Immigration, Enterprises, and Employment in the European Union

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Abstract

We study the effects of ethnic diversity, measured by the share of immigrants in the total population in the EU member countries, on the number of establishments and employment in the EU. We distinguish between different industries and between different groups of source (migrant-sending) countries; i.e., Eastern European Countries (EECs) and Mediterranean Countries (MPCs). We use a panel data that covers the period 1988-2010, and find that migration from MPCs to the EU has a positive impact on both the number of enterprises and employment, especially in light manufacturing industries. Also migration from MPCs to the EU positively affects employment in construction and heavy manufacturing industries. Similarly, migration from EECs to the EU positively affects employment, especially in food and beverages industries.

Keywords: Migration; Enterprises; Employment.
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1 Introduction

Immigration is at the forefront of the European Union's (EU) attention as it is believed it significantly affects economic outcomes for natives through various channels. In this paper, we study the effects of ethnic diversity, measured by the share of immigrants in the total population in the EU member countries, on industry-level employment, and on the variety of products that both natives and immigrants are provided with in these countries. In particular, we are interested in finding out about whether and how the composition of businesses in the EU changes with the influx of immigrants. For example, do we see a change at the *product* extensive margin, such that new products are made available in the market, especially to cater to immigrants' demand for some ethnic/diversified goods, or at the *product* intensive margin such that the share of establishments providing more standardized products increase?

The empirical motivation of our paper is obvious as statistical evidence shows that the immigrant population in the EU is significantly large. At the end of the 1990s, 3.5 per cent of the EU's population (18 million) was of immigrant origin; see Aubarell and Aragall (2005). In about a decade, this number has almost doubled. According to the *News Release* by EUROSTAT (2010) — the statistical office of the EU — at the end of 2008, there were 31.9 million foreign citizens living in the EU, of which 20 million were citizens of countries outside the EU. The share of the EU population that is foreign born is currently estimated at around 10 per cent; see EMPL (2011). Not surprisingly, the most populated five EU Member States (Germany, France, Italy, Spain, and the United Kingdom) — comprising approximately two-thirds of the total EU population — have the highest numbers of foreign-born persons, in absolute terms, the total number corresponding to over 75 per cent of the total immigrant population in the EU; see EUROSTAT (2011a). As is discussed in detail, in the following section, not only may immigrants bring in their knowledge of producing some diversified goods, or make trading such goods possible/less costly, but also they may create significant demand for such goods. So we may eventually see some immigration-triggered changes in consumption and production patterns, especially in countries receiving sufficiently large numbers of foreign-born persons.

In general, people move across countries for several reasons. In particular, employment-related reasons are reported as the main motive behind immigration, although migrants tend to have low levels of income, and/or are exposed to a higher risk of unemployment [1], or are likely to be employed in jobs below their educational qualifications. We shall note that there are some important factors contributing to immigrants' such employment experiences, such as the non-recognition of migrants' qualifications and skills which are earned abroad, language barriers, or discrimination, etc.; see EUROSTAT (2011a) and EMPL (2011) for details. These factors may also explain, to some extent, the sectoral distribution of immigrants in the EU Member States.

According to the EU-LFS 2009 data reported by EMPL (2011), immigrants are, generally, under-represented in occupations (i) that require proficiency in the host country language such as office works as they cannot compete with a larger group of native speakers, and (ii) that require high skills/education as in extra-territorial organizations, and education and health sectors, etc. Also they are not well represented in manufacturing, and wholesale and retail trade industries, although there is considerable heterogeneity across countries. On the contrary, they are over-represented in occupations (i) whose demand for skill is sufficiently low such as service sector industries (e.g., hotel and food services, and administrative and support service activities, etc.), and (ii) where the employer is the household (i.e., the household sector that consists in domestic helpers, cleaners and launderers, and personal care workers). Also they are well represented in the construction sector, although as in manufacturing, and wholesale and retail trade industries, the share of immigrant employment in the construction sector shows significant heterogeneity across countries. [2]

In this study, we scrutinize mainly the demand-related impact of the influx of immigrants on the variety of consumption goods available in the host countries. Hence the retail industry, which involves activities that are related to selling goods and services directly to consumers, is given a special emphasis. According to the EU-27, 2008-data, published by Eurostat (2011b), the retail industry is a subgroup of the distributive trades sector, which involves mostly activities that are related to the purchase and resale of goods in the same condition. The distributive trades sector includes 6.1 million enterprises — nearly 30 per cent of the total number of enterprises in the EU non-financial business economy

[1] Irrespective of the level of education, the unemployment rates of foreign-born persons were systematically higher than for native-born persons, and especially in 2008, this was true in almost all Member States for which data were available (EUROSTAT 2011a: 41).

[2] For a detailed analysis of the sectoral distribution of the share of immigrant employment, see EMPL (2011).

— a large number of which is micro, small, or medium-sized enterprises, [3] and provides employment for almost a quarter of the EU non-financial business economy workforce (32.8 million persons), [4] so it is the largest sector in terms of the number of enterprises, and is almost as large as the manufacturing industry in terms of the number of persons employed. [5] Moreover, the share of the retail industry in total distributive trades is the largest both in terms of the number of enterprises (60 per cent) and of persons employed (55 per cent); see Eurostat statistics, *European Business* (NACE divisions).

We can distinguish between different types of enterprises. In general, establishments that are affiliated with a large firm, which consists of several stores (e.g., chain stores), (i) have complex distribution and inventory control systems, (ii) benefit significantly from scale and scope economies, and (iii) tend to provide more standardized products and offer lower prices. Small, owner-operated/stand-alone stores, however, tend to offer more customized products, and charge higher prices; see Dinlersoz (2004) for details. A positive relationship between the number of small, owner-operated/stand-alone stores and the share of immigrant population, hence, can be associated with the change of the composition of businesses at the product extensive margin, and so with increased diversity of consumption choices. By the same token, if immigrants have higher price elasticities of demand, or if they tend to consume products offered by chain stores, we may well observe a shift of the composition of businesses in the opposite direction.

2 Review of the related literature

There is an extensive literature studying potential impacts of immigration in different contexts. One strand of this literature, for example, focuses on the labor-market consequences of immigration, such as whether immigration leads to higher unemployment among natives, especially by crowding out native workers, and whether immigration decreases wages/earnings of native workers, etc. Although the vast majority of research has mainly analyzed the United States (US) [6], there is a growing and recent literature

[3] Micro, small, or medium-sized enterprises (SMEs), which comprise 99.8 per cent of all active enterprises in the EU non-financial business economy are mainly concentrated in the distributive trades sector.

[4] The number of persons employed in the non-financial business economy is estimated at about 136.3 million, that is approximately 60 per cent of total employment in the EU.

[5] Manufacturing is the largest sector within the EU non-financial business economy, both in terms of the number of persons employed (33 million) and of value added.

[6] See Hanson (2009) for discussions of this literature.

studying different EU Member States. [7] Much of this literature is indirectly related to our study as we particularly focus on the immigration-induced changes in product diversity. It is, however, worth noting that, as far as the EU Member States are concerned, in most cases, immigrants do not crowd out native workers — since they mostly complement natives in the labor market — nor do they have a significant negative impact on native workers' wages/earnings, which may have indirectly affected consumption choices; see Kerr and Kerr (2011), Münz *et al.* (2007), ILO (2010), UNECE (2002), and references therein, for details. To the contrary, migrant workers contribute to job creation in several ways, ranging from entrepreneurship to increasing domestic demand for goods and services (ILO 2010: 60).

Immigrants generally create social networks in the country that they have settled (OECD 2007). Such networks enable immigrants to opt for self-employment, and so to establish micro, small, or even medium-sized enterprises, [8, 9] which are mostly found in the catering industry, services, and retail trade. Immigrant entrepreneurs that are active in such sectors often provide goods and services that are different from those provided by native entrepreneurs, implying that they may well contribute to the diversity of consumption choices (EC 2006, EMN 2005, ILO 2010). Immigrants may also play a crucial role in facilitating trade through a number of mechanisms as they are linked to both their home and host countries by networks; see Gaston and Nelson (2011), Globerman (1995), and Head and Ries (1998) for details. As argued by Head and Ries (1998), immigrants may have superior knowledge of market opportunities, and so in the presence of transaction costs, they may act as trade intermediaries, and may reduce costs, especially associated with foreign trade. [10] Such costs tend to be significantly high, especially when economic,

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[7] A survey of the main findings of such studies can be found in UNECE (2002), the United Nations Economic Commision for Europe.

[8] According to the European Commision (EC) publication, EC (2006), in Italy, there are some 168,000 such enterprises. In Belgium, in the Brussels area alone, self-employed persons originating from ethnic minority communities are estimated at around 18,000, while for the Flemish region, the number is estimated at about 10,000. In Germany, in 2003, there were 142,000 self-employed non-EU citizens, and in Netherlands, in 2004, 58,000 ethnic entrepreneurs were recorded (p.17).

[9] Among different motives, *immigrant entrepreneurship* is a way to circumvent unemployment, especially given their difficulties in finding paid-employment via formal routes; see e.g., van Delft *et al.* (2000), Constant *et al.* (2005), EMN (2005), and OECD (2007).

[10] This is referred to as the *information bridge hypothesis*, according to which immigrants may have superior knowledge of both the home and host country markets, languages, business practices, laws, and special distribution channels, etc., that may help overcome uncertainty stemming from economic and cultural differences, and differences in political environments across countries. Also immigrants may help reduce economic inefficiencies, which may arise especially due to asymmetric information and incomplete enforcement of contracts; see Dunlevy (2006), and Gaston and Nelson (2011).

cultural, and institutional differences across countries are significant, and when such countries trade specialized and/or differentiated goods. Therefore, immigrants may positively affect trading differentiated goods, which may lead to increased variety of consumption goods in the host country.

There is a sizeable literature on the relationship between immigration and trade. Empirical evidence from this literature, which mainly employs gravity-based estimation techniques, suggests that immigration has indeed a significant positive effect on both exports and imports, and the effect appears to be stronger for imports and for specialized/differentiated goods. [11] This latter finding implies that immigrants may also change the number of varieties of goods available in the host country, especially through their demand/consumption patterns. The idea here is simple. If immigrants have preferences for certain goods produced in their country-of-origin — which may not be available in the country that they immigrate — and if their demand for such goods is sufficiently large — which is likely to occur in countries where the share of immigrants in the total population is sufficiently large — then they may lead the host country to import such differentiated goods. [12] By the same token, immigrants may have a comparative advantage in producing such goods, with which supply may increase. Though a similar effect may stem from any kind of frictions or preferences leading immigrants to increase labor supply in industries producing such differentiated goods.

In this paper, we also study such preference effects of immigrants, but with a different focus. In contrast to the trade literature mentioned above, we want to delineate how the composition of businesses are linked to the share of immigrants in the total population, which is, surprisingly, a far less studied question in the existing literature, and so with which we would like to contribute to the literature. Our paper is closely related to Mazzolari and Neumark (2011) studying the impact of immigration on the diversity of consumption choices. In particular, they try to explain the changes in the number of establishments of different size with the changes in the share of immigrants in the total population. They use establishment-level data for California between 1992 and 2002, and focus on the retail sector and the restaurant sector, the latter of which is given a special emphasis. They find that immigration is associated with fewer stand-alone retails stores,

[11] See Wagner *et al.* (2002), Peri and Requena-Silvente (2010), and Gaston and Nelson (2011), and references therein, for surveys and discussions of the main findings of this literature.

[12] This preference effect is referred to as the *transplanted home bias* effect as migrants develop tastes before migrating to a country, and as such tastes affect their consumption patterns in the country they immigrate; see White (2007) for discussions of such preference effects.

and a greater number of chains/big-box retailers, which appears to be contradicting with the diversity-enhancing effect of immigration. Although they find a positive relationship between immigration and ethnic diversity in the restaurant sector, which — as they argue — also may stem from comparative advantage of immigrants in the production of ethnic food from their country-of-origin. To the contrary, Olney (2011) argues that the relationship between immigration and the number and size of establishments is mainly driven by firms' relocating their production activities, rather than by immigrants' consumption patterns. He uses a data set that covers 192 U.S. Metropolitan Statistical Areas for the period 1998-2004, and shows that firms respond to immigration both at the extensive margin, which is captured by the net birth rate of establishments, and at the intensive margin, which is captured by the net expansion rate of establishments. According to his results, both the net birth rate and the net expansion rate of establishments increase, especially with low-skilled immigration, the impact of which appears to be much weaker in the non-mobile industries, such as agriculture, mining, and retail trade, than in the mobile industries, such as manufacturing, and finance, professional, management, and administration services. That being said, his data do not allow for calculating immigration by industry, which may have been crucial for an analysis focusing on the production-related effects of immigration in different industries as immigrants are not well represented in those so-called mobile sectors.

Another strand of the literature, to which our paper is indirectly related, looks at how prices change with the influx of immigrants. Lach (2007) employs a store-level price data and shows that the unexpected arrival of a large number of immigrants from the former Soviet Union in Israel, in the 1990s, leads to large and significant reductions in prices. This result may well reflect the demand-side effect of immigration, that is, new consumers (immigrants) have high price elasticity and low search costs, especially vis-á-vis the native population. Given composition effects, we may see the arrival of consumers with different characteristics may offset the demand level changes stemming from the increase in the number of consumers. Bodvarsson *et al.* (2008) analyze the effects of immigration from Cuba to Miami, especially after the Mariel Boatlift of 1980, and find positive demand effects, that is, retail sales per capita increased with the influx of Cuban immigrants. Bodvarsson and Van den Berg's (2009) study, which focuses on Hispanic immigration to Dawson County, Nebraska — a uniquely-segmented economy where immigrants work exclusively in an export sector (the meatpacking industry) but consume locally — suggests that immigration can boost local consumer demand. Similarly, Frattini (2008), focusing on immigration inflows in the UK, between 1995 and 2006, shows that the price of low-value and everyday grocery goods increased in the same period.

Our study differs from the existing studies such that not only it considers the supply-side effects of immigration, but that it treats immigrants as potential consumers of differentiated goods. Also our study is not confined to a particular area in a country, or to a single country. We study the EU Member States, which is also a contribution to the literature that mainly focuses on the US. Moreover, we distinguish between different industries and between different groups of source (migrant-sending) countries; i.e., Eastern European Countries (EECs), and Mediterranean Countries (MPCs). By employing static estimation methods, our study suggests that migration from MPCs to the EU has a positive impact on both the number of enterprises and employment, especially in light manufacturing industries. Migration from MPCs to the EU positively affects employment in construction and heavy manufacturing industries. Similarly, migration from EECs to the EU positively affects employment, especially in food and beverages industries. In the following sections, we introduce our methodology and data, and present our results. The last section provides some concluding remarks.

3 Methodology

The number of establishments equations are of the reduced form, and are derived from Mazzolori and Neumark (2009). Its theoretical roots can be found in Ottaviano and Peri's (2006, 2008) studies, which incorporate *consumption variety* effects into the study of the economic benefits of immigration. In particular, they employ a general equilibrium model for a small open economy where individuals are differentiated in terms of origin, home-born vs foreign-born, and consume two goods, a homogeneous tradable good and a differentiated, local, non-tradable good. Home-born and foreign-born individuals are assumed to be able to produce different varieties of the non-tradable good. In such a model, the non-tradable good can be thought of as a composite basket of local services whose supply particularly benefits from diversity.

We follow the same approach, and attempt to directly study the relationship between immigration and the composition of products available to consumers. In particular, We scrutinize the effects of immigration on product diversity by looking at the industry-level number of enterprises and industry-level employment. We use the following two equations to estimate the impacts of immigration on the number of enterprises and on employment:

$$\begin{aligned} enter^j &= \alpha^0 + \alpha^1(EEC/Pop) + \alpha^2(MPC/Pop) + \alpha^3(NAV/Pop) + \alpha^4(REN) + \varepsilon, \\ emp^i &= \beta^0 + \beta^1(EEC/Pop) + \beta^2(MPC/Pop) + \beta^3(NAV/Pop) + \varepsilon, \end{aligned}$$

where the variable $enter^j$ and emp^i are the number of enterprises and employment in industry j and i, respectively, and EEC/Pop, MPC/Pop and NAV/Pop are the share of immigrants from EECs and from MPCs, and the share of native population in total population, respectively, and REN is the total renumeration paid to employees. These equations are also estimated by using the changing rates of the variables.

We use a panel-based approach so as to deal with unobserved country-pair heterogeneity, because conventional cross-section estimation techniques fail to model such heterogeneity, and so may yield biased estimates; see Cheng and Wall (2005) and Carrre (2006) for details. Cross-section specifications also fail to properly account for possible omitted variables bias; see De Benedictis and Taglioni (2011) for discussions. The two commonly used panel estimation techniques are the fixed-effects (FE) and the random-effects (RE) estimation methods. The main difference between the two methods is that the FE method allows country-pair individual effects to be correlated with regressors, whereas the RE method assumes that individual effects are uncorrelated with all regressors. As the FE method transforms data into deviations from individual means, ignoring the between-groups variance, it cannot provide estimates for the coefficients of time-invariant regressors such as distance. Although this is a disadvantage, an FE estimator is unbiased and consistent in the presence of correlation between individual effects and regressors, whereas the RE estimator is not. The common practice to choose which model to use is to employ a Hausman specification test, as suggested by Hausman (1978). We follow this strategy such that we first employ both the FE and RE models when estimating the effects of immigration on product diversity, then we employ a Hausman test.

4 Data and Results

Our migration data covers the period 1988-2010, and provides information on the number of immigrants in the EU. We distinguish between immigrants in terms their country of birth. So we have immigrants whose home country either belongs to the group of MPCs or to that of EECs. Also we distinguish between immigrants in terms of gender and age. That said, the migration variable used in the econometric estimation includes the total number of immigrants. We extract our data mainly from two data sources, http://ec.europa.eu/eurostat from which we collect our migration data, and the OECDs Structural and Demographic Business Statistics from which we collect the enterprises and employment data. We shall note that the latter data source provides information at a very detailed sectoral level, especially on turnover, value-added, production, operating surplus, employment, labor costs and investment. The breakdown by industrial sector, including services, is supplemented by a further breakdown into size classes. The database also includes business demography statistics, such as enterprise birth, death and survival rates, as well as the number of high-growth enterprises and gazelles, especially from 1995 onwards.

We look at the relationship between migration and product diversity, both in terms of employment and the number of enterprises. We consider seven industries: (1) mining and quarrying, (2) food products, beverages and tobacco, (3) light manufacturing, (4) heavy manufacturing, (5) electricity, gas and water supply, (6) construction, (7) wholesale and retail trade, hotels and restaurants. Dependent variables (employment and the number of enterprises) are specified first as levels, then as the rates of change, and independent variables are adjusted accordingly. The FE and the RE models are estimated, and then a Hausman specification test is performed. Therefore, eight models for each industry are estimated and, in total, 56 econometric estimations are carried out. We shall note that, in almost all cases, the RE models are rejected. So we mainly focus on the results of the FE models, although, in some cases, we present also the results of the RE models.

Table 1 summarizes our findings from the estimation of the industry-level number of enterprises. In Table 1, the signs, (+) and (−), mean *positive significant* and *negative significant*, respectively. As for the variables, $Y1$ stands for the number of enterprises, and $X1$, $X2$, and $X3$ stand for the share of immigrants from EECs and from MPCs, and the share of native population in total population, respectively. $X4$ is the total renumeration paid to employees. The model is also re-estimated by substituting $X5$, the total population including migrants, for $X3$, and the results are included in the lower section of the table. As is given by Table 1, immigrants from MPCs have a positive impact on the number of enterprises, especially in light manufacturing industries. That said, immigrants from EECs have a negative impact on the number of enterprises, especially in electricity, gas and water supply industries. As for the impact of total renumeration paid to employees on the number of enterprises, our results from the model in which $X3$ is considered suggest

		Fixed effect						Random effect					
		Variables						Variables					
		Dep. Var.	Regressors					Dep. Var.	Regressors				
	Industries		X1	X2	X3	X4			X1	X2	X3	X4	
1	Mining and Quarrying	Y1						Y1				-	
2	Food Products, Beverages and Tobacco	Y1						Y1					
3	Light Manufacturing	Y1		+				Y1		+			
4	Heavy Manufacturing	Y1						Y1				+	
5	Electricity, Gas and Water Supply	Y1				+		Y1				+	
6	Construction	Y1				+		Y1				+	
7	W/sale, Retail Trade, Hotels and Restaurants	Y1				+		Y1				+	

		Fixed effect						Random effect					
		Variables						Variables					
		Dep. Var.	Regressors					Dep. Var.	Regressors				
	Industries		X1	X2		X4	X5		X1	X2		X4	X5
1	Mining and Quarrying	Y1				-		Y1				-	+
2	Food Products, Beverages and Tobacco	Y1					-	Y1					
3	Light Manufacturing	Y1		+				Y1		+			+
4	Heavy Manufacturing	Y1						Y1		+			+
5	Electricity, Gas and Water Supply	Y1	-				+	Y1					
6	Construction	Y1				+		Y1					
7	W/sale, Retail Trade, Hotels and Restaurants	Y1				+		Y1					

Table 1: Results – the number of enterprises

		Fixed effect					Random effect				
		Variables					Variables				
		Dep. Var.	Regressors				Dep. Var.	Regressors			
	Industries		X10	X11	X12			X10	X11	X12	
1	Mining and Quarrying	Y3					Y3				
2	Food Products, Beverages and Tobacco	Y3					Y3				
3	Light Manufacturing	Y3					Y3				
4	Heavy Manufacturing	Y3		+			Y3		+		
5	Electricity, Gas and Water Supply	Y3					Y3				
6	Construction	Y3			-		Y3				
7	W/sale, Retail Trade, Hotels and Restaurants	Y3			-		Y3			-	

		Fixed effect					Random effect				
		Variables					Variables				
		Dep. Var.	Regressors				Dep. Var.	Regressors			
	Industries		X10	X11		X13		X10	X11		X13
1	Mining and Quarrying	Y3					Y3				
2	Food Products, Beverages and Tobacco	Y3	+			-	Y3				
3	Light Manufacturing	Y3		+		-	Y3				
4	Heavy Manufacturing	Y3		+		-	Y3				
5	Electricity, Gas and Water Supply	Y3					Y3				
6	Construction	Y3			+		Y3				
7	W/sale, Retail Trade, Hotels and Restaurants	Y3				+	Y3	+	+		+

Table 2: Results – employment

		Fixed effect					Random effect				
		Variables					Variables				
		Dep. Var.	Regressors				Dep. Var.	Regressors			
	Industries		X6	X7	X8			X6	X7	X8	
1	Mining and Quarrying	Y2					Y2				
2	Food Products, Beverages and Tobacco	Y2			-		Y2				
3	Light Manufacturing	Y2			-		Y2				
4	Heavy Manufacturing	Y2					Y2				
5	Electricity, Gas and Water Supply	Y2					Y2			+	
6	Construction	Y2		+			Y2		+		
7	W/sale, Retail Trade, Hotels and Restaurants	Y2					Y2				

		Fixed effect					Random effect				
		Variables					Variables				
		Dep. Var.	Regressors				Dep. Var.	Regressors			
	Industries		X6	X7		X9		X6	X7		X9
1	Mining and Quarrying	Y2					Y2				
2	Food Products, Beverages and Tobacco	Y2				-	Y2				
3	Light Manufacturing	Y2				-	Y2				
4	Heavy Manufacturing	Y2					Y2				
5	Electricity, Gas and Water Supply	Y2					Y2			+	
6	Construction	Y2					Y2				
7	W/sale, Retail Trade, Hotels and Restaurants	Y2					Y2				

Table 3: Results – the rates of change in employment

a positive relationship, especially in construction, wholesale and retail trade, hotels and restaurants, and electricity, gas and water supply industries. Also, in the model in which the total population including migrants is substituted for the share of native people in total population we find that the impact of the total population including migrants on the number of enterprises is negative in food products, beverages and tobacco industries, and is positive in electricity, gas and water supply industries.

We summarize our estimation results for the impact of immigration on industry-level employment in Table 2. As before, in Table 2, the signs, (+) and (−), refer to as *positive significant* and *negative significant*, respectively. As for the variables, $Y3$ stands for employment, and $X10$, $X11$, and $X12$ stand for the share of immigrants from EECs and from MPCs, and the share of native population in total population, respectively. We also re-estimate the model by substituting $X13$, the total population including migrants, for $X12$, and present the results in the lower section of the table. As is given by Table 2, immigrants from MPCs have a positive impact on employment in both light and heavy manufacturing industries. That said, immigrants from EECs have a positive impact on employment in food products, beverages and tobacco industries. Similarly, an increase in total population (including migrants) increases employment in wholesale and retail trade, hotels and restaurants, and decreases employment in light and heavy manufacturing industries, and in food products, beverages and tobacco industries.

Finally, we scrutinize how the rates of change in immigration affect industry-level employment, results of which are given by Table 3, where the signs, (+) and (−), refer to as *positive significant* and *negative significant*, respectively. The variable $Y2$, now, stands for the rate of change in employment, that is, employment $(t-(t-1))$/employment $(t-1)$. Similarly, the variables $X6$, $X7$, and $X8$ stand for the change in the share of immigrants from EECs and from MPCs, and the change in the share of native population in total population, respectively. We re-estimate the model by substituting $X9$, the change in the total population including migrants, for $X8$, and present the results in the lower section of the table. As is consistent with our previous results, in this case, our results suggest a negative relationship between the change in total population and the change in employment, especially in food products, beverages, and tobacco, and light manufacturing industries. Also we observe the same effects in the same industries even when we do not substitute the change in the total population for the change in the share of native population in total population. In this case, we observe a positive impact of immigrants from MPCs on employment, especially in the construction industry.

5 Concluding Remarks

In this study, we have scrutinized the effects of ethnic diversity, measured by the share of immigrants in total population in the EU member countries, on the number of establishments and employment in the EU. We have distinguished between different industries and between different groups of source (migrant-sending) countries; i.e., Eastern European Countries (EECs) and Mediterranean Countries (MPCs).

One solid conclusion that can be drawn from our estimation results is that immigration from MPCs certainly has a capacity building effect, especially on manufacturing industries. Empirical evidence is more solid in light manufacturing as immigrants from MPCs have a positive impact both on the number of enterprises, and on employment, whereas for heavy manufacturing, the only positive effect is on employment. In contrast, immigration from EECs has a negative impact on the number of enterprises in electricity, gas and water supply industries, but a positive impact on employment, especially in food products, beverages and tobacco industries. We suppose this distinction between the results regarding employment effects is due to the historical colonial relationship between MPCs and the EU countries. Taking this relationship for granted, and given the large share of immigrants from MPCs in the EU for long time, immigrants from MPCs probably satisfy their needs of ethnic food and beverages more easily, and so do not feel the necessity to expand production capacity of ethnic food and beverages. Another possibility is that there are already sufficient imports of ethnic food and beverages, especially from MPCs to the EU. Therefore less qualified immigrants from MPCs prefer to work in less demanding but better paying positions as in the light and heavy manufacturing industries. As for the less qualified immigrants from EECs, food and beverages might be the only industry that they may get employed, especially in the short run.

Another interesting result is that there is a negative relationship between the change in the share of native population in total population and the change in employment, especially in food, beverages, and tobacco, and light manufacturing industries. Actually, this finding is consistent with the ones that we have already discussed, such that natives probably prefer to have a better work environment and to take up better paying jobs, and so they rather leave low-profile jobs to immigrants, which is also supported by the employment argument above.

Finally, our results have shown that an increase in the change in the share of immigrants from MPCs increases employment in the construction industry, which might be expected, especially due to low skill levels of immigrants, or due to some other factors that we have already discussed in the introduction section (e.g. the non-recognition of immigrants' qualifications and skills which are earned abroad).

We believe further studies, especially looking at industry-wise trade and migration, are warranted in order to draw a complete picture. It would be interesting to find complementary results, especially between the change in trade patterns and the change in industrial enterprises. Also we leave computing the factor content of industries in order to see the similarities and differences, and factors affecting international migration as future research.

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APPENDIX: RESULTS

Changes in the number of enterprises

Y1= # of enterprises (t - (t-1))/ enterprises (t - 1)
X1= immigration from EECs (t - (t-1)) / total population (t - 1)
X2= immigration from MPCs (t - (t-1))/ total population (t - 1)
X3= native people (t- (t-1))/ total population (t - 1)
X4= per labor renumeration

Table A1: Mining and quarrying (I)

```
. xtreg y1 x1 x2 x3 x4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0269                         Obs per group: min =         9
       between = 0.1711                                        avg =       9.0
       overall = 0.0001                                        max =         9

                                                F(4,12)            =      2.01
corr(u_i, Xb)  = -0.6561                        Prob > F           =    0.1564

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -5.826768   4.341554    -1.34   0.204     -15.2862    3.632664
          x2 |   1.659532   25.55738     0.06   0.949    -54.02521    57.34428
          x3 |  -10.20824   6.065679    -1.68   0.118    -23.42422    3.007742
          x4 |  -168.6257   697.3205    -0.24   0.813    -1687.957    1350.705
       _cons |   .0579442   .0276468     2.10   0.058    -.0022929    .1181814
-------------+----------------------------------------------------------------
     sigma_u |  .05449419
     sigma_e |  .13743415
         rho |    .135861   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.0e+05
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      6.916
           Prob > F =      0.0220
```

Table A2: Mining and quarrying (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0268                         Obs per group: min =         9
       between = 0.1709                                        avg =       9.0
       overall = 0.0001                                        max =         9

                                                F(4,12)            =      2.00
corr(u_i, Xb)  = -0.6552                        Prob > F           =    0.1588

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   4.373359   6.279704     0.70   0.499     -9.30894    18.05566
          x2 |   11.90253   21.68721     0.55   0.593    -35.34984     59.1549
      dlnpop |  -10.25921   6.122394    -1.68   0.120    -23.59877    3.080335
          x4 |  -168.3632   697.7702    -0.24   0.813    -1688.674    1351.947
       _cons |   .0580071   .0278091     2.09   0.059    -.0025838     .118598
-------------+----------------------------------------------------------------
     sigma_u |  .05441326
     sigma_e |  .13744015
         rho |  .13550214   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      6.913
           Prob > F =      0.0220
```

Table A3: Food products, beverages and tobacco (I)

```
. xtreg y1 x1 x2 x3 x4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1123                         Obs per group: min =         9
       between = 0.0867                                        avg =       9.0
       overall = 0.0088                                        max =         9

                                                F(4,12)            =      1.02
corr(u_i, Xb)  = -0.6946                        Prob > F           =    0.4344

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -4.031638   5.348209    -0.75   0.465    -15.68439    7.621109
          x2 |  -7.759379   9.092318    -0.85   0.410    -27.56984    12.05108
          x3 |  -7.932472    4.96296    -1.60   0.136    -18.74583     2.88089
          x4 |  -25.99093   70.89335    -0.37   0.720    -180.4543    128.4724
       _cons |   .0367635   .0236685     1.55   0.146    -.0148057    .0883327
-------------+----------------------------------------------------------------
     sigma_u |  .03452333
     sigma_e |  .04870615
         rho |  .33440243   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      455.39
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      8.757
           Prob > F =      0.0119
```

Table A4: Food products, beverages and tobacco (II)- *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1118                         Obs per group: min =         9
       between = 0.0865                                        avg =       9.0
       overall = 0.0088                                        max =         9

                                                F(4,12)            =      1.02
corr(u_i, Xb)  = -0.6936                        Prob > F           =    0.4375

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   3.893652      3.048     1.28   0.226    -2.747369    10.53467
          x2 |   .1969173   6.414461     0.03   0.976    -13.77899    14.17283
      dlnpop |  -7.966934   5.006066    -1.59   0.137    -18.87421    2.940346
          x4 |  -25.99496   70.89298    -0.37   0.720    -180.4575    128.4676
       _cons |   .0367886   .0237865     1.55   0.148    -.0150377    .0886149
-------------+----------------------------------------------------------------
     sigma_u |  .03444213
     sigma_e |  .04872016
         rho |  .33322728   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      455.61
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      8.767
           Prob > F =      0.0119
```

Table A5: Light Manufacturing (I)

```
. xtreg y1 x1 x2 x3 x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0830                         Obs per group: min =         9
       between = 0.3552                                        avg =       9.0
       overall = 0.0001                                        max =         9

                                                F(4,12)            =      2.13
corr(u_i, Xb)  = -0.7425                        Prob > F           =    0.1403

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -6.573976    6.08823    -1.08   0.301    -19.83909    6.691138
          x2 |   3.052589   18.65288     0.16   0.873    -37.58856    43.69373
          x3 |  -8.273735   5.802511    -1.43   0.179    -20.91632    4.368849
          x4 |  -6.181712   6.079219    -1.02   0.329    -19.42719    7.063767
       _cons |   .0425391   .0276283     1.54   0.150    -.0176578     .102736
-------------+----------------------------------------------------------------
     sigma_u |  .03979577
     sigma_e |  .06080702
         rho |  .29987581   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     1492.19
Prob>chi2 =      0.0000

. xtserial y1 x1 x2 x3 x4

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.862
           Prob > F =      0.3715
```

Table A6: Light Manufacturing (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0825                         Obs per group: min =         9
       between = 0.3548                                        avg =       9.0
       overall = 0.0001                                        max =         9

                                                F(4,12)            =      2.12
corr(u_i, Xb)  = -0.7416                        Prob > F           =    0.1405

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |    1.69095   2.821764     0.60   0.560    -4.457145    7.839045
          x2 |   11.34707   17.35261     0.65   0.526    -26.46103    49.15517
      dlnpop |  -8.302548   5.846965    -1.42   0.181    -21.04199    4.436894
          x4 |   -6.18658   6.084441    -1.02   0.329    -19.44344    7.070279
       _cons |   .0425318   .0277374     1.53   0.151    -.0179027    .1029664
-------------+----------------------------------------------------------------
     sigma_u |  .03968709
     sigma_e |   .0608237
         rho |   .2986139   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     1499.82
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.863
           Prob > F =      0.3712
```

Table A7: Heavy Manufacturing (I)

```
. xtreg y1 x1 x2 x3 x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0661                         Obs per group: min =         9
       between = 0.3753                                        avg =       9.0
       overall = 0.0000                                        max =         9

                                                F(4,12)            =      1.14
corr(u_i, Xb)  = -0.7605                        Prob > F           =    0.3823

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -8.223834   9.063605    -0.91   0.382    -27.97173    11.52406
          x2 |  -6.546893   16.15217    -0.41   0.692    -41.73945    28.64566
          x3 |  -10.94569   8.334354    -1.31   0.214    -29.10468    7.213313
          x4 |   9.035625   17.56219     0.51   0.616     -29.2291    47.30036
       _cons |   .0624857   .0389713     1.60   0.135    -.0224255    .1473969
-------------+----------------------------------------------------------------
     sigma_u |  .05321628
     sigma_e |  .08880177
         rho |  .26423253   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    4612.87
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.121
           Prob > F =      0.1710
```

Table A8: Heavy Manufacturing (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0657                         Obs per group: min =         9
       between = 0.3747                                        avg =       9.0
       overall = 0.0000                                        max =         9

                                                F(4,12)            =      1.14
corr(u_i, Xb)  = -0.7597                        Prob > F           =    0.3847

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   2.709526   2.313085     1.17   0.264    -2.330254    7.749306
          x2 |   4.426297   13.77891     0.32   0.754    -25.59537    34.44796
      dlnpop |  -10.98072   8.396302    -1.31   0.215    -29.27469    7.313251
          x4 |   9.019426   17.58479     0.51   0.617    -29.29454    47.33339
       _cons |   .0624628   .0391175     1.60   0.136    -.0227669    .1476926
-------------+----------------------------------------------------------------
     sigma_u |  .05306015
     sigma_e |  .08882349
         rho |  .26299686   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    4624.00
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.122
           Prob > F =      0.1708
```

Table A9: Electricity, gas and water supply (I)

```
. xtreg y1 x1 x2 x3 x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0218                         Obs per group: min =         9
       between = 0.7302                                        avg =       9.0
       overall = 0.0052                                        max =         9

                                                F(4,12)            =      1.66
corr(u_i, Xb)  = -0.3756                        Prob > F           =    0.2227

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   9.873084   9.612618     1.03   0.325    -11.07101    30.81718
          x2 |  -71.99488   63.97854    -1.13   0.282    -211.3921    67.40238
          x3 |  -2.101343   6.856709    -0.31   0.765    -17.04083    12.83814
          x4 |   155.3505   74.64255     2.08   0.059    -7.281657    317.9826
       _cons |   .0832857    .033065     2.52   0.027     .0112432    .1553282
-------------+----------------------------------------------------------------
     sigma_u |  .09318541
     sigma_e |  .14557684
         rho |  .29065074   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   20460.87
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      4.375
           Prob > F =      0.0584
```

Table A10: Electricity, gas and water supply (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0218                         Obs per group: min =         9
       between = 0.7285                                        avg =       9.0
       overall = 0.0050                                        max =         9

                                                F(4,12)            =      1.66
corr(u_i, Xb)  = -0.3725                        Prob > F           =    0.2231

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   11.96826   11.39977     1.05   0.314    -12.86971    36.80623
          x2 |  -69.90366   58.64509    -1.19   0.256    -197.6803    57.87302
      dlnpop |  -2.085556   6.902023    -0.30   0.768    -17.12377    12.95266
          x4 |   155.2001   74.76407     2.08   0.060    -7.696843     318.097
       _cons |   .0831761   .0331592     2.51   0.027     .0109284    .1554239
-------------+----------------------------------------------------------------
     sigma_u |  .09309845
     sigma_e |  .14557879
         rho |  .29026035   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   20495.99
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      4.379
           Prob > F =      0.0583
```

Table A11: Construction (I)

```
. xtreg y1 x1 x2 x3 x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0270                         Obs per group: min =         9
       between = 0.1338                                        avg =       9.0
       overall = 0.0028                                        max =         9

                                                F(4,12)            =      2.11
corr(u_i, Xb)  = -0.4407                        Prob > F           =    0.1430

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -125.3513   88.42307    -1.42   0.182    -318.0086    67.30605
          x2 |   111.4848   82.70509     1.35   0.203     -68.7141    291.6837
          x3 |  -9.498347   20.37069    -0.47   0.649    -53.88226    34.88556
          x4 |   505.4124   530.5841     0.95   0.360     -650.631    1661.456
       _cons |   .1166163   .0681508     1.71   0.113    -.0318715    .2651042
-------------+----------------------------------------------------------------
     sigma_u |  .31570407
     sigma_e |  .87960284
         rho |  .11412006   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     5.0e+06
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.645
           Prob > F =      0.4374
```

Table A12: Construction (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0270                         Obs per group: min =         9
       between = 0.1335                                        avg =       9.0
       overall = 0.0028                                        max =         9

                                                F(4,12)            =      2.11
corr(u_i, Xb)  = -0.4409                        Prob > F           =    0.1419

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -115.8434   69.95987    -1.66   0.124    -268.2728    36.58608
          x2 |   121.0402   97.83871     1.24   0.240      -92.132    334.2125
      dlnpop |  -9.631268   20.55267    -0.47   0.648    -54.41168    35.14915
          x4 |   505.5811   530.6386     0.95   0.360    -650.5812    1661.743
       _cons |     .11706   .0686185     1.71   0.114     -.032447    .2665669
-------------+----------------------------------------------------------------
     sigma_u |   .3157346
     sigma_e |  .87959954
         rho |  .11414037   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     5.0e+06
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.644
           Prob > F =      0.4377
```

Table A13: W/sale, Retail Trade; Hotels and Rest. (I)

```
. xtreg y1 x1 x2 x3 x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0776                         Obs per group: min =         9
       between = 0.0463                                        avg =       9.0
       overall = 0.0134                                        max =         9

                                                F(4,12)            =      1.13
corr(u_i, Xb)  = -0.6618                        Prob > F           =    0.3887

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -79.26534   55.95004    -1.42   0.182      -201.17    42.63933
          x2 |   64.30553   135.1499     0.48   0.643    -230.1607    358.7718
          x3 |    -77.174   49.84077    -1.55   0.147    -185.7677    31.41971
          x4 |   148.0758   163.7172     0.90   0.384    -208.6334     504.785
       _cons |    .437367   .2184764     2.00   0.068    -.0386522    .9133862
-------------+----------------------------------------------------------------
     sigma_u |   .3327484
     sigma_e |  .65201447
         rho |  .20662995   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   83693.93
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.985
           Prob > F =      0.1097
```

Table A14: W/sale, Retail Trade; Hotels and Rest. (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop x4, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0772                         Obs per group: min =         9
       between = 0.0455                                        avg =       9.0
       overall = 0.0135                                        max =         9

                                                F(4,12)            =      1.12
corr(u_i, Xb)  = -0.6602                        Prob > F           =    0.3924

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -2.176243   17.29201    -0.13   0.902     -39.8523    35.49982
          x2 |   141.6776   120.5037     1.18   0.263    -120.8775    404.2327
      dlnpop |  -77.44784   50.24963    -1.54   0.149    -186.9324    32.03669
          x4 |   148.1915   163.9207     0.90   0.384     -208.961     505.344
       _cons |   .4372917   .2194712     1.99   0.070     -.040895    .9154783
-------------+----------------------------------------------------------------
     sigma_u |  .33164945
     sigma_e |  .65214724
         rho |  .20548095   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   83905.07
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.987
           Prob > F =      0.1096
```

The number of enterprises

Y = # of enterprises
Y2= the share of immigrants from EECs in the total population
Y3= the share of immigrants from MPCs in the total population
Y4= the share of natives in the total population
Y5= renumeration paid to employees

Table A15: Mining and quarrying (I)

```
. xtreg y y2 y3 y4 y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0579                         Obs per group: min =        10
       between = 0.1932                                        avg =      10.0
       overall = 0.1829                                        max =        10

                                                F(3,12)            =      1.30
corr(u_i, Xb)  = -0.5479                        Prob > F           =    0.3181

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   57.05161   54.80186     1.04   0.318    -62.35139    176.4546
          y4 |   .0229511   6.276368     0.00   0.997    -13.65208    13.69798
          y5 |  -.1411431   .0956351    -1.48   0.166    -.3495141    .0672278
       _cons |   7.644037   6.081973     1.26   0.233    -5.607444    20.89552
-------------+----------------------------------------------------------------
     sigma_u |  1.1216383
     sigma_e |  .10928668
         rho |  .99059573   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   26579.48
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.390
           Prob > F =      0.5442
```

Table A16: Mining and quarrying (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0800                         Obs per group: min =        10
       between = 0.5362                                        avg =      10.0
       overall = 0.5311                                        max =        10

                                                F(4,12)            =      2.41
corr(u_i, Xb)  = -0.4292                        Prob > F           =    0.1073

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -3.638216   5.834633    -0.62   0.545    -16.35079    9.074356
          y3 |   34.97832   42.00829     0.83   0.421    -56.54987    126.5065
       lnpop |   1.228025   .8293968     1.48   0.164    -.5790752    3.035126
          y5 |   -.200024   .0860342    -2.32   0.038    -.3874764   -.0125715
       _cons |  -12.46872   13.87289    -0.90   0.386    -42.69514    17.75771
-------------+----------------------------------------------------------------
     sigma_u |     .78336
     sigma_e |    .108479
         rho |  .98118435   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.2e+05
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.386
           Prob > F =      0.5462
```

Table A17: Food products, beverages and tobacco (I)

```
. xtreg y y2 y3 y4 y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0057                         Obs per group: min =        10
       between = 0.0200                                        avg =      10.0
       overall = 0.0197                                        max =        10

                                                F(3,12)            =      0.13
corr(u_i, Xb)  = 0.1155                         Prob > F           =    0.9433

                                  (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   14.96854   30.24585     0.49   0.630    -50.93149    80.86858
          y4 |   1.773957   7.772036     0.23   0.823    -15.15985    18.70777
          y5 |   .0283705   .1679819     0.17   0.869    -.3376306    .3943715
       _cons |   6.960836   8.378046     0.83   0.422    -11.29336    25.21503
-------------+----------------------------------------------------------------
     sigma_u |   1.263439
     sigma_e |  .06283051
         rho |  .99753305   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    3518.76
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =    116.156
           Prob > F =      0.0000
```

Table A18: Food products, beverages and tobacco (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1332                         Obs per group: min =        10
       between = 0.2961                                        avg =      10.0
       overall = 0.2952                                        max =        10

                                                F(4,12)            =      3.37
corr(u_i, Xb)  = -0.9233                        Prob > F           =    0.0457

                                  (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |   .9524156   5.921495     0.16   0.875    -11.94941    13.85425
          y3 |   36.12232   24.29297     1.49   0.163     -16.8075    89.05215
       lnpop |  -1.924329   .6554344    -2.94   0.012    -3.352398   -.4962599
          y5 |   .2597026   .1794004     1.45   0.173    -.1311773    .6505824
       _cons |   38.91689   10.77939     3.61   0.004     15.43063    62.40316
-------------+----------------------------------------------------------------
     sigma_u |   2.770297
     sigma_e |  .05892272
         rho |  .99954781   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1117.95
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     74.833
           Prob > F =      0.0000
```

Table A19: Light Manufacturing (I)

```
. xtreg y y2 y3 y4 y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0856                         Obs per group: min =        10
       between = 0.1526                                        avg =      10.0
       overall = 0.1481                                        max =        10

                                                F(3,12)            =      3.20
corr(u_i, Xb)  = 0.3081                         Prob > F           =    0.0620

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |    67.7337   25.44937     2.66   0.021     12.28429    123.1831
          y4 |   8.074565   7.744295     1.04   0.318    -8.798805    24.94793
          y5 |   .0576428   .1150632     0.50   0.625    -.1930584    .3083439
       _cons |    2.07946   8.174465     0.25   0.804    -15.73117    19.89009
-------------+----------------------------------------------------------------
     sigma_u |  1.0092067
     sigma_e |   .0645627
         rho |  .99592405   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1744.71
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     16.848
           Prob > F =      0.0015
```

Table A20: Light Manufacturing (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0882                         Obs per group: min =        10
       between = 0.7037                                        avg =      10.0
       overall = 0.6998                                        max =        10

                                                F(4,12)            =      3.01
corr(u_i, Xb)  = 0.7189                         Prob > F           =    0.0620

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |   -9.00969    8.78185    -1.03   0.325     -28.1437    10.12432
          y3 |   56.87239   24.16504     2.35   0.036     4.221287    109.5235
       lnpop |   .2363639   .9073443     0.26   0.799     -1.74057    2.213297
          y5 |   .0480182   .1346873     0.36   0.728    -.2454403    .3414767
       _cons |   6.299223   14.29853     0.44   0.667    -24.85459    37.45304
-------------+----------------------------------------------------------------
     sigma_u |  .81669045
     sigma_e |  .06475375
         rho |  .99375269   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1866.58
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     16.958
           Prob > F =      0.0014
```

Table A21: Heavy Manufacturing (I)

```
. xtreg y y2 y3 y4 y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1057                         Obs per group: min =        10
       between = 0.1674                                        avg =      10.0
       overall = 0.1669                                        max =        10

                                                F(3,12)            =      2.99
corr(u_i, Xb)  = 0.0615                         Prob > F           =    0.0734

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   59.57072   37.16355     1.60   0.135    -21.40171    140.5431
          y4 |   6.699602   6.221693     1.08   0.303    -6.856302    20.25551
          y5 |   .2342892   .1474163     1.59   0.138    -.0869033    .5554817
       _cons |   1.096298    6.65911     0.16   0.872    -13.41266    15.60525
-------------+----------------------------------------------------------------
     sigma_u |  .89807179
     sigma_e |  .08422153
         rho |  .99128191   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    5594.64
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     82.633
           Prob > F =      0.0000
```

Table A22: Heavy Manufacturing (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1309                         Obs per group: min =        10
       between = 0.8486                                        avg =      10.0
       overall = 0.8430                                        max =        10

                                                F(4,12)            =      4.62
corr(u_i, Xb)  = -0.6613                        Prob > F           =    0.0172

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -9.474203   8.753762    -1.08   0.300    -28.54701    9.598606
          y3 |   42.31306   36.79089     1.15   0.273     -37.8474    122.4735
       lnpop |   1.136907   1.505808     0.76   0.465    -2.143968    4.417781
          y5 |   .1156315   .2296331     0.50   0.624     -.384696     .615959
       _cons |   -10.0462   23.45318    -0.43   0.676    -61.14629    41.05389
-------------+----------------------------------------------------------------
     sigma_u |   .5096059
     sigma_e |  .08339402
         rho |  .97391903   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    2493.92
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     80.735
           Prob > F =      0.0000
```

Table A23: Electricity, gas and water supply (I)

```
. xtreg y y2 y3 y4 y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.2932                         Obs per group: min =        10
       between = 0.3980                                        avg =      10.0
       overall = 0.3921                                        max =        10

                                                F(3,12)            =      2.73
corr(u_i, Xb)  = -0.3329                        Prob > F           =    0.0903

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   167.4189    134.804     1.24   0.238    -126.2938    461.1317
          y4 |  -14.78333   34.32633    -0.43   0.674    -89.57399    60.00732
          y5 |   1.037758   .3914173     2.65   0.021     .1849326    1.890582
       _cons |   13.09371   35.03086     0.37   0.715    -63.23199    89.41941
-------------+----------------------------------------------------------------
     sigma_u |  1.0201014
     sigma_e |  .23155369
         rho |  .95099988   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     1077.35
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     18.549
           Prob > F =      0.0010
```

Table A24: Electricity, gas and water supply (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.7159                         Obs per group: min =        10
       between = 0.1065                                        avg =      10.0
       overall = 0.1036                                        max =        10

                                                F(4,12)            =    324.03
corr(u_i, Xb)  = -0.9958                        Prob > F           =    0.0000

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -29.32887   10.99351    -2.67   0.020    -53.28167   -5.376074
          y3 |   5.519625   104.4741     0.05   0.959    -222.1098    233.1491
       lnpop |   13.10346   2.226795     5.88   0.000     8.251685    17.95523
          y5 |   .2081023   .2141403     0.97   0.350    -.2584693    .6746738
       _cons |  -214.0661   36.42509    -5.88   0.000    -293.4296   -134.7026
-------------+----------------------------------------------------------------
     sigma_u |  13.043973
     sigma_e |  .14744217
         rho |  .99987225   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    47214.16
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     16.988
           Prob > F =      0.0014
```

Table A25: Construction (I)

```
. xtreg y y2 y3 y4 y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.5451                         Obs per group: min =        10
       between = 0.1965                                        avg =      10.0
       overall = 0.2057                                        max =        10

                                                F(3,12)            =      7.02
corr(u_i, Xb)  = -0.5383                        Prob > F           =    0.0056

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |  -47.18967   65.83421    -0.72   0.487    -190.6301    96.25075
          y4 |   4.360879   10.79596     0.40   0.693     -19.1615    27.88326
          y5 |   .9673917   .3217963     3.01   0.011     .2662577    1.668526
       _cons |   -2.20785   9.087008    -0.24   0.812    -22.00674    17.59104
-------------+----------------------------------------------------------------
     sigma_u |  1.1208527
     sigma_e |  .17021871
         rho |  .97745683   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    2459.00
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.985
           Prob > F =      0.1842
```

Table A26: Construction (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.5669                         Obs per group: min =        10
       between = 0.7632                                        avg =      10.0
       overall = 0.7043                                        max =        10

                                                F(4,12)            =      9.63
corr(u_i, Xb)  = -0.9909                        Prob > F           =    0.0010

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |   3.919681   19.00681     0.21   0.840     -37.4926    45.33196
          y3 |    -16.589   33.02559    -0.50   0.625    -88.54559    55.36759
       lnpop |  -3.649449   5.122851    -0.71   0.490    -14.81118    7.512284
          y5 |   1.189026   .5922804     2.01   0.068    -.1014416    2.479495
       _cons |    61.0255   80.08325     0.76   0.461    -113.4609    235.5119
-------------+----------------------------------------------------------------
     sigma_u |  4.1685117
     sigma_e |  .16682626
         rho |  .99840091   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   23714.64
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.194
           Prob > F =      0.1643
```

Table A27: W/sale, Retail Trade; Hotels and Rest. (I)

```
. xtreg y y2 y3 y4 y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.3857                         Obs per group: min =        10
       between = 0.0766                                        avg =      10.0
       overall = 0.0897                                        max =        10

                                                F(3,12)            =     22.93
corr(u_i, Xb)  = -0.3298                        Prob > F           =    0.0000

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   77.53143   81.46885     0.95   0.360    -99.97394    255.0368
          y4 |   14.88023   18.35249     0.81   0.433    -25.10642    54.86687
          y5 |   .5660977   .1333706     4.24   0.001     .2755081    .8566873
       _cons |  -8.416104   18.19901    -0.46   0.652    -48.06834    31.23613
-------------+----------------------------------------------------------------
     sigma_u |  1.0183462
     sigma_e |  .21391487
         rho |  .95773915   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   15654.74
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.819
           Prob > F =      0.2024
```

Table A28: W/sale, Retail Trade; Hotels and Rest. (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.4010                         Obs per group: min =        10
       between = 0.8342                                        avg =      10.0
       overall = 0.7562                                        max =        10

                                                F(4,12)            =     17.13
corr(u_i, Xb)  = -0.9909                        Prob > F           =    0.0001

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -8.147728   16.05847    -0.51   0.621    -43.13613    26.84067
          y3 |   85.05002   55.94763     1.52   0.154     -36.8494    206.9494
       lnpop |  -2.750414   1.638235    -1.68   0.119    -6.319822    .8189943
          y5 |   .6594793   .1564379     4.22   0.001     .3186303    1.000328
       _cons |   51.43497   26.17944     1.96   0.073    -5.605128    108.4751
-------------+----------------------------------------------------------------
     sigma_u |  3.4565356
     sigma_e |  .21217494
         rho |  .99624619   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   12049.45
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.721
           Prob > F =      0.2141
```

Changes in employment

Y1= employment (t - (t-1))/ employment (t - 1)
X1= immigrants from EECs (t - (t-1)) / total population (t - 1)
X2= immigrants from MPCs (t - (t-1))/ total population (t - 1)
X3= native people (t- (t-1))/ total population (t - 1)

Table A29: Mining and quarrying (I)

```
. xtreg y1 x1 x2 x3, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0047                         Obs per group: min =         9
       between = 0.0339                                        avg =       9.0
       overall = 0.0002                                        max =         9

                                                F(3,12)            =      0.50
corr(u_i, Xb)  = -0.3223                        Prob > F           =    0.6872

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   2.828564   3.138674     0.90   0.385    -4.010019    9.667146
          x2 |  -12.45903   15.24799    -0.82   0.430    -45.68155    20.76348
          x3 |   2.131668   2.394258     0.89   0.391    -3.084972    7.348308
       _cons |  -.0185745   .0113436    -1.64   0.127    -.0432902    .0061412
-------------+----------------------------------------------------------------
     sigma_u |  .02137637
     sigma_e |  .08437394
         rho |   .0603161   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      690.87
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.258
           Prob > F =      0.6207
```

Table A30: Mining and quarrying (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0048                         Obs per group: min =         9
       between = 0.0341                                        avg =       9.0
       overall = 0.0002                                        max =         9

                                                F(3,12)            =      0.51
corr(u_i, Xb)  = -0.3234                        Prob > F           =    0.6858

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .6957452   1.968906     0.35   0.730    -3.594132    4.985622
          x2 |  -14.60521   15.56878    -0.94   0.367    -48.52667    19.31625
      dlnpop |   2.156283   2.412193     0.89   0.389    -3.099435       7.412
       _cons |  -.0186534   .0113866    -1.64   0.127    -.0434627    .0061559
-------------+----------------------------------------------------------------
     sigma_u |  .02138914
     sigma_e |  .08437272
         rho |  .06038544   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      690.92
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.258
           Prob > F =      0.6206
```

Table A31: Food products, beverages and tobacco (I)

```
. xtreg y1 x1 x2 x3, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0063                         Obs per group: min =         9
       between = 0.0862                                        avg =       9.0
       overall = 0.0007                                        max =         9

                                                F(3,12)            =      1.54
corr(u_i, Xb)  = -0.4715                        Prob > F           =    0.2553

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -1.517677   2.958406    -0.51   0.617     -7.96349    4.928136
          x2 |  -1.261237   11.34956    -0.11   0.913    -25.98981    23.46734
          x3 |  -1.539014   .8212806    -1.87   0.085    -3.328431    .2504024
       _cons |    .002266   .0037843     0.60   0.560    -.0059793    .0105113
-------------+----------------------------------------------------------------
     sigma_u |  .01449154
     sigma_e |  .04207326
         rho |  .10605427   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      230.21
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      5.408
           Prob > F =      0.0384
```

Table A32: Food products, beverages and tobacco (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0063                         Obs per group: min =         9
       between = 0.0860                                        avg =       9.0
       overall = 0.0007                                        max =         9

                                                F(3,12)            =      1.53
corr(u_i, Xb)  = -0.4709                        Prob > F           =    0.2562

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   .0206653   2.801857     0.01   0.994    -6.084057    6.125388
          x2 |   .2843025   11.73508     0.02   0.981    -25.28424    25.85285
      dlnpop |    -1.5493   .8271909    -1.87   0.086    -3.351595    .2529939
       _cons |   .0022878    .003798     0.60   0.558    -.0059872    .0105628
-------------+----------------------------------------------------------------
     sigma_u |  .01448657
     sigma_e |  .04207326
         rho |  .10598923   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      230.26
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      5.412
           Prob > F =      0.0383
```

Table A33: Light Manufacturing (I)

```
. xtreg y1 x1 x2 x3, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0210                         Obs per group: min =         9
       between = 0.0083                                        avg =       9.0
       overall = 0.0045                                        max =         9

                                                F(3,12)            =      1.19
corr(u_i, Xb)  = -0.4036                        Prob > F           =    0.3560

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   -7.18586   7.670385    -0.94   0.367    -23.89819    9.526474
          x2 |   18.71142   15.97737     1.17   0.264    -16.10028    53.52312
          x3 |  -4.340812   2.360225    -1.84   0.091    -9.483301    .8016767
       _cons |   .0143627   .0111306     1.29   0.221    -.0098889    .0386142
-------------+----------------------------------------------------------------
     sigma_u |    .027731
     sigma_e |  .07435501
         rho |   .1221099   (fraction of variance due to u_i)
------------------------------------------------------------------------------


Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    18614.72
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.089
           Prob > F =      0.7708
```

Table A34: Light Manufacturing (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0211                         Obs per group: min =         9
       between = 0.0082                                        avg =       9.0
       overall = 0.0046                                        max =         9

                                                F(3,12)            =      1.18
corr(u_i, Xb)  = -0.4031                        Prob > F           =    0.3572

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -2.846265   7.002979    -0.41   0.692    -18.10444    12.41192
          x2 |   23.07242   17.26133     1.34   0.206    -14.53679    60.68163
      dlnpop |  -4.373204   2.383085    -1.84   0.091    -9.565499    .8190919
       _cons |     .01444   .0111991     1.29   0.222    -.0099607    .0388407
-------------+----------------------------------------------------------------
     sigma_u |  .02772328
     sigma_e |  .07435409
         rho |  .12205282   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    18400.14
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.091
           Prob > F =      0.7687
```

Table A35: Heavy Manufacturing (I)

```
. xtreg y1 x1 x2 x3, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0315                         Obs per group: min =         9
       between = 0.0071                                        avg =       9.0
       overall = 0.0244                                        max =         9

                                                F(3,12)            =      0.64
corr(u_i, Xb)  = -0.1499                        Prob > F           =    0.6041

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   -.156907   2.681787    -0.06   0.954    -6.000019    5.686205
          x2 |    26.8917   21.86134     1.23   0.242    -20.74006    74.52347
          x3 |  -2.670229    2.57361    -1.04   0.320    -8.277644    2.937186
       _cons |   .0093407   .0116087     0.80   0.437    -.0159525    .0346339
-------------+----------------------------------------------------------------
     sigma_u |  .01890769
     sigma_e |  .06059977
         rho |  .08871353   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1789.90
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.037
           Prob > F =      0.1790
```

Table A36: Heavy Manufacturing (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0315                         Obs per group: min =         9
       between = 0.0072                                        avg =       9.0
       overall = 0.0245                                        max =         9

                                                F(3,12)            =      0.64
corr(u_i, Xb)  = -0.1487                        Prob > F           =    0.6050

                                    (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   2.511371   2.857931     0.88   0.397    -3.715527    8.738268
          x2 |   29.57119   22.92743     1.29   0.221    -20.38338    79.52576
      dlnpop |  -2.684163   2.595958    -1.03   0.322    -8.340269    2.971943
       _cons |   .0093601   .0116688     0.80   0.438     -.016064    .0347842
-------------+----------------------------------------------------------------
     sigma_u |  .01889535
     sigma_e |  .06060056
         rho |  .08860596   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1783.13
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.036
           Prob > F =      0.1791
```

Table A37: Electricity, gas and water supply (I)

```
. xtreg y1 x1 x2 x3, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0115                         Obs per group: min =         9
       between = 0.1557                                        avg =       9.0
       overall = 0.0267                                        max =         9

                                                F(3,12)            =      1.10
corr(u_i, Xb)  = -0.0320                        Prob > F           =    0.3857

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   4.876119   5.035444     0.97   0.352    -6.095172    15.84741
          x2 |   4.831504   22.11056     0.22   0.831    -43.34326    53.00627
          x3 |   3.212526   2.087078     1.54   0.150    -1.334825    7.759878
       _cons |  -.0229599   .0097086    -2.36   0.036    -.0441131   -.0018067
-------------+----------------------------------------------------------------
     sigma_u |  .02143709
     sigma_e |  .06981997
         rho |  .08614855   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   11763.82
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.877
           Prob > F =      0.1958
```

Table A38: Electricity, gas and water supply (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0115                         Obs per group: min =         9
       between = 0.1560                                        avg =       9.0
       overall = 0.0267                                        max =         9

                                                F(3,12)            =      1.10
corr(u_i, Xb)  = -0.0307                        Prob > F           =    0.3880

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   1.665826   5.007096     0.33   0.745    -9.243699    12.57535
          x2 |   1.607537   22.26182     0.07   0.944     -46.8968    50.11187
      dlnpop |   3.229865   2.105609     1.53   0.151    -1.357862    7.817593
       _cons |  -.0229859   .0097592    -2.36   0.036    -.0442495   -.0017223
-------------+----------------------------------------------------------------
     sigma_u |  .02143297
     sigma_e |  .06982084
         rho |  .08611631   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   11767.38
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.877
           Prob > F =      0.1958
```

Table A39: Construction (I)

```
. xtreg y1 x1 x2 x3, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0164                         Obs per group: min =         9
       between = 0.1262                                        avg =       9.0
       overall = 0.0045                                        max =         9

                                                F(3,12)            =      3.47
corr(u_i, Xb)  = -0.3574                        Prob > F           =    0.0509

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -22.35255   21.21779    -1.05   0.313    -68.58213    23.87703
          x2 |   78.19556   42.94908     1.82   0.094    -15.38246    171.7736
          x3 |   5.046003   6.318253     0.80   0.440    -8.720288    18.81229
       _cons |   .0112637   .0307797     0.37   0.721    -.0557995     .078327
-------------+----------------------------------------------------------------
     sigma_u |  .05216073
     sigma_e |  .22322164
         rho |  .05177568   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.6e+05
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.328
           Prob > F =      0.1530
```

Table A40: Construction (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe robust

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0164                         Obs per group: min =         9
       between = 0.1278                                        avg =       9.0
       overall = 0.0045                                        max =         9

                                                F(3,12)            =      3.47
corr(u_i, Xb)  = -0.3561                        Prob > F           =    0.0509

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -27.38829   17.76619    -1.54   0.149    -66.09749     11.3209
          x2 |   73.14934   46.82628     1.56   0.144    -28.87637     175.175
      dlnpop |   5.039588   6.373687     0.79   0.444    -8.847482    18.92666
       _cons |    .011381   .0309371     0.37   0.719    -.0560251    .0787872
-------------+----------------------------------------------------------------
     sigma_u |  .05211532
     sigma_e |  .22322581
         rho |  .05168839   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.6e+05
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      2.323
           Prob > F =      0.1534
```

Table A41: W/sale, Retail Trade; Hotels and Rest. (I)

```
. xtreg y1 x1 x2 x3, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0525                         Obs per group: min =         9
       between = 0.0065                                        avg =       9.0
       overall = 0.0123                                        max =         9

                                                F(3,12)            =      1.46
corr(u_i, Xb)  = -0.5788                        Prob > F           =    0.2759

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |  -61.15215   54.58952    -1.12   0.285    -180.0925     57.7882
          x2 |   121.2561   141.9327     0.85   0.410    -187.9887    430.5009
          x3 |  -69.42766   50.55852    -1.37   0.195    -179.5852    40.72989
       _cons |    .429306   .2427318     1.77   0.102    -.0995611    .9581731
-------------+----------------------------------------------------------------
     sigma_u |  .30208011
     sigma_e |  .66091658
         rho |  .17280585   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.1e+06
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     33.305
           Prob > F =      0.0001
```

Table A42: W/sale, Retail Trade; Hotels and Rest. (II) - *population to replace X3*

```
. xtreg y1 x1 x2 dlnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       117
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0522                         Obs per group: min =         9
       between = 0.0061                                        avg =       9.0
       overall = 0.0124                                        max =         9

                                                F(3,12)            =      1.45
corr(u_i, Xb)  = -0.5764                        Prob > F           =    0.2783

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
          y1 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          x1 |   8.196616   17.67514     0.46   0.651     -30.3142    46.70743
          x2 |   190.8505   129.1669     1.48   0.165    -90.58011     472.281
      dlnpop |   -69.6497   50.94174    -1.37   0.197    -180.6422    41.34282
       _cons |    .429151   .2436714     1.76   0.104    -.1017634    .9600655
-------------+----------------------------------------------------------------
     sigma_u |  .30100039
     sigma_e |  .66103332
         rho |  .17173432   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1.1e+06
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     33.323
           Prob > F =      0.0001
```

Employment

Y = employment
Y2 = immigrants from EECs / total population
Y3 = immigrants from MPCs / total population
Y4 = native population / total population

Table A43: Mining and quarrying (I)

```
. xtreg y y2 y3 y4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0272                         Obs per group: min =        10
       between = 0.0000                                        avg =      10.0
       overall = 0.0000                                        max =        10

                                                F(2,12)            =      1.14
corr(u_i, Xb)  = -0.0174                        Prob > F           =    0.3518

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |  -53.37374   50.98678    -1.05   0.316    -164.4644     57.7169
          y4 |  -2.619496   7.659365    -0.34   0.738    -19.30782    14.06883
       _cons |   12.24406   7.669525     1.60   0.136    -4.466398    28.95452
-------------+----------------------------------------------------------------
     sigma_u |  1.1891735
     sigma_e |  .09143632
         rho |  .99412258   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    4143.41
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     66.072
           Prob > F =      0.0000
```

Table A44: Mining and quarrying (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0808                         Obs per group: min =        10
       between = 0.8860                                        avg =      10.0
       overall = 0.8799                                        max =        10

                                                F(3,12)            =      1.80
corr(u_i, Xb)  = -0.9877                        Prob > F           =    0.2002

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |   9.082087   7.619568     1.19   0.256    -7.519526     25.6837
          y3 |    -27.908   62.90886    -0.44   0.665    -164.9746    109.1586
       lnpop |  -1.419316   1.154379    -1.23   0.242    -3.934492     1.09586
       _cons |   33.34977   19.28766     1.73   0.109    -8.674436    75.37398
-------------+----------------------------------------------------------------
     sigma_u |  2.5866155
     sigma_e |  .08927053
         rho |  .99881031   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    1422.47
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     61.543
           Prob > F =      0.0000
```

Table A45: Food products, beverages and tobacco (I)

```
. xtreg y y2 y3 y4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0459                         Obs per group: min =        10
       between = 0.0017                                        avg =      10.0
       overall = 0.0009                                        max =        10

                                                F(2,12)            =      1.51
corr(u_i, Xb)  = -0.0462                        Prob > F           =    0.2610

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   35.04311   35.77766     0.98   0.347    -42.90972    112.9959
          y4 |  -.0622321    6.39897    -0.01   0.992    -14.00439    13.87993
       _cons |   11.69393    6.40355     1.83   0.093    -2.258206    25.64607
-------------+----------------------------------------------------------------
     sigma_u |  1.2906173
     sigma_e |  .05254397
         rho |  .99834525   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      751.11
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     10.166
           Prob > F =      0.0078
```

Table A46: Food products, beverages and tobacco (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1707                         Obs per group: min =        10
       between = 0.3768                                        avg =      10.0
       overall = 0.3757                                        max =        10

                                                F(3,12)            =      4.43
corr(u_i, Xb)  = -0.8967                        Prob > F           =    0.0257

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |   5.782799   3.163023     1.83   0.092    -1.108837    12.67444
          y3 |   55.32822   33.09638     1.67   0.120    -16.78261     127.439
       lnpop |  -1.256344   .6127483    -2.05   0.063    -2.591408    .0787199
       _cons |   32.63267   10.23967     3.19   0.008     10.32236    54.94299
-------------+----------------------------------------------------------------
     sigma_u |  2.3014756
     sigma_e |  .04920333
         rho |  .99954315   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =      175.91
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     11.580
           Prob > F =      0.0052
```

Table A47: Light Manufacturing (I)

```
. xtreg y y2 y3 y4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0297                         Obs per group: min =        10
       between = 0.0005                                        avg =      10.0
       overall = 0.0001                                        max =        10

                                                F(2,12)            =      0.88
corr(u_i, Xb)  = -0.0344                        Prob > F           =    0.4401

                                   (Std. Err. adjusted for 13 clusters in n)
```

y	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
y2	(dropped)					
y3	66.92723	50.54803	1.32	0.210	-43.20747	177.0619
y4	9.647693	9.198491	1.05	0.315	-10.3941	29.68948
_cons	3.681615	9.204759	0.40	0.696	-16.37383	23.73706
sigma_u	1.0436492					
sigma_e	.0957923					
rho	.99164573	(fraction of variance due to u_i)				

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    5511.60
Prob>chi2 =      0.0000


Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      6.378
           Prob > F =      0.0266
```

Table A48: Light Manufacturing (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.2080                         Obs per group: min =        10
       between = 0.9364                                        avg =      10.0
       overall = 0.9271                                        max =        10

                                                F(3,12)            =      2.53
corr(u_i, Xb)  = -0.9974                        Prob > F           =    0.1068

                                   (Std. Err. adjusted for 13 clusters in n)
```

y	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
y2	2.719082	4.381684	0.62	0.546	-6.827788	12.26595
y3	100.9967	46.40324	2.18	0.050	-.1073077	202.1007
lnpop	-2.715938	1.066738	-2.55	0.026	-5.040161	-.3917149
_cons	58.72877	17.83171	3.29	0.006	19.8768	97.58074
sigma_u	3.7695317					
sigma_e	.08691965					
rho	.99946859	(fraction of variance due to u_i)				

```
Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   20649.15
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      5.798
           Prob > F =      0.0330
```

Table A49: Heavy Manufacturing (I)

```
. xtreg y y2 y3 y4, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.0530                         Obs per group: min =        10
       between = 0.0125                                        avg =      10.0
       overall = 0.0096                                        max =        10

                                                F(2,12)            =      1.79
corr(u_i, Xb)  = 0.0756                         Prob > F           =    0.2087

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   61.38328     33.046     1.86   0.088    -10.61776    133.3843
          y4 |   7.803894   6.740877     1.16   0.270    -6.883215      22.491
       _cons |   5.121202   6.742348     0.76   0.462    -9.569112    19.81152
-------------+----------------------------------------------------------------
     sigma_u |  1.1271793
     sigma_e |  .06530569
         rho |   .9966545   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    2163.51
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     13.564
           Prob > F =      0.0031
```

Table A50: Heavy Manufacturing (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.1894                         Obs per group: min =        10
       between = 0.8411                                        avg =      10.0
       overall = 0.8373                                        max =        10

                                                F(3,12)            =      3.74
corr(u_i, Xb)  = -0.9862                        Prob > F           =    0.0416

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -.3414215   4.350725    -0.08   0.939    -9.820836    9.137993
          y3 |    79.9594   27.44146     2.91   0.013     20.16959    139.7492
       lnpop |  -1.638868   .7286853    -2.25   0.044    -3.226537   -.0511995
       _cons |   40.32033   12.18378     3.31   0.006     13.77415    66.86651
-------------+----------------------------------------------------------------
     sigma_u |  2.7336403
     sigma_e |  .06068477
         rho |  .99950744   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =     456.75
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     13.096
           Prob > F =      0.0035
```

Table A51: Electricity, gas and water supply (I)

```
. xtreg y y2 y3 y4 y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.2932                         Obs per group: min =        10
       between = 0.3980                                        avg =      10.0
       overall = 0.3921                                        max =        10

                                                F(3,12)            =      2.73
corr(u_i, Xb)  = -0.3329                        Prob > F           =    0.0903

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   167.4189    134.804     1.24   0.238    -126.2938    461.1317
          y4 |  -14.78333   34.32633    -0.43   0.674    -89.57399    60.00732
          y5 |   1.037758   .3914173     2.65   0.021     .1849326    1.890582
       _cons |   13.09371   35.03086     0.37   0.715    -63.23199    89.41941
-------------+----------------------------------------------------------------
     sigma_u |  1.0201014
     sigma_e |  .23155369
         rho |  .95099988   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   41722.91
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     25.396
           Prob > F =      0.0003
```

Table A52: Electricity, gas and water supply (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe cluster(n)

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.7159                         Obs per group: min =        10
       between = 0.1065                                        avg =      10.0
       overall = 0.1036                                        max =        10

                                                F(4,12)            =    324.03
corr(u_i, Xb)  = -0.9958                        Prob > F           =    0.0000

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -29.32887   10.99351    -2.67   0.020    -53.28167   -5.376074
          y3 |   5.519625   104.4741     0.05   0.959    -222.1098    233.1491
       lnpop |   13.10346   2.226795     5.88   0.000     8.251685    17.95523
          y5 |   .2081023   .2141403     0.97   0.350    -.2584693    .6746738
       _cons |  -214.0661   36.42509    -5.88   0.000    -293.4296   -134.7026
-------------+----------------------------------------------------------------
     sigma_u |  13.043973
     sigma_e |  .14744217
         rho |  .99987225   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    2832.38
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =     25.580
           Prob > F =      0.0003
```

Table A53: Construction (I)

```
. xtreg y y2 y3 y4 y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.5451                         Obs per group: min =        10
       between = 0.1965                                        avg =      10.0
       overall = 0.2057                                        max =        10

                                                F(3,12)            =      7.02
corr(u_i, Xb)  = -0.5383                        Prob > F           =    0.0056

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 | -47.18967   65.83421    -0.72   0.487    -190.6301    96.25075
          y4 |  4.360879   10.79596     0.40   0.693    -19.1615     27.88326
          y5 |  .9673917   .3217963     3.01   0.011     .2662577    1.668526
       _cons |  -2.20785   9.087008    -0.24   0.812    -22.00674    17.59104
-------------+----------------------------------------------------------------
     sigma_u |  1.1208527
     sigma_e |  .17021871
         rho |  .97745683   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    4288.57
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      1.062
           Prob > F =      0.3231
```

Table A54: Construction (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.5669                         Obs per group: min =        10
       between = 0.7632                                        avg =      10.0
       overall = 0.7043                                        max =        10

                                                F(4,12)            =      9.63
corr(u_i, Xb)  = -0.9909                        Prob > F           =    0.0010

                                   (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  3.919681   19.00681     0.21   0.840    -37.4926     45.33196
          y3 |   -16.589   33.02559    -0.50   0.625    -88.54559    55.36759
       lnpop | -3.649449   5.122851    -0.71   0.490    -14.81118    7.512284
          y5 |  1.189026   .5922804     2.01   0.068    -.1014416    2.479495
       _cons |   61.0255   80.08325     0.76   0.461    -113.4609    235.5119
-------------+----------------------------------------------------------------
     sigma_u |  4.1685117
     sigma_e |  .16682626
         rho |  .99840091   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    8134.55
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =      0.848
           Prob > F =      0.3752
```

Table A55: W/sale, Retail Trade; Hotels and Rest. (I)

```
. xtreg y y2 y3 y4 y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.3857                         Obs per group: min =        10
       between = 0.0766                                        avg =      10.0
       overall = 0.0897                                        max =        10

                                                F(3,12)            =     22.93
corr(u_i, Xb)  = -0.3298                        Prob > F           =    0.0000

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  (dropped)
          y3 |   77.53143   81.46885     0.95   0.360    -99.97394    255.0368
          y4 |   14.88023   18.35249     0.81   0.433    -25.10642    54.86687
          y5 |   .5660977   .1333706     4.24   0.001     .2755081    .8566873
       _cons |  -8.416104   18.19901    -0.46   0.652    -48.06834    31.23613
-------------+----------------------------------------------------------------
     sigma_u |  1.0183462
     sigma_e |  .21391487
         rho |  .95773915   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =   65624.57
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =   1046.216
           Prob > F =      0.0000
```

Table A56: W/sale, Retail Trade; Hotels and Rest. (II) - *population to replace Y4*

```
. xtreg y y2 y3 lnpop y5, fe robust

Fixed-effects (within) regression               Number of obs      =       130
Group variable: n                               Number of groups   =        13

R-sq:  within  = 0.4010                         Obs per group: min =        10
       between = 0.8342                                        avg =      10.0
       overall = 0.7562                                        max =        10

                                                F(4,12)            =     17.13
corr(u_i, Xb)  = -0.9909                        Prob > F           =    0.0001

                                     (Std. Err. adjusted for 13 clusters in n)
------------------------------------------------------------------------------
             |               Robust
           y |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
          y2 |  -8.147728   16.05847    -0.51   0.621    -43.13613    26.84067
          y3 |   85.05002   55.94763     1.52   0.154     -36.8494    206.9494
       lnpop |  -2.750414   1.638235    -1.68   0.119    -6.319822    .8189943
          y5 |   .6594793   .1564379     4.22   0.001     .3186303    1.000328
       _cons |   51.43497   26.17944     1.96   0.073    -5.605128    108.4751
-------------+----------------------------------------------------------------
     sigma_u |  3.4565356
     sigma_e |  .21217494
         rho |  .99624619   (fraction of variance due to u_i)
------------------------------------------------------------------------------

Modified Wald test for groupwise heteroskedasticity
in fixed effect regression model

H0: sigma(i)^2 = sigma^2 for all i

chi2 (13)  =    2.7e+06
Prob>chi2 =      0.0000

Wooldridge test for autocorrelation in panel data
H0: no first-order autocorrelation
    F(  1,      12) =    955.471
           Prob > F =      0.0000
```