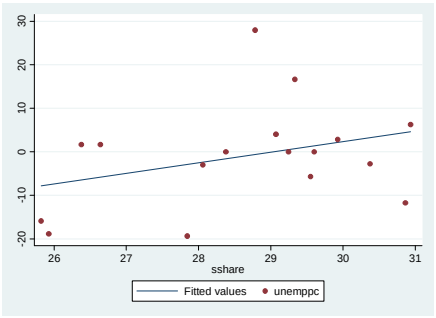
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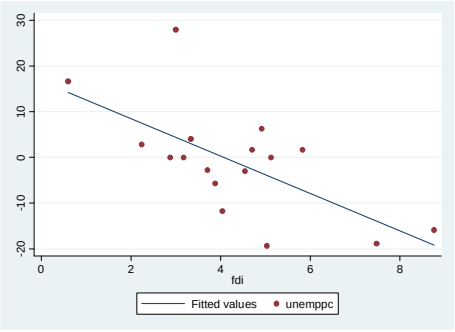
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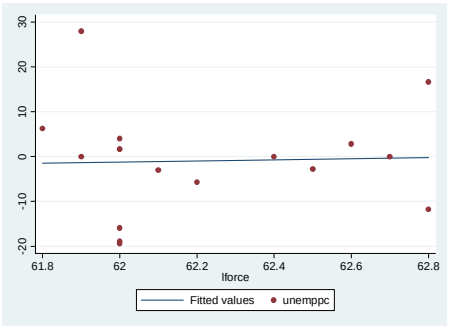
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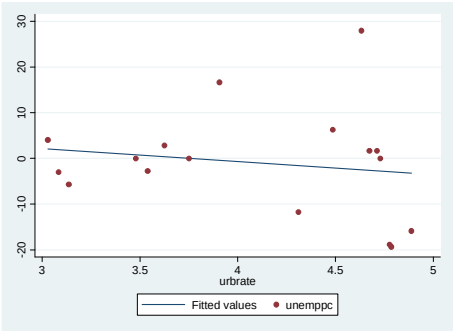
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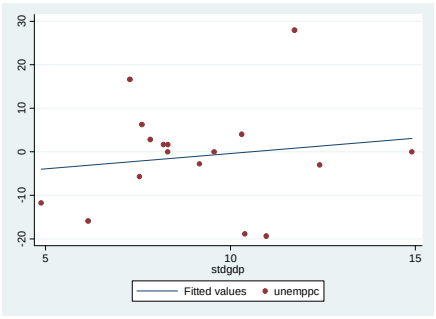
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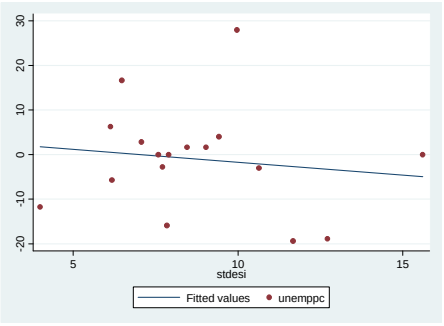
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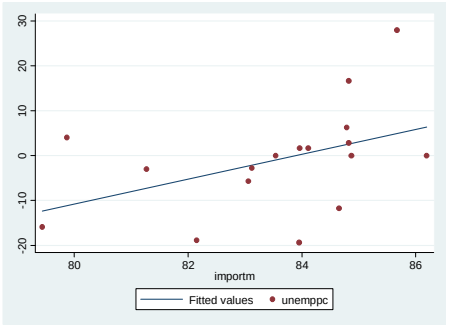
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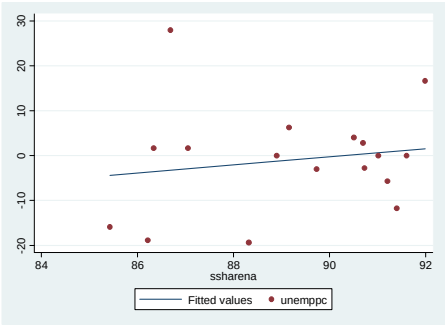
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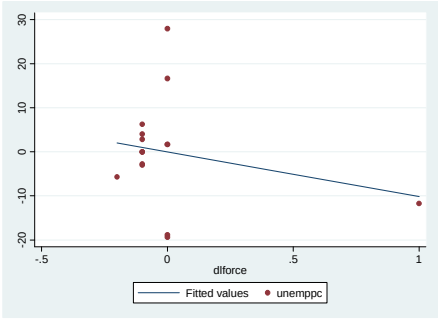
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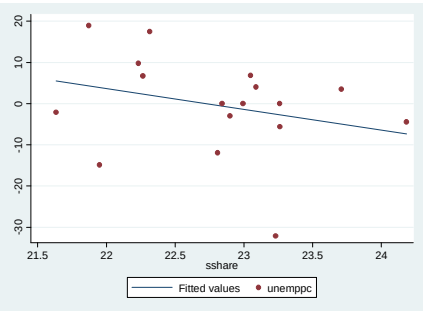

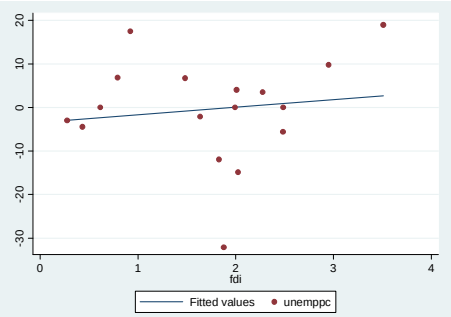

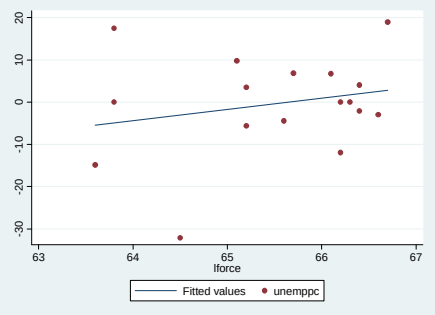

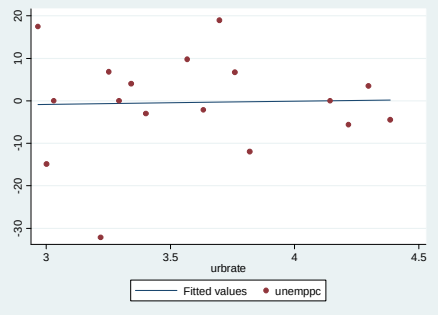

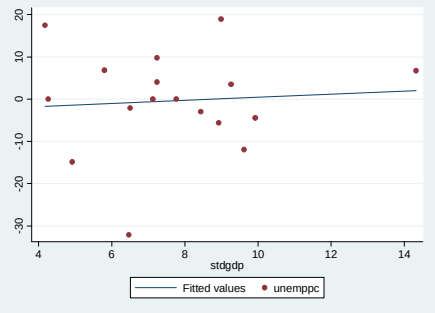

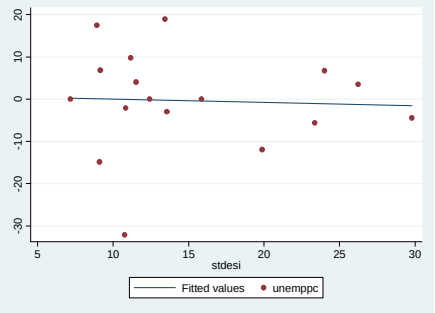

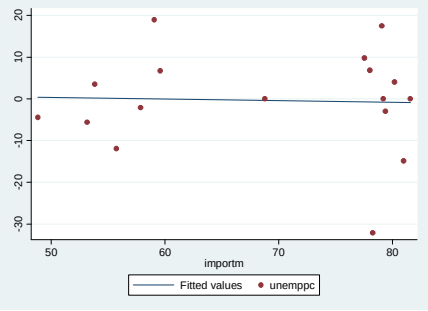

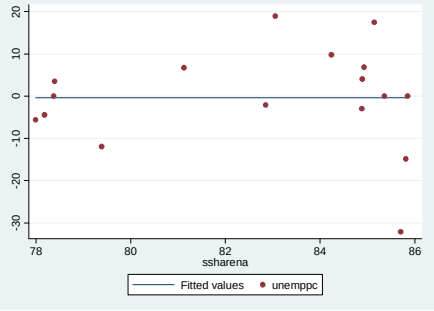

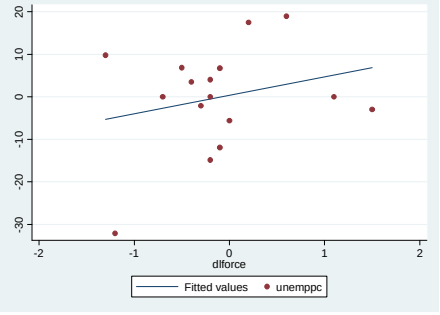

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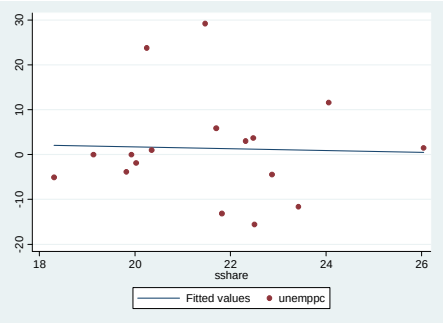
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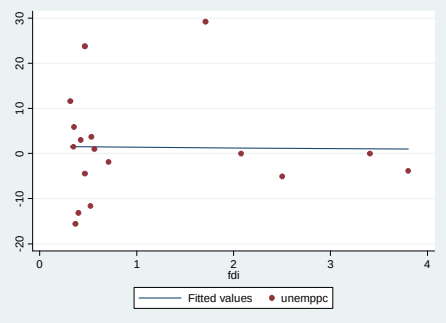
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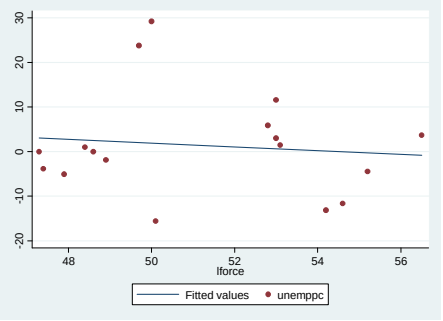
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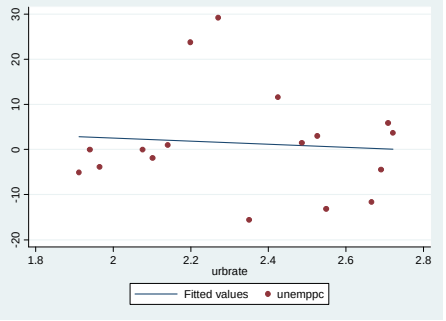
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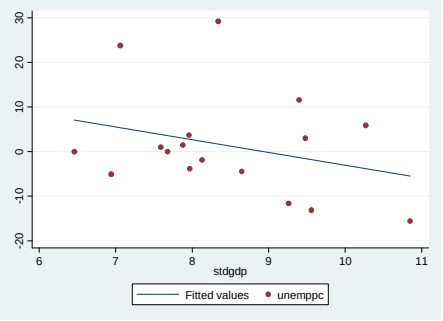
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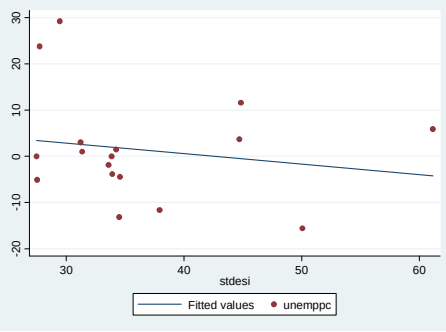
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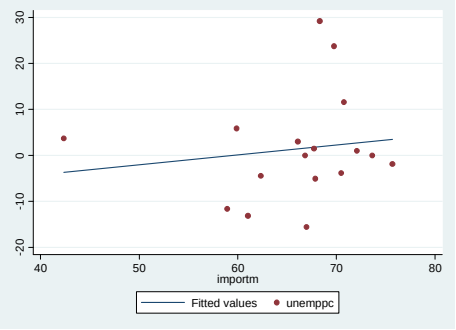
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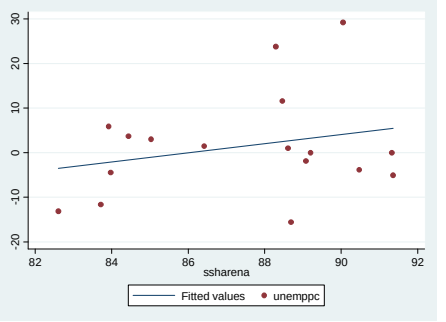
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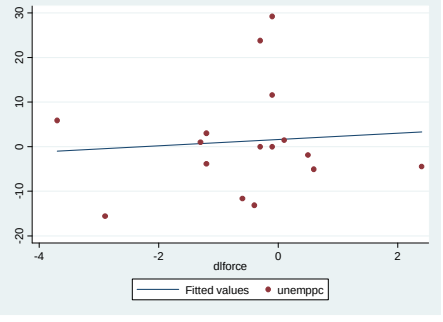
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