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## The Russian-Ukrainian Earnings Divide

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**Amelie Constant  
Martin Kahanec  
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# The Russian-Ukrainian Earnings Divide\*

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September 2006

## **Abstract**

Ethnic differences are often considered to be powerful sources of diverse economic behavior. In this paper, we investigate whether and how ethnicity affects Ukrainian labor market outcomes. Using micro data from the Ukrainian Longitudinal Monitoring Survey (ULMS) and Oaxaca-Blinder decomposition of earnings, we find a persistent and rising labor market divide between ethnic Russians and Ukrainians throughout Ukraine's transition era. We establish that language rather than nationality is the key factor behind this ethnic premium favoring Russians. Our findings further document that this premium is larger among males than among females.

**Keywords:** Ethnicity, earnings differences, discrimination, transitional labor markets, ethnic premium

**JEL code:** J15, J70, J82

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## 1. Introduction

The role of ethnicity in the labor market has been one of the central themes of labor economics since the groundbreaking work of Gary Becker (1957). The ensuing literature investigates gaps in labor market performance between ethnic majorities and minorities, generally assigning significant parts of these gaps to discrimination against ethnic minorities by the respective majority populations.<sup>1</sup> Discrimination itself is taken as an explanatory variable that reflects social, political, or economic subordination of ethnic minorities. Oaxaca (1973) and Blinder (1973) have developed the analytical tools to measure discrimination in a statistical sense. These tools have been widely applied in the literature, and are also used in this paper.

Yet, very little is known about the link between labor market discrimination and subordination of ethnic groups. In this paper we investigate the labor market performance of ethnic groups under the conditions of changing patterns of ethnic subordination. Following Becker (1957) we understand ethnic discrimination as a deviation from a market solution that is driven by unfounded positive or negative feelings towards some ethnic groups. Ethnic divide in the labor market is a more general phenomenon that can result from ethnic discrimination or from differences in ethnic capital. An observed ethnic divide will inevitably create winners and losers, where the winners enjoy what we call an ethnic premium. Such a premium may be

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<sup>1</sup> Examples of empirical contributions include Card and Lemieux (1994), who study Black-White wage differentials in the context of general wage structure changes in the US, Trejo (1997), who looks at Mexican American workers and explains their relatively low wages by human capital differentials, and Constant and Massey (2005), who study the occupational and earnings attainment of German guest workers. Altonji and Blank (1998) provide an exhaustive account of the literature on the role of race in the labor market.

caused by reverse ethnic discrimination or by specific ethnic advantages involved in ethnic capital. Whereas we apply the econometric tools of the discrimination literature, we prefer not to use the term discrimination but the terms ethnic divide and ethnic premium.

Ukraine offers a unique historical experiment of close social and economic interaction between two distinct ethnic groups, the Russians and the Ukrainians that underwent a political turnaround.<sup>2</sup> In particular, upon the dissolution of the Soviet Union in 1991, ethnic Russians and Ukrainians experienced a reversal of subordination patterns. As ethnic Russians were privileged in the Ukraine of the SSSR, in the independent state Ukraine, the ethnic Ukrainians should enjoy the privileges (Stewart, 2005). Thus, Ukraine's history enables us to study a labor market ethnic divide that evolved over time in the context of the discussed reversal of ethnic subordination and Ukraine's transition towards a market economy. A natural hypothesis is that an originally privileged group (the ethnic Russians) loses their economic position to the newly dominant group (the ethnic Ukrainians), at least in the political realm.

Our primary objective in this paper is to investigate whether and how ethnic differences have shaped the performance of Russians and Ukrainians in the Ukrainian labor market during the transition period. First, using the Ukrainian Longitudinal Monitoring Survey (ULMS), we apply the Oaxaca-Blinder decomposition to identify

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<sup>2</sup> While researchers had long been overlooking Ukraine and focusing their interest on the labor markets in Russia or other transition countries, more recently a number of researchers have shown keen interest in this country. Namely, Gorodnichenko and Sabirianova Peter (2005) investigate the returns to schooling in Ukraine and Russia, Lehmann et al. (2006) study the incidence and cost of job loss in the Ukrainian labor market, and, in a series of papers, Ganguli and Terrell (2005a-b, 2006) provide an account of the key factors that drive wage inequality in Ukraine's transition economy.

which dimensions of ethnicity, language or nationality, drive the ethnic divide in the Ukrainian labor market. Second, we scrutinize the extent to which such differences determine interethnic performance gaps, and study whether and how the reversal of the patterns of subordination of ethnic groups shaped such deviations in the Ukrainian labor market.

The remainder of the paper is organized as follows. First, we describe the dataset. Second, we develop our estimation strategy to detect economic differences and the dimensions of ethnicity that drive them. Third, we depict time paths of the ethnic divide. Finally, we summarize the findings and conclude.

## **2. Ethnicity and the Economy in Ukraine**

The ethnic identity of the inhabitants of the present-time Ukraine is a result of turbulent past developments. The two largest ethnic peoples, the Russians and Ukrainians, originate from the same ancient state of Kievan Rus.<sup>3</sup> After the fall of Kievan Rus, Russians and Ukrainians emerged as distinct ethnic groups over the centuries of foreign rulers, including the Russian Empire, Poland, the Cossack state, and Austro-Hungary, that governed large parts of the present-time Ukraine. Ukrainian identity developed in spite of Russification by Imperial Russia. After the Russian Revolution in 1917 and its brief independence<sup>4</sup> until 1922, Ukraine was incorporated into the USSR as the Ukrainian SSR. As a Soviet State, the Ukraine was stamped by

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<sup>3</sup> Also known as Kievan Ruthenia, it was an important state with Kiev as its capital and lasted from about 880 until the middle of the 12<sup>th</sup> century.

<sup>4</sup> In two states, Ukrainian People's Republic and West Ukrainian People's Republic.



Russian dominance in social, economic, and political life. Yet the Ukrainian identity and language has survived and persisted.

Since August 1991, the Ukrainian language has been reinstated as the official language, and ethnic Ukrainians are the largest ethnic group in the new state. To wit, in the 2001 Ukrainian Census 67.5% of the country's population named Ukrainian and 29.6% named Russian as their native language. With independence ethnic Ukrainians gained a dominant position in the Russian-Ukrainian ethnic relations in Ukraine.

Nowadays, it is primarily language and nationality that distinguish ethnic Russians and Ukrainians. Russian and Ukrainian languages are similar but distinct. Whereas language is a directly observable dimension of ethnicity, nationality is not directly observable in Ukraine. Yet, employers can indirectly observe employees' nationality from their behavior, preferences, names, religious denomination, and the like. We take these two measures of ethnicity as exogenous with respect to individual socio-economic characteristics.

Ukraine's economic system from 1922 until 1991, as a state of the Soviet Union, was a command economy. This type of economy is summarized by Kornai (1980). Its main features were state-owned productive resources, centralized allocation of resources, and centralized administration of price setting. Wages were administratively determined by central authorities, who provided employers with wage tables based on employee's experience, working conditions, and type of occupation. While the principle of equal pay for equal work regardless of gender or ethnicity was embedded in the Soviet laws, occupational segregation and

discriminatory promotion practices resulted in significant gender and ethnic earnings differentials.<sup>5</sup>

After the collapse of the Soviet Union in 1991, Ukraine embarked on a transition path towards the market economy. Among other reforms, wage setting was decentralized and bargaining between trade unions and employers was promoted. Despite some transient moves towards centralization, the Ukrainian transition is characterized by gradual liberalization and decentralization of wage bargaining. Although the Ukrainian Constitution guarantees equal employment and labor rights regardless of gender and ethnicity, no explicit antidiscrimination policies are in effect in Ukraine (Ganguli and Terrell, 2006). The country still suffers from a market-unfriendly institutional base. Due to the inherited Soviet structure, Ukraine only slowly developed the institutions needed to reap the advantages of a market economy (Tiffin, 2006).

### **3. Data**

The Ukrainian Longitudinal Monitoring Survey (ULMS), carried out in 2003 and 2004 is the primary source of information for this study.<sup>6</sup> ULMS is a nationally representative survey of 8,621 individuals from 4,056 households. Besides a number of standard demographic variables at the individual and household level, it contains

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<sup>5</sup> Despite the egalitarian principle, women were treated as a specific labor force and were restricted from working in occupations that were considered to be harmful to their maternity and childcare function, or to their biological and psychological peculiarities. This policy resulted in concentration of women in white-collar jobs, while men were overrepresented in blue-collar jobs (Ogloblin, 1999).

<sup>6</sup> For a more detailed description of the ULMS see Lehmann et al. (2006), Gorodnichenko and Sabirianova Peter (2005), or Ganguli and Terrell (2006).

detailed information about the labor market experience of individuals in 2003 and 2004. It also includes a retrospective section from which individual labor market experience as well as a number of demographic variables can be completely reconstructed back to 1997 and for the years 1991 and 1986.

While sharing common historical and cultural origin, Russian and Ukrainian ethnic groups in Ukraine are primarily distinguished by language and nationality. Therefore, we take self-reported nationality and primary domestic language in the 2003 wave of the ULMS as the defining factors of ethnicity in the present context. In particular, respondents were asked to indicate their nationality from a list including Ukrainian, Russian, Byelorussian, Jewish, or other nationality. For their first domestic language, they had to choose from a list including Ukrainian, Russian, mixed Russian and Ukrainian, Byelorussian, Jewish, Polish, Hungarian, or other. *Surzhyk*, an amalgam of the Russian and Ukrainian languages, is another language. We will use the word *Surzhyk* to denote the language of those people who reported mixed Russian and Ukrainian as their primary domestic language.<sup>7</sup> We study only Russians and Ukrainians as they are the two largest ethnic groups in Ukraine.

From the total of 37,644 individuals in ULMS, who are older than 18 and younger than the statutory retirement age (60 for men and 55 for women), and who are not in the military or in prison we select individuals who fall in the first to ninety-ninth percentile of the wage distribution and are employed full-time. Furthermore, we eliminate observations with missing data in key variables, including gender, age,

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<sup>7</sup> Out of the Ukrainians who speak Ukrainian as their first language about 12% speak Russian as their second domestic language, 86% speak Russian, and *all* understand Russian. Out of Russians who speak Russian as their first language about 11% speak Ukrainian as their second domestic language, 46% speak Ukrainian, and 69% understand Ukrainian.

education, and experience. These restrictions leave us with 18,241 observations in the baseline sample. Table 1 summarizes the frequencies of the individuals in our sample by nationality and language. From these frequencies it is apparent that the group of people who identify as Russian and speak Ukrainian or Surzhyk as their first domestic language is relatively small (1.7%). In fact, in 2003 this group represents only 26 males and 19 females. For this reason, we do not investigate this ethno-linguistic group further as a separate group.<sup>8</sup>

Table 1  
Proportions of individuals by nationality and language

Nationality	Language			Total
	Ukrainian	Surzhyk	Russian	
Ukrainian	43.40%	11.00%	27.20%	81.70%
Russian	0.70%	1.00%	16.60%	18.30%
Total	44.10%	12.00%	43.80%	100%

*Note:* Percentages need not sum to 100% due to rounding errors.

In Table 2 we summarize wages, age, and key indicators of human capital for each ethno-linguistic group in Ukraine by gender. We measure wages using monthly contractual salary in the main job.<sup>9</sup> All wages, including those in foreign currencies, are normalized to the 2003 Ukrainian Hryvnias using deflators as provided by the UN Statistics Division, the International Monetary Fund, the World Bank, and EconStats.

Across genders, we observe that Russian speakers, on average, earn considerably more than the Ukrainian or Surzhyk speaking individuals. The wages of the two Russian speaking groups are similar, as are the earnings of Ukrainian and Surzhyk speaking groups. Consistently, the average male earns a considerably higher

<sup>8</sup> Note that we do not drop members of this group from the analysis, but, whenever applicable, we merge them into the larger linguistic or national groups.

<sup>9</sup> Literature on the former Soviet Union suggests looking at contractual monthly wages rather than actually received wages, due to substantial wage arrears. See e.g. Ganguli and Terrell (2006).

wage than the average female. As concerns the indicators of human capital, Russian speaking Russians appear to be on average somewhat older, more experienced, and more educated than the other ethno-linguistic groups. Russian speaking ethnic Ukrainians, on the other hand, are on average somewhat younger and less experienced than any other group. Their education, however, is second only to Russian speaking Russians.

Table 2  
Means of key characteristics by ethno-linguistic group and gender

Characteristics	Males			
	Ukrainian Nationality			Russian Nationality
	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language
Contractual wage	355.1	375.8	476.4	450.3
	-200.9	-212	-238.4	-240.5
Age	40.1	39.6	37.8	40.6
	-10.8	-11	-11	-11.2
Years of education	11.9	11.5	12	12.2
	-1.9	-1.8	-1.9	-2
Experience	22.2	22.1	19.7	22.4
	-10.9	-11	-11	-11.3
Observations	3,665	1,063	2,334	1,423
	Females			
Contractual wage	260.7	269.9	295.4	303
	-136.5	-134	-154.1	-154.7
Age	39.6	40.2	37.6	40.9
	-9.2	-8.8	-9.7	-9.2
Years of education	12.2	12.1	12.4	12.7
	-2	-1.9	-1.9	-1.9
Experience	21.4	22.1	19.2	22.2
	-9.6	-9.3	-10	-9.2
Observations	4,250	945	2,629	1,602

*Note:* Standard deviations in parentheses.

For a closer look at interethnic earnings differentials, we break up the median earnings differentials by nationality, language, and gender for each year. In Figures 1a-c we plot the profiles of Ukrainian men and women. We observe that the wage differentials between the three linguistic groups of ethnic Ukrainians are larger for males than for females. While Russian speaking females enjoy up to 25% wage premium over Ukrainian and Surzhyk speaking women, the respective wage advantage of Russian speaking males ranges between 21 and 60%. On the other hand,

the wage gap between Surzhyk and Ukrainian speaking Ukrainians is fluctuating around zero. While in most cases these wage gaps do not follow distinct trends, the wage advantage of Russian speaking males vis-à-vis their Ukrainian speaking counterparts was steadily increasing during the late 1990s and early 2000s.

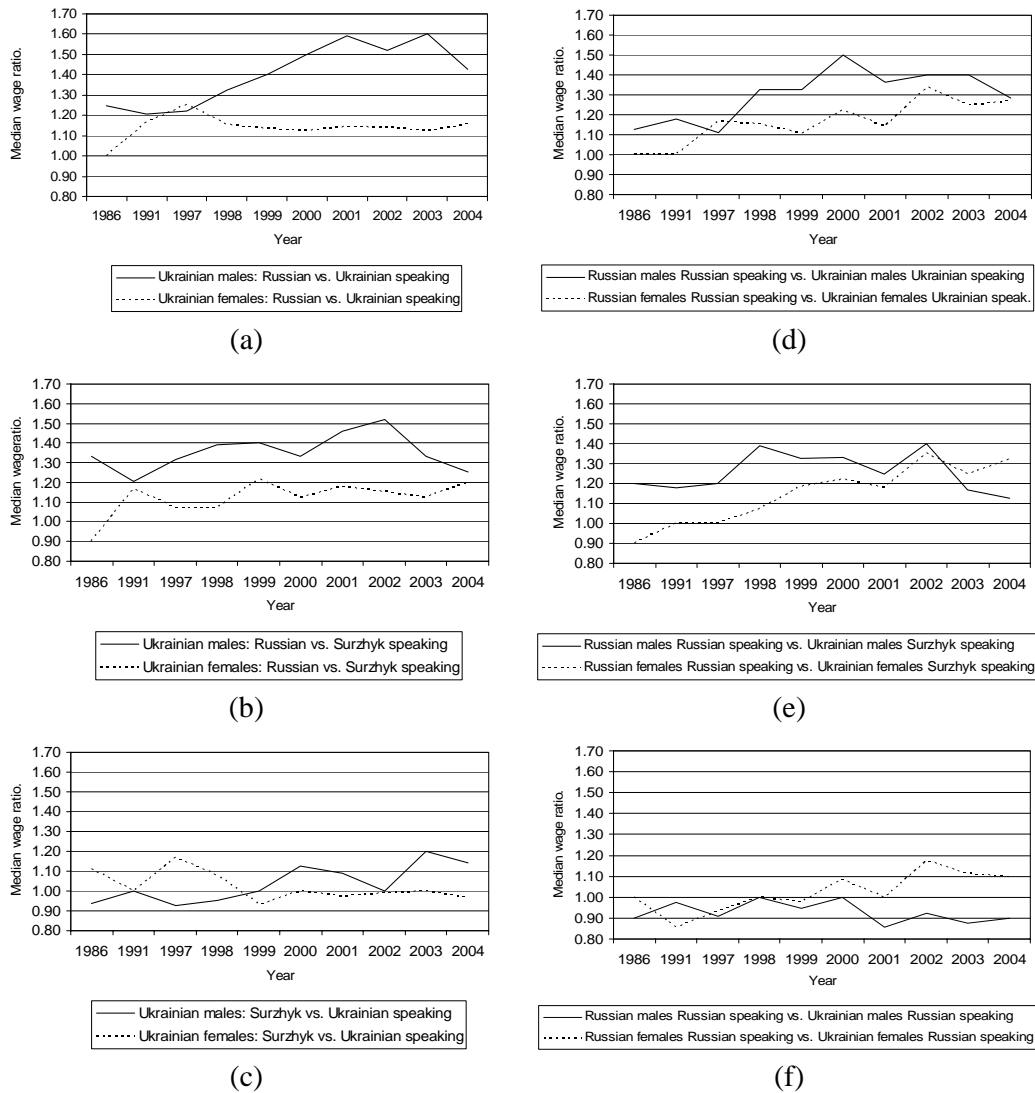


Figure 1. Median interethnic wage ratios over time by nationality, language and gender.

Figures 1d-f compare Russian speaking Russians to the three linguistic groups of people of Ukrainian nationality by gender for each year. As above, the wage gap is

typically larger for males than females. Russian speaking Russian females earn up to 35% more than Ukrainian and Surzhyk speaking females of Ukrainian nationality. The respective wage gap for males ranges between 11 and 50%. Remarkably, the wage gaps are typically non-decreasing. Finally, Figure 1f shows that nationality does not seem to matter if people of different nationalities speak the same (Russian) language. The major point that stands out from Figure 1 is that there are significant and persistent earnings differentials between ethno-linguistic groups in Ukraine that are predominantly driven by language. It is interesting that their patterns differ between genders.

#### **4. Estimation Framework**

Earnings differentials between ethnic groups can be attributed to differences across these groups in (i) individual characteristics such as age, experience, education, and talent or (ii) labor market returns to these characteristics. While observable individual characteristics may differentiate ethnic groups and generate earnings differentials, they alone do not imply any direct role of ethnicity in the labor market, if comparable individuals of different ethnicities are treated equally. On the other hand, if observably identical individuals from different ethnic groups earn different wages, ethnicity directly affects the performance of ethnic groups in the labor market. Therefore, in order to evaluate the role of ethnicity in the Ukrainian labor market we focus on the latter source of earnings differentials that we denote as ethnic divide. An ethnic divide can result from ethnic differences caused by unfounded feelings as in the case of ethnic discrimination or from differences in unmeasured ethnic capital. An

observed ethnic divide will inevitably create winners and losers, with the winners enjoying what we call an ethnic premium.

The Oaxaca-Blinder decomposition technique has the advantage to identify the factors behind earnings differentials. In particular, it decomposes earnings differentials into two parts: the one explained by observable individual characteristics and the one that is unexplained and is due to differences in returns to individual characteristics or differences in unobservable characteristics. To this extent we will be able to distinguish whether interethnic earnings differentials arise due to different characteristics of different ethnic groups or due to an ethnic divide in the labor market.

The Oaxaca-Blinder decomposition also serves our objective to understand the roles of the two abovementioned dimensions of ethnicity – language and nationality – in shaping the labor market divide in Ukraine. In particular, partitioning the labor force by language and nationality and then evaluating labor market differences between such defined ethnic groups reveals which of the two dimensions of ethnicity drives labor market discrimination. In the context of ethno-linguistic earnings differentials we consider the Neumark (1988) method as the most appropriate, since it relates group-wise models to the pooled model that assumes no discrimination in returns.

The standard Mincer (1974) earnings equation is a parsimonious description of earnings profiles that is theoretically well motivated and fits the data remarkably well in most contexts. Our augmented Mincerian equation is:

$$\text{Log}(\text{Wage}) = \alpha + \beta_0 E + \beta_1 X + \beta_2 X^2 + \beta_4 Z + \varepsilon \quad (1)$$



where the coefficients  $\beta$  represent the rate of return to schooling (E), experience (X), and other characteristics (Z), such as year, regional, occupational, and industrial dummies, and  $\varepsilon$  is the error term assumed to satisfy  $E(\varepsilon | E, X, Z) = 0$ .

In the estimation of the earnings profiles, we disaggregate by gender, as it is well known that male and female earnings profiles differ. The effects of education on earnings are captured by five levels of schooling: (i) less than high school, the benchmark, (ii) High School (high school diploma), (iii) Vocational (vocational secondary or elementary school), (iv) Secondary Professional (diploma of technical, medical, pedagogical, musical art, or other secondary professional school), (v) Incomplete Higher (at least three years in an institute, an academy, a university, but no degree or diploma), and (vi) Complete Higher (Bachelor's or Master's degree, diploma, or PhD equivalent from an institute, a university, or an academy). Experience is defined as potential experience, calculated as age minus years of education minus six. Other controls include nine occupational and ten industrial categories as well as five macro-regions (Center and North, East, Kiev City, South, and West).

In Table 3 we report the baseline results of equation (1) for each ethno-linguistic group on data pooled over all years, controlling for year but not for region, occupation, or industry. We observe that the coefficients have signs consistent with previous findings in the literature. We further find that although the general coefficient patterns are similar across ethno-linguistic groups, coefficients vary across groups.

Table 3  
Baseline estimates of earnings profiles by nationality, language, and gender

Variables	Males				Females			
	Ukrainian Nationality			Russian Nationality	Ukrainian Nationality			Russian Nationality
	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language
<i>Education levels</i>								
High school	0.098* (0.043)	-0.049 (0.064)	0.156** (0.049)	-0.098 (0.065)	0.112** (0.032)	-0.118 (0.070)	0.271** (0.045)	0.148* (0.067)
Vocational	0.099* (0.043)	0.05 (0.066)	0.206** (0.045)	0.01 (0.063)	0.159** (0.035)	-0.097 (0.074)	0.273** (0.045)	0.012 (0.068)
Secondary professional	0.231** (0.044)	0.208** (0.066)	0.236** (0.046)	0.112 (0.067)	0.180** (0.033)	-0.162* (0.072)	0.199** (0.044)	0.187** (0.065)
Incomplete higher	0.176* (0.076)	0.281** (0.102)	0.345** (0.093)	-0.035 (0.094)	0.468** (0.059)	-0.274** (0.083)	0.209** (0.066)	0.045 (0.113)
Complete higher	0.374** (0.044)	0.143* (0.072)	0.286** (0.049)	0.231** (0.064)	0.439** (0.034)	0.115 (0.079)	0.458** (0.045)	0.354** (0.066)
<i>Experience</i>								
Experience	0.010** (0.003)	0.013* (0.005)	0.020** (0.004)	0.019** (0.005)	0.012** (0.003)	0.020** (0.006)	0.006 (0.003)	0.025** (0.005)
Experience squared/100	-0.026** (0.007)	-0.026* (0.013)	-0.051** (0.009)	-0.052** (0.011)	-0.026** (0.007)	-0.057** (0.014)	-0.005 (0.009)	-0.061** (0.012)
<i>Dummies</i>								
Year	yes	yes	yes	yes	yes	yes	yes	yes
Constant	5.892** (0.056)	5.883** (0.100)	5.986** (0.074)	6.136** (0.097)	5.493** (0.050)	5.775** (0.095)	5.542** (0.070)	5.427** (0.084)
R-squared	0.13	0.11	0.09	0.11	0.16	0.21	0.14	0.14
Log Wage (stand. dev.)	5.73 (0.55)	5.79 (0.53)	6.04 (0.51)	5.97 (0.55)	5.45 (0.47)	5.49 (0.44)	5.57 (0.47)	5.6 (0.46)
Observations	3,665	1,063	2,334	1,423	4,250	945	2,629	1,602

Notes: Robust standard errors in parentheses. \* significant at 5%; \*\* significant at 1%

The measured differences resulting from the Oaxaca-Blinder decomposition estimation are shown in Table 4. In this exercise we find that there are significant earnings differentials among all pairs of ethno-linguistic groups, regardless of gender. In all cases it appears that being a Russian or Surzhyk speaker is an advantage. For Russian speakers, males with Russian nationality earn less than their counterparts with Ukrainian nationality. Interestingly, the opposite holds for females. In general, the magnitudes of differentials are larger for males than for females. The key finding is that observable individual characteristics do not fully explain observed ethno-linguistic wage differentials.

Table 4  
Oaxaca-Blinder decomposition, by gender

			Males			Females		
			Ukrainian Nationality			Ukrainian Nationality		
			Ukrainian Language	Surzhyk Language	Russian Language	Ukrainian Language	Surzhyk Language	Russian Language
Ukrainian Nationality	Surzhyk Language	Difference	0.062**			0.046**		
			(0.019)			(0.016)		
		Explained	-0.006			-0.003		
		(0.007)			(0.007)			
	Unexplained	0.068**			0.049**			
		(0.018)			(0.015)			
Russian Language	Russian Language	Difference	0.317**	0.254**		0.125**	0.079**	
			(0.014)	(0.020)		(0.012)	(0.017)	
		Explained	-0.002	0.006		-0.005	-0.01	
		(0.005)	(0.007)		(0.004)	(0.007)		
	Unexplained	0.319**	0.248**		0.130**	0.089**		
		(0.013)	(0.018)		(0.011)	(0.016)		
Russian Nationality	Russian Language	Difference	0.242**	0.179**	-0.075**	0.155**	0.109**	0.029*
			(0.017)	(0.022)	(0.018)	(0.014)	(0.019)	(0.015)
		Explained	0.004	0.022**	-0.002	0.027**	0.028**	0.032**
		(0.006)	(0.009)	(0.006)	(0.006)	(0.008)	(0.006)	
	Unexplained	0.237**	0.157**	-0.073**	0.128**	0.081**	-0.003	
		(0.016)	(0.020)	(0.017)	(0.013)	(0.017)	(0.014)	

Notes: Standard errors in parentheses. \* significant at 5%; \*\* significant at 1% A positive number implies that the row group earns more than the respective column group. Log wage differentials are in log points.

Besides education, experience, and year there are other important factors that explain earnings and earnings differentials between ethnic groups. Such factors include geographical, occupational, and industrial concentrations of different ethno-linguistic groups. It is for example well known that the eastern regions of Ukraine, which are the most industrialized, are predominantly populated by Russian speakers. Occupational and industrial specialization along ethnic lines may be present as a consequence of the periods of Soviet discriminatory policies.

In Table 5 we report results of a pooled OLS model similar to equation (1), but controlling for regional, occupational, and industrial characteristics as well. We observe that the explanatory power measured by  $R^2$  increases about three times, indicating that these control variables explain a large part of earnings inequality. On the other hand, the general patterns of the effects of education, age, and experience are similar to those in the baseline analysis reported in Table 3, indicating that their effects are independent of region, industry, or occupation. Due to a number of missing

observations for these control variables, the numbers of observations are somewhat smaller than in the baseline analysis.

Table 5  
Earnings profiles with regional, occupational and industrial controls by nationality, language and gender

Variables	Males				Females			
	Ukrainian Nationality			Russian Nationality	Ukrainian Nationality			Russian Nationality
	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language
<i>Education levels</i>								
High school	0.049 (0.041)	-0.148* (0.066)	0.073 (0.046)	0.026 (0.068)	0.004 (0.034)	-0.160* (0.079)	0.200** (0.052)	0.04 (0.054)
Vocational	0.027 (0.041)	-0.047 (0.068)	0.144** (0.044)	0.021 (0.068)	0.054 (0.036)	-0.173* (0.082)	0.270** (0.050)	-0.034 (0.053)
Secondary professional	0.124** (0.043)	0.043 (0.073)	0.170** (0.045)	0.118 (0.075)	0.066 (0.036)	-0.197* (0.078)	0.133* (0.052)	0.074 (0.052)
Incomplete higher	0.103 (0.074)	-0.057 (0.117)	0.062 (0.102)	0.065 (0.094)	0.260** (0.057)	-0.580** (0.107)	0.206** (0.066)	-0.029 (0.104)
Complete higher	0.304** (0.049)	-0.075 (0.079)	0.292** (0.054)	0.248** (0.072)	0.259** (0.041)	-0.062 (0.090)	0.318** (0.054)	0.180** (0.058)
<i>Experience</i>								
Experience	0.006* (0.003)	0.011* (0.005)	0.023** (0.004)	0.015** (0.005)	0.016** (0.003)	0.014* (0.005)	0.007* (0.003)	0.024** (0.005)
Experience squared/100	-0.018** (0.007)	-0.019 (0.012)	-0.056** (0.008)	-0.042** (0.012)	-0.036** (0.007)	-0.045** (0.013)	-0.01 (0.008)	-0.057** (0.011)
<i>Dummies</i>								
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Region	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.914** (0.065)	5.815** (0.118)	5.679** (0.095)	6.170** (0.140)	5.615** (0.061)	6.085** (0.114)	5.804** (0.101)	5.721** (0.109)
R-squared	0.35	0.36	0.26	0.26	0.32	0.44	0.34	0.34
Log Wage (stand. dev.)	5.73 (0.55)	5.78 (0.54)	6.04 (0.51)	5.97 (0.55)	5.44 (0.47)	5.49 (0.44)	5.57 (0.47)	5.6 (0.46)
Observations	3,337	971	2,074	1,210	3,915	873	2,389	1,459

Notes: Robust standard errors in parentheses. \* significant at 5%; \*\* significant at 1%

In Table 6 we report the Oaxaca-Blinder decomposition for the model in which the regional and industry effects are accounted for. Comparing it to the baseline decomposition reported in Table 4, we observe that the unexplained share of earnings differentials is relatively smaller and the explained share becomes significant and relatively larger. Yet, the unexplained part of earnings differentials remains strongly significant, in general favoring Russian speakers.

Table 6  
Oaxaca-Blinder decomposition with regional, occupational, and industrial controls, by gender

			Males			Females		
			Ukrainian Nationality			Ukrainian Nationality		
			Ukrainian	Surzhyk	Russian	Ukrainian	Surzhyk	Russian
			Language	Language	Language	Language	Language	Language
Ukrainian Nationality	Surzhyk Language	Difference	0.051*			0.043*		
			(0.020)			(0.017)		
		Explained	0.028*			0.011		
		(0.014)			(0.011)			
	Unexplained	0.023			0.032*			
		(0.015)			(0.013)			
Russian Nationality	Russian Language	Difference	0.302**	0.251**		0.131**	0.089**	
			(0.015)	(0.021)		(0.012)	(0.018)	
		Explained	0.219**	0.153**		0.079**	0.017*	
		(0.012)	(0.015)		(0.009)	(0.012)		
	Unexplained	0.083**	0.098**		0.052**	0.072**		
		(0.009)	(0.015)		(0.008)	(0.014)		
Russian Nationality	Russian Language	Difference	0.232**	0.181**	-0.070**	0.155**	0.113**	0.024
			(0.019)	(0.024)	(0.020)	(0.014)	(0.020)	(0.016)
		Explained	0.171**	0.120**	-0.032**	0.096**	0.049**	0.027**
		(0.014)	(0.017)	(0.010)	(0.011)	(0.013)	(0.010)	
	Unexplained	0.061**	0.061**	-0.038*	0.059**	0.063**	-0.003	
		(0.011)	(0.017)	(0.017)	(0.009)	(0.015)	(0.013)	

Notes: Standard errors in parentheses. \* significant at 5%; \*\* significant at 1% A positive number implies that the row group earns more than the respective column group. Log wage differentials are in log points.

Examining the unexplained parts of earnings differentials, we observe that the ethnic divide between Russian speakers of Russian and Ukrainian nationalities is barely significant in the case of males and insignificant in the case of females. In contrast, the labor market does favor these two groups vis-à-vis Surzhyk and Ukrainian speakers, and hence provides an ethnic premium to Russian speakers. In comparison with Ukrainian and Surzhyk speakers, the magnitudes of these differences are similar for Russian speakers of Russian and Ukrainian nationality. Finally, Surzhyk and Ukrainian speaking males of Ukrainian nationality are treated almost identically by the labor market. In contrast, the labor market somewhat favors Surzhyk over Ukrainian speaking women of Ukrainian nationality.

Naturally, we want to investigate whether there is an effect of unobserved individual characteristics that are randomly distributed among individuals on the estimated patterns of labor market discrimination. For that purpose, we estimate a random effects model. The results reported in Table 7 reveal that allowing for random

effects has little bearing on the estimated coefficients. Results on the Oaxaca-Blinder decomposition exercise are presented in Table 8. Surprisingly, we cannot find any differences. We conclude that individual random effects do not affect our key predictions.

Table 7  
Earnings profiles with random individual effects by nationality, language, and gender

Variables	Males				Females			
	Ukrainian Nationality			Russian Nationality	Ukrainian Nationality			Russian Nationality
	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language	Ukrainian Language	Surzhyk Language	Russian Language	Russian Language
<i>Education levels</i>								
High school	0.101 (0.057)	-0.088 (0.090)	0.066 (0.073)	0.134 (0.086)	-0.011 (0.045)	-0.239 (0.142)	0.167* (0.066)	-0.136 (0.075)
Vocational	0.082 (0.059)	0.005 (0.097)	0.053 (0.075)	0.063 (0.077)	0.036 (0.050)	-0.305 (0.163)	0.119 (0.065)	-0.148 (0.082)
Secondary professional	0.144* (0.061)	0.138 (0.113)	0.096 (0.078)	0.257** (0.090)	0.08 (0.051)	-0.333* (0.152)	0.088 (0.070)	-0.027 (0.079)
Incomplete higher	0.168 (0.089)	-0.11 (0.162)	-0.022 (0.127)	0.133 (0.130)	0.06 (0.066)	-0.573** (0.198)	0.199* (0.081)	0.006 (0.110)
Complete higher	0.363** (0.073)	0.135 (0.121)	0.231* (0.091)	0.300** (0.105)	0.178** (0.057)	-0.219 (0.162)	0.229** (0.074)	0.132 (0.089)
<i>Experience</i>								
Experience	0.013** (0.004)	0.011 (0.007)	0.032** (0.005)	0.021** (0.007)	0.017** (0.004)	0.004 (0.007)	0.012* (0.005)	0.017** (0.007)
Experience squared/100	-0.032** (0.008)	-0.026 (0.014)	-0.076** (0.011)	-0.053** (0.015)	-0.039** (0.009)	-0.024 (0.016)	-0.024* (0.011)	-0.047** (0.014)
<i>Dummies</i>								
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.819** (0.098)	5.695** (0.153)	5.647** (0.148)	5.904** (0.255)	5.598** (0.086)	6.132** (0.191)	5.823** (0.145)	6.049** (0.153)
Observations	3182	931	1966	1137	3715	830	2263	1383

Notes: Robust standard errors in parentheses. \* significant at 5%; \*\* significant at 1%

Table 8  
Oaxaca-Blinder decomposition with random individual effects, by gender

			Males			Females		
			Ukrainian Nationality			Ukrainian Nationality		
			Ukrainian	Surzhyk	Russian	Ukrainian	Surzhyk	Russian
			Language	Language	Language	Language	Language	Language
Ukrainian Nationality	Surzhyk Language	Difference	0.071			0.049		
			(0.038)			(0.031)		
		Explained	0.031			0.014		
		(0.019)			(0.016)			
	Unexplained	0.04			0.035			
		(0.031)			(0.026)			
Russian Nationality	Russian Language	Difference	0.314**	0.243**		0.144**	0.095**	
			(0.027)	(0.040)		(0.022)	(0.033)	
		Explained	0.205**	0.129**		0.066**	0.009	
		(0.021)	(0.024)		(0.015)	(0.016)		
	Unexplained	0.109**	0.113**		0.079**	0.086**		
		(0.017)	(0.029)		(0.016)	(0.028)		
Russian Nationality	Russian Language	Difference	0.246**	0.174**	-0.068	0.158**	0.109**	0.013
			(0.034)	(0.046)	(0.037)	(0.025)	(0.035)	(0.027)
		Explained	0.169**	0.105**	-0.023	0.087**	0.038*	0.026*
		(0.024)	(0.028)	(0.012)	(0.017)	(0.018)	(0.011)	
	Unexplained	0.076**	0.070*	-0.045	0.070**	0.071*	-0.012	
		(0.024)	(0.035)	(0.034)	(0.018)	(0.029)	(0.025)	

Notes: Standard errors in parentheses. \* significant at 5%; \*\* significant at 1% A positive number implies that the row group earns more than the respective column group. Log wage differentials are in log points.

## 5. Measured Ethnic Divide

Based on the results depicted above, the Oaxaca-Blinder decomposition suggests that it is language rather than nationality that drives the labor market divide between Russians and Ukrainians. Given this finding, we estimate the Oaxaca-Blinder decomposition for linguistic groups.<sup>10</sup> In the first step, we merge Russian speakers of Russian and Ukrainian nationality to form the Russian linguistic group. We construct Surzhyk speaking and Ukrainian speaking linguistic groups similarly. For these groups, we replicate the regressions and Oaxaca-Blinder decomposition of Tables 5 and 6. We present these results in Table 9. The upshot of this exercise is that the

<sup>10</sup> We have investigated partition of labor force by nationality. Results on the Oaxaca-Blinder decomposition, available upon request, show that earnings differentials between people with Russian and Ukrainian nationality are fully explained by differences in characteristics rather than by differences in coefficients (labor market discrimination). Language, as expected, turns out as a significant explanatory variable of the earnings of different groups defined by nationality.

general patterns of earnings profiles are similar to those observed previously. The additional dummy variable that identifies Russian nationality is insignificant for all linguistic groups except for the Russian speaking males, where it is negative at a marginal significance level. This finding further supports our previous findings that nationality is not a source of labor market divide in Ukraine.

Table 9  
Earnings profiles with random individual effects by language and gender

Variables	Males			Females		
	Ukrainian Language	Surzhyk Language	Russian Language	Ukrainian Language	Surzhyk Language	Russian Language
Russian nationality	0.003 (0.097)	-0.077 (0.051)	-0.041* (0.018)	-0.006 (0.043)	0.034 (0.052)	-0.004 (0.014)
<i>Education</i>						
High school	0.051 (0.041)	-0.157* (0.064)	0.057 (0.038)	0.011 (0.033)	-0.088 (0.070)	0.117** (0.038)
Vocational	0.026 (0.041)	-0.029 (0.065)	0.104** (0.037)	0.061 (0.035)	-0.072 (0.071)	0.142** (0.037)
Secondary professional	0.123** (0.043)	0.028 (0.067)	0.156** (0.039)	0.074* (0.035)	-0.117 (0.069)	0.103** (0.038)
Incomplete higher	0.1 (0.075)	-0.067 (0.115)	0.078 (0.069)	0.267** (0.057)	-0.510** (0.101)	0.119* (0.053)
Complete higher	0.292** (0.049)	-0.08 (0.076)	0.289** (0.042)	0.269** (0.040)	0.017 (0.082)	0.239** (0.040)
<i>Experience</i>						
Experience	0.006 (0.003)	0.010* (0.005)	0.021** (0.003)	0.017** (0.003)	0.012* (0.005)	0.014** (0.003)
Experience squared/100	-0.017* (0.007)	-0.022 (0.012)	-0.053** (0.007)	-0.036** (0.007)	-0.040** (0.013)	-0.029** (0.007)
<i>Dummies</i>						
Year	Yes	Yes	Yes	Yes	Yes	Yes
Regional	Yes	Yes	Yes	Yes	Yes	Yes
Occupation	Yes	Yes	Yes	Yes	Yes	Yes
Industry	Yes	Yes	Yes	Yes	Yes	Yes
Constant	5.923** (0.065)	5.897** (0.109)	5.864** (0.079)	5.606** (0.061)	6.049** (0.107)	5.776** (0.073)
R-squared	0.35	0.34	0.23	0.32	0.42	0.32
Log Wage (stand. dev.)	5.73 (0.55)	5.78 (0.54)	6.01 (0.53)	5.44 (0.47)	5.49 (0.43)	5.58 (0.47)
Observations	3,372	1,084	3,284	3,988	925	3,848

Notes: Robust standard errors in parentheses. \* significant at 5%; \*\* significant at 1%

In Table 10 we report the corresponding Oaxaca-Blinder decomposition. As before, judged by the unexplained component of earnings differentials, the differential is slightly larger for males than for females. The only exception to this finding is that the earnings differentials between Surzhyk and Ukrainian speakers are larger for



females. In fact, it turns out that, based on the (in-)significance of the unexplained parts of earnings differentials, we could treat Ukrainian and Surzhyk speaking males as a single linguistic group.<sup>11</sup> This is not the case for females, however. Female Surzhyk speakers are differentiated from both their Russian and Ukrainian speaking counterparts in the labor market.

Table 10  
Oaxaca-Blinder decomposition for linguistic groups with random individual effects

		Males		Females	
		Ukrainian	Surzhyk	Ukrainian	Surzhyk
		Language	Language	Language	Language
Surzhyk Language	Difference	0.047*		0.046**	
		(0.019)		(0.016)	
	Explained	0.026		0.011	
		(0.014)		(0.011)	
	Unexplained	0.022		0.035**	
		(0.014)		(0.013)	
Russian Language	Difference	0.277**	0.230**	0.140**	0.095**
		(0.013)	(0.019)	(0.011)	(0.016)
	Explained	0.209**	0.122**	0.092**	0.033**
		(0.011)	(0.014)	(0.009)	(0.011)
	Unexplained	0.068**	0.107**	0.048**	0.062**
		(0.007)	(0.014)	(0.006)	(0.013)

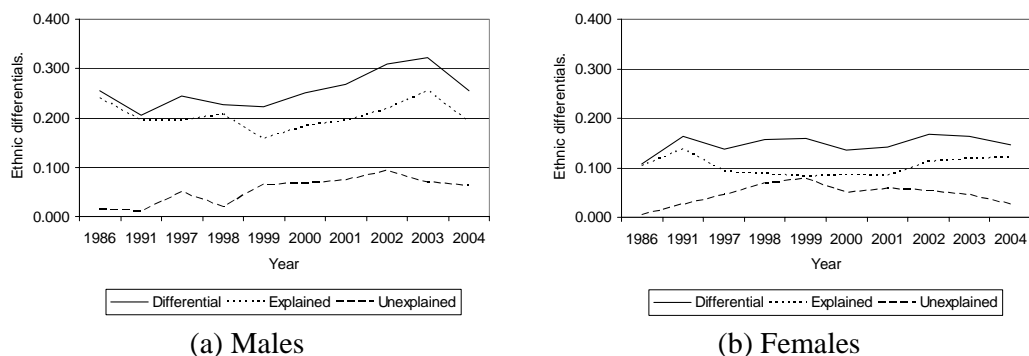
Notes: Standard errors in parentheses. \* significant at 5%; \*\* significant at 1%  
A positive number implies that the row group earns more than the respective column group. Log wage differentials are in log points.

Having shown that ethnicity engenders earnings differentials in the Ukrainian labor market, and that these are mainly driven by linguistic segmentation in the labor force, we now proceed to investigate time paths of these differentials. That is, we investigate whether interethnic earnings differentials or the ethnic divide diminished or enlarged during the Ukraine's transition period. In particular, we ask whether there are any effects of Ukraine's independence on the ethnic premium in the labor market. To evaluate the time paths of ethno-linguistic earnings differentials, we run the Oaxaca-Blinder decomposition separately for each year. The small size of the

<sup>11</sup> We performed analysis based on such partition of the labor force. The results did not differ from those based on the partition adopted in this section.

Surzhyk linguistic group does not permit investigation of time paths of earnings differentials. However, we are able to investigate the time paths of the earnings divide between Russian and Ukrainian speakers.

In Figure 2 we illustrate these results. We observe that Russian speakers enjoy a relatively stable wage advantage over Ukrainian speakers. A large part of this wage advantage is explained by observable factors. Namely, for both the male and female samples, age, education, experience, as well as occupational, industrial, and regional distribution provide an advantage to the Russian speakers. A significant part of this wage advantage, however, remains unexplained, signifying an ethnic divide and a Russian ethnic premium. This ethnic premium exhibits a nonmonotonic time path. For both sexes, after the initial rise from insignificant values, the Russian ethnic premium peaks in 2002 for males and in 1999 for females; it somewhat declines thereafter. The Russian ethnic premium is for the most part larger in the case of males. The explained part of the earnings differential, however, is substantially higher in the case of males, significantly contributing to the much larger ethnic earnings differential among males than among females.



(a) Males (b) Females  
 Figure 2. Time paths of the ethnic earnings differentials and the ethnic premia.  
 Russian and Ukrainian linguistic groups.

Interestingly, the ethnic divide in the labor market was insignificant at the inception of the transition era. This finding implies that the Soviet domination in Ukraine prior to 1991 did not engender an ethnic premium in favor of Russian speakers in the Ukrainian labor market, albeit Russian speakers enjoyed numerous privileges, including a higher ranked occupational, industrial, and regional distribution that generated earnings gaps in their favor. Apparently, the liberalization of the Ukrainian labor market created an environment in which these advantageous characteristics of Russian speakers brought about an ethnic premium in their favor. While the effects of Ukraine's independence and the cessation of Soviet dominance in the country did not suffice to countervail these market effects initially, more recent years of the transition have witnessed a diminishing advantage of Russian speakers both in terms of their characteristics and ethnic premia.

## **7. Conclusions**

While relations between ethnic Russians and Ukrainians in Ukraine are an integral part of Ukrainian politics as evidenced, for instance, by ethnic fragmentation during the Orange revolution, few understand the role of ethnicity and its ramifications in the Ukrainian labor market. In this paper we shed light on this issue using decomposition estimation techniques that allow us to distinguish between the part of earnings differentials that is due to an ethnic divide from the part that is due to differences in human capital and other individual and group characteristics.

Our main finding is that ethnicity, manifested via language, significantly affects individual earnings in Ukraine. That is, workers of Russian ethnicity earn significantly more than their Ukrainian counterparts. While the earnings gap between

workers of different nationalities can be explained by their different observable characteristics, a significant part of the earnings gap between linguistic groups remains unexplained. In particular, throughout the transition period, the Russian speaking workers enjoy an ethnic premium in the Ukrainian labor market, peaking in 1999 for females and 2002 for males. The ethnic premium is for the most part larger among males than among females.

Time paths of the divide of linguistic groups suggest that market forces, in combination with the initial advantage of Russian speakers in terms of their characteristics, engendered disadvantages against Ukrainian speakers. These effects overwhelmed the effects of reversal of patterns of ethnic subordination in the newly independent Ukraine. More recently, however, the advantage of Russian speakers diminishes both in terms of ethnic premia and characteristics, which may be a signal that these effects are gaining in power.

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