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University of Lüneburg  
Working Paper Series in Economics

**No. 270**

April 2013

[www.leuphana.de/institute/ivwl/publikationen/working-papers.html](http://www.leuphana.de/institute/ivwl/publikationen/working-papers.html)

ISSN 1860 - 5508

**Does Cultural Heritage affect Employment decisions– Empirical Evidence for Second  
Generation Immigrants in Germany**

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4/26/2013

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# Does Cultural Heritage affect Employment decisions– Empirical Evidence for Second Generation Immigrants in Germany

## Abstract

The participation rate of women in the labor market shows a sizeable variation across countries and across time. Following studies conducted for North America, this section tests the hypothesis whether, next to structural conditions, cultural norms with regard to existing role models within society about working women influence a woman's participation decision. While using the epidemiological approach to economics, which aims to compare economic outcomes between immigrant groups to assess the role cultural factors may play, the persistence of heterogeneity in labor market outcomes across immigrant groups is used to assess the role cultural norms regarding working women may play in explaining differences in labor market outcomes between immigrant groups for first and second generation women in Germany. To overcome the problems associated with a qualitative proxy of culture, such as religiosity or ethnicity, the impact of culture on women working behavior is proxied by past female labor force participation (LFP) rates from the woman's country of origin or their parents, respectively. Using data from the GSOEP for the years 2001 to 2011, compared to findings from Fernández and Fogli (2009) and Gevrek et al 2011, which use large census data sets, I find statistically significant results for the association between cultural norms towards labor market behavior of women, as measured either by past female LFP in country of origin, country of origin indicator variables or attitudes towards working women prevalent in their home country, merely for first generation immigrants in Germany. However, while cultural heritage was found to play an inferior role for second generation immigrant women, religious identity, as a specific cultural trait, exhibits a strong negative relation with Muslim labor market behavior for both generations. .

JEL Classification: J15, J21, Z10.

Keywords: female labor force participation; cultural norms, ethnicity, ethnic identity, religious identity

# 1 Introduction

In 2010, in 59 per cent of the families without migration background in Germany, both partners were in paid work. In contrast, this merely holds for 39 per cent of the families with migration background. Further, in 40 percent of these families with migration history only the father pursues an occupational activity (Statistisches Bundesamt, 2012). Migration based differences in labor market behavior are mainly explained by highlighting the importance of demographic characteristics, like educational attainment and family composition, and structural variables, such as differences in the institutional and economic environment in the country of origin, assimilation and social integration as well as years since migration. Instead of focusing on individual and structural determinants of employment choices alone, the main thesis of this paper is that cultural norms regarding existing gender role models within society may play a major role for labor market decisions, especially for females.

To test this hypothesis, this paper aims to replicate studies conducted in North America () on the extent to which culture, defined as those preferences and beliefs transferred from previous generations, rather than being voluntarily accumulated (Guiso et al., 2006), has explanatory power for the persistent gap in female labor market outcomes across women with migration background in Germany. While the analysis focuses on second-generation immigrants, who were born in Germany, or migrated before the age of 7, and have at least one foreign-born parent, first generation females are taken into account as a comparison group. This contribution uses the fact that cultural norms were found to persist over time and are transmitted to the next generation (see e.g., Borjas, 1992; Guiso et al., 2006; Bisin and Verdier, 2011). When emigrating from their home country, parents take with them the prevalent cultural values and preferences with regard to the division of labor and gender roles to the host country. By transmitting these cultural attitudes to the second generation, parents endow their children with specific “family commodities” (Becker and Tomes, 1994). Given that children’s attitudes were found to be correlated with parental attitudes (see Dohmen et al., 2012 for transmission of risk attitudes and Farré and Vella, 2012 for the transmission of attitudes regarding gender roles in the labor market), parents may, thus, directly affect their descendants’ working attitudes. Consequently, adapting a major part of their own attitudes and preferences from their parents, the labor supply behavior of second-generation female immigrants may mirror the labor market relevant system of values and norms in the home country of their parents.

In order to separate the cultural effects on women's work outcomes from the role that economic and institutional factors play, following Fernández and Fogli (2009), I use past female labor force participation (LFP) rates in the second generation's parents' country of origin as a direct channel through which culture may affect employment choices. The idea is, that considering the female LFP rate in their parents' country of origin controls for individual heterogeneity among second-generation immigrants attributable to institutional and economic differences in labor markets as well as labor market related preferences in the country of origin. Since economic and institutional conditions of the country of ancestry relevant for female working behavior are not portable to Germany, solely cultural preferences regarding women's work may still matter for second-generation immigrants assumed that parents transmit them to their descendants. Consequently, while second generation female face the same economic and institutional constraints in Germany as individuals without migration background do, individuals with migration background may chose different employment levels due to distinct cultural origin. That is, assuming that female LFP rates in ancestry country reflect the perceptions of working women in the relevant society, women who stem from countries with low female LFP rates are expected to recently display lower probability to work as well as will work less hours per week compared to women who themselves, or their parents, come from high female LFP countries.

This paper belongs to a growing research field suggesting an impact of culture on aggregate economic outcomes, such as economic development (Alesina et al., 2003), trade patterns (Guiso et al., 2004), savings ratios (Guiso et al., 2006), economic growth (Barro and McCleary, 2003) and expenditures for welfare systems (Tabellini, 2010). Further, empirical evidence was found on the microeconomic level showing that culture may determine individual economic choices, such as financial portfolio decisions (Guiso et al., 2008; Renneboog and Spaenjers, 2012), educational attainment (Becker and Woessmann, 2009) as well as fertility and labor market decisions (Fernández and Fogli, 2009). As this paper purposes to explain culture-induced differences in labor market behavior of first and second generation-immigrants, in particular, this study is directly related to the "epidemiological" approach<sup>1</sup> (see e.g., Carroll et al., 1994; Antecol, 2000, Fernández, 2007; Fernández and Fogli, 2009; Alesina and Giuliano, 2010; Blau et al., 2011, Gevrek et al., 2011). Relying "on the analysis of "immigrants (or, better yet, descendants of immigrants) to a country [, this

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<sup>1</sup> However, although focusing on labor market choices of second-generation immigrant may be beneficial compared to the studying cultural effects on economic outcomes for immigrants directly, this approach may be questioned for a variety of reasons (see Fernández, 2010, pp. 495).

recent line of research in economics tries] to isolate the effect of culture from other factors, thus exploiting the differential portability of culture relative to markets and institutions” (Fernández, 2007, p. 310).

In order to replicate findings on the influence of different cultural norms about the organization of work in the labor market and at home on recent working behavior, the purpose of this contribution is to add to these literature empirical findings for second-generation immigrants facing a distinct migration history compared to the USA (Kurthen and Heisler, 2009) for which most studies on the effect of culture on labor market outcomes have been conducted. In fact, although Germany may not be considered as the typical immigrant country, it is a good case for testing the cultural hypothesis, since in recent decades Germany is the “key European country of immigration” (Bauer et al., 2005, p. 203). The first major migration wave after World War II to Germany in the late 1950s and 1970s consisted primarily of immigrants with German ancestry, so called *Aussiedler*, and of guest workers due to labor recruitment agreements between Germany and mainly southern European states and Turkey. A second wave of immigration occurred at the end of the 1980s where mainly ethnic Germans (*Spätaussiedler*) entered the country (Bauer et al., 2005). Accounting for nearly one fifth of the German population in 2011, individuals with migration background are an integral part of everyday life. Recently, most individuals with migration background originate from Turkey (18.5 %), Poland (9.2 %), and the Russian Federation (7.7 %) (Statistisches Bundesamt, 2011). One third of them was born in Germany and, hence, may be considered as the second generation. However, the present paper differs in some remarkable points from previous contributions. First, given the importance of host country orientation and the identification with the country of origin, respectively, for second generation immigrant’s labor market choices, measures for individual identification with both are considered. Further, since religious belief was found to be a determining factor of economic attitudes and behavior, a woman’s religious affiliation is considered as further explanatory factor. Finally, the empirical strategy of the present analysis takes into account that previous results that account for clustering at the country of origin level, while having only a small number of heterogeneously sized clusters, may be distorted.

As the labor market in Germany becomes more and more heterogeneous due to migration issues, to investigate how individuals with distinct labor market relevant values and norms interact in the labor market is crucial. Given the current discussion on the shortage of skilled labor, integrating well-educated second-generation immigrants is of exceptional importance for attaining high productivity standards. Recently, Riphahn et al. (2010) found that since

2006 skilled Turks leave Germany for their home country to work and live there. Further, to cope with an increasing dependency ratio due to an ageing population higher, employment rates are required in order to prevent fiscal instability of the welfare state. Thus, attracting high skilled immigrants for the German labor force is crucial to handle the consequences of demographic change. A side effect of higher employment rates would be a reduction of the burden on public finances due to lower utilization of welfare benefits.

Since the present study attempts to replicate the epidemiological approach, following Fernández (2007) and Fernández and Fogli (2009), culture is operationalized by past female LFP rates in ancestral country in 1950 and 1990. Assuming that cultural values last long and evolve slowly (Guiso et al., 2006), these values may mirror the parents' values and norms regarding women's working behavior prevalent in their home societies at the time of the two major migration waves: the period of labor migration in the second half of the 1950s as well as the migration of ethnic Germans at the end of the 80s. For the analysis data for the years 2001 to 2011 drawn from the German Socio-Economic Panel (GSOEP) is used. Controlling for a wide range of individual level characteristics, empirical findings from a multivariate analysis suggests that cultural norms are a relevant factor for female working probability as well as their actual hours worked per week merely for first-generation females. However, the relation is significantly negative, that is, first-generation women, who stem from a country with low female LFP rates, display a higher probability to work than women from a country of origin with high female LFP rates. These results remain stable while carrying out different specifications and using alternative measures of cultural heritage. In contrast, unexpectedly, no statistical significant results were found for second-generation women. While the direction of the association between cultural norms with regard to working women and working probabilities as well as actual hours worked is found to be positive in none of the specifications this result attain significance. However, religious identity, and especially Muslim belief, was found to be more important for female labor market choices. Further, the Muslim belief is significantly negatively correlated with female labor supply.

The remainder of the paper proceeds as follows. In the next section recent contributions to the literature are discussed shortly. The data and the empirical strategy used are described in section 3. Section 4 analyzes the results for the main measure of cultural background, namely past female LFP rates in country of origin. Section 5 reports results for the use of alternative cultural measures as well as for the inclusion of further control variables, which were previously found to affect female labor force choices. Finally, section 6 summarizes the obtained results and discusses alternative explanations for these findings.

## 2 Previous findings

The present empirical analysis is mostly related to epidemiological studies conducted in the USA and Canada. Using the gender gap in LFP in the home country as a proxy for culture, Antecol (2000) examines labor market outcomes of both first-generation and second- and higher-generation immigrants in the USA on the basis of the 1990 U.S. Census. Her results indicate that culture plays a role in explaining the heterogeneity in the gender gap in LFP rates, especially for first generation immigrants. In contrast to Antecol (2000), who decided not to control for individual level determinants of labor force participation, such as parental background, Fernández and Fogli (2009) control for a wide range of personal and home country characteristics to explain cultural differences in working hours per week. Using a one per cent sample of the 1970 US census, they concentrate on second-generation American women who are married and between the ages of 30 and 40 years old. In their framework, culture is proxied by past values of female LFP rates in the immigrants' countries of origin. They found female LFP rates in 1950 in the women's country of ancestry to be statistically significant determinants for hours worked in the US in 1970, measured by eight intervals including zero hours worked. While finding the same pattern when using LFP rates in ancestry country in 1990 as cultural proxy to predict hours worked in 1970, Fernández (2007) uses additionally individual attitudes towards working women in the women's country of origin, which she drew from the second wave of the World Values Survey. Her results indicate that variation in cultural attitudes towards women's work in 1990 in the country of ancestry is negatively associated with hours worked of second-generation immigrant American women in 1970. Focusing on Canada, Gevrek et al. (2011) examine the impact of relative female LFP rates in the country of ancestry in 2000, as a measure for one's cultural background, on the number of hours worked of second-generation immigrant women. Using the 2001 Canadian Census with a 2.7 per cent sample of the population they replicate findings for the USA. Their results show a positive relationship between relative LFP rates in the country of the women's parents and their hours worked. Taking the role of intermarriage between parents of different ethnic background into consideration, they further find that the effect of the cultural proxies is larger for women with parents from the same cultural origin compared to women with intermarried parents from different ethnic backgrounds.

A large body of literature documents a persistent gap between labor market outcomes for immigrants compared to natives for Germany (Burkert and Seibert, 2007, Fertig and Schurer, 2007; Liebig, 2007; Algan et al., 2010; Euwals et al, 2010; Luthra, 2013). While second-



generation migrants are advantaged compared to first-generation migrants, these studies consistently show that, compared to native Germans, they face higher unemployment rates and gain less income. Exemplarily, Luthra (2013) drawing on the 2005 Mikrozensus compares employment and occupational status of German natives to second-generation immigrants from Turkey, ex-Yugoslavia, other guest worker countries and ethnic Germans. While no significant differences between ethnic and native German women with respect to their employment chances were found, second-generation females of other migrant groups show a lower working propensity. Further, all second-generation men display a lower employment probability compared to native Germans. Algan et al. (2010) found in a comparative country study that first-generation women from Turkey, Central and Eastern Europe, Turkey, former Yugoslavia, Italy, Greece and other non-distinguishable categories of countries have lower employment probabilities compared to native German women. Second-generation women from these regions, though exhibiting lower employment probabilities than native women, they do better than their corresponding first-generation counterparts. Based on data from the GSOEP for 2002 and the Dutch Social Position and Use of Provision Survey 2002, Euwals et al. (2010) examine, among other things, the labor market position of first- and second-generation Turkish immigrants in both countries. They found second-generation Turkish women in Germany to have a higher employment probability compared to the first-generation.

Against this large numbers of contributions, less attention has been paid on cultural background variables as a determinant of heterogeneous working patterns across migrant groups. Contributions, claiming to deal with the impact of cultural differences regarding the employment status and working behavior across immigrant groups, mainly focus on the role the “ethnic identity” of immigrants may play. As opposed to ethnicity, ethnic identity, measured by origin- and host-country orientation, is self-chosen by individuals and therefore open to endogeneity. Casey and Dustmann (2010) used the GSOEP to assess the relation between ethnic identities of immigrants in general and labor market outcomes. They constructed a measure of ethnic identity based on questions on how strongly first- and second-generation immigrants feel connected to Germany respectively their country of origin. The authors found evidence that self-identification with Germany is positively associated with employment probability and negatively with unemployment for females, but not for males. In contrast, home-identity is negatively related to employment probabilities. While ethnic identity was found to be correlated across generations, neither German nor home identity are associated with labor market outcomes for second generation female immigrants. For male

second generation migrants only home country identity was found to be positively correlated with participation and employment, and negatively related to unemployment. Aldashev et al (2009) focus on the relation between language proficiency, as one part of individual host-country orientation, and individual earnings as well as the labor market participation probability considering different sources of selection. Using the GSOEP for the years 1996 to 2005, they show that immigrants with higher language proficiency in German, as measured by language usage in the household and self-assessed language proficiency, have a higher probability to participate in the labor market and employment chances.

Considering explicitly differences between ethnicities in this discussion, Constant et al. (2007) and Constant and Zimmermann (2008) use the GSOEP for the years 2000 to 2002 to examine the association between first generation immigrants' commitment to both the German culture and society as well as to the culture and society of origin and the probability to work. They construct a composite measure of ethnic identity using host- and home country orientation, respectively, with respect to language, visible cultural elements, ethnic self-identification, ethnic networks, and future citizenship plans. While they do not find empirical evidence for the probability of working for either male or female immigrants to significantly vary by ethnicity, they found a positive effect of ethnic identity on work participation depending on gender. While no significant differences in working probability were found for immigrant men who are assimilated compared to those who are integrated, those who are ethnically separated and marginalized have a lower likelihood to work. Also drawing data from the GSOEP, though for the years 1988-2006, Höhne and Koopmans (2010) analyze whether ethnic identity, as proxied by host-country language proficiency, interethnic contacts, host-country media consumption, and religiosity, is a significant factor in determining unemployment and employment durations of first- and second-generation immigrants from Turkey, ex-Yugoslavia, Greece, Spain and Italy in Germany. Further, they investigate transition patterns from domestic work to employment for female migrants. In line with results from Uhlendorff and Zimmermann (2006), their findings indicate that employment and unemployment durations differ significantly by ethnicity. Male and female immigrants with ex-Yugoslav, Greek, Italian or Spanish origin display more stable employment patterns compared to Turkish migrants. Further, male Turks have a lower hazard of finding a job compared to male ex-Yugoslav, Greek, Italian or Spanish immigrants. These differences were not found for female migrants. However, while these results depend strongly on the labor market context (e.g., unemployment rate, share of low qualified workers), host-country orientation and religiosity were also found to be significant factors influencing employment

patterns of immigrants, especially the transitions into employment of male migrants and married migrant housewives. With respect to the second generation, they do not find significant effects on labor market outcomes.

This paper is also related to few studies for Germany that have been published pointing explicitly to culture in the sense of shared preferences and beliefs, which are transmitted from parents to children, as an influencing factor of labor market outcomes. Although focusing on heterogeneity in attitudes towards gender roles and work commitment within Germany, and not between different ethnicities, Tolciu and Zierahn (2012) apply data from the 'Labor Market and Social Security' (PASS) data set. The authors model explicitly the channels through which attitudes towards working women affect women's labor market decisions, namely through belonging to the same household, peer group, and the same region. They provide empirical evidence for the role of attitudes towards working women on female participation decisions and employment status as well as on the number of working hours. Examining the impact of religiosity, as one part of one's cultural heritage, on married women's labor supplying behavior in Germany, Heineck (2004) found for several waves of the GSOEP between 1992 and 1999 that the labor supply of married woman is only weakly affected by convictions of the religion towards female labor force participation. However, women who take actively part in religious activities or who are married to a spouse with a strong belief have a lower propensity to be employed. Their results were challenged by Spenkuch (2011), who used the GSOEP to show that, while the probability of being Protestant (compared to being Catholic or Atheist) depend on the share of Protestants in the county where the respondent lives in 1992, Protestantism induces individuals to work longer hours, and leads thereby to higher earning.

Opposed to the vast majority of studies conducted for Germany focusing on the heterogeneity in labor market outcomes for second-generation immigrants, the purpose of the present study is to assess the role distinct cultural norms with respect to labor market preferences plays in determining employment decisions. While recent studies claim to consider cultural factors in their analysis of first generation immigrant's labor market choices, culture is mainly understood as ethnic identity, proxied by host- and home country language proficiency, interethnic contacts, or host-and home country media consumption. Due to the inherent endogeneity in the relation between self-chosen ethnic identity and economic choices, I use a measure based on given individual ethnicity, namely LFP in country origin. Opposed to few recent studies taking individual ethnicity or religiosity into consideration to explain distinct working patterns (Uhlendorff and Zimmermann, 2006; Constant and

Zimemramann, 2008; Höhne and Koopmans, 2010; Luthra, 2013), I use a quantitative measure of culture, since country of origin dummies do not provide a direct link why it should matter for labor market outcomes to be from one ancestry instead of being from another (Fernandez 2010), though they may capture a broader channel through which culture may affect economic outcomes. In contrast to previous research, this paper also considers individuals originating in Eastern Europe, since they account for a major part of the migrant population in Germany.

Furthermore, previous epidemiological findings (Fernández, 2007; Fernández and Fogli, 2009; Gevrek et al., 2009) are completed by including measures for ethnic identity due to the importance of host country orientation and the identification with the country of origin, respectively, for second-generation immigrant's labor market choices (Luthra, 2013, Casey and Dustmann, 2010). Given the importance of religious belief for individual economic outcomes and attitudes (Iannaccone, 1998; Guiso et al, 2003, 2006; Arruñada, 2010) and especially for labor supply (Heineck, 2004; Spenkuch, 2011), extending previous studies, women's religious affiliation is considered as further explanatory factor. Further, given that naturalization as a part of the integration process might have consequences for labor market outcomes (Liebig et al., 2010), all regression specifications control for whether respondents have German nationality. Finally, opposed to epidemiological studies conducted in Northern America which deal with culture and labor market outcomes (Fernández, 2007; Fernández and Fogli, 2009; Gevrek et al., 2009), analyzing the relation between cultural heritage and the level of labor supply, the present study takes into account that clustering at country of ancestry level, which may be a good strategy due to the fact that the variable of interest, female LFP rates in country of ancestry, varies by country of origin only, may distort results due to a small number of clusters.

## **3 Data and methodology**

### **3.1 Data sets and sample selection**

Studying the effect of cultural factors on labor market outcomes can best be tested at the individual level, since separating the economic relevant effects of culture from more traditional institutional explanations is difficult on the aggregate level. Further, cross-country comparisons cannot account for heterogeneity across countries due to distinct definitions on immigrants as well as distinct attractiveness to immigrant groups. The data used in this study

is drawn from the GSOEP, a representative cross-section survey on the attitudes, behavior, and social structure of persons resident in Germany collected since 1984. While using data for the years 2001 to 2011, as the most recent decades which contain relevant information on the respondents' migration history, the sample used is restricted to women aged 18, the official age of majority in Germany, and 60 in order to avoid distorted results stemming from early retirement. The focuses of this paper is on first- and second-generation females. The latter were born in Germany, or were foreign born but arrived in Germany before reaching school age, and have at least one foreign-born parent. Although former research pointed to the strength of a large sample size, which may allow one to obtain precise results, for the multivariate analysis a sample covering 1,889 individuals and 9,676 observations in 11 years is used. Although this may lead to less precise estimates, and, thus, may distort  $p$ -values, it may be seen as a robustness check of analyses using a quite larger number of observations. *Table 3.1* describes the characteristics of the sample used. Females from the second generation are on average 10 years younger than first-generation women. They, further, have slightly more years of education, reflecting the usual pattern that second-generation immigrants outperform first generations with respect to educational attainment (Kristen and Granato, 2007). While average actual hours worked by week and employment participation differ solely slightly between the generations, on average, 77.6 percent of second generation immigrant women are in the labor force as compared to 72.1 percent of first generation females. Furthermore, while the large difference in the presence of young children in the household may be explained by age differentials, no large differences regarding religious affiliation between first- and second-generation immigrants revealed, except for Islam and Protestantism,. It appears that, while the Protestant belief is not transferred to the descendants, there are averagely even 7.27 percent more women of Muslim belief in the second generation.

*Table 3.1: Sample properties*

	<u>1st generation women</u>		<u>2nd generation women</u>	
	Mean	Std. Dev.	Mean	Std. Dev.
Age	42.7199	(10.4370)	31.5475	(9.1608)
Age at arrival	23.1056	(9.1071)	4.1766	(2.1529)
Years of completed education	10.7397	(2.4531)	11.3893	(2.3148)
Weekly working hours' for those working	29.7293	(13.1907)	32.6879	(12.8092)
% Labor force participation	72.05		77.60	
% Working	58.29		60.62	
% Married	79.84		46.06	
% Child younger than 3 in household (d)	16.13		24.80	
Religious affiliation (ref.: no religion)				
% Catholic	36.03		36.75	
% Protestant	18.65		12.82	
% Other Christian religion	11.56		13.43	
% Muslim	21.67		28.94	
Number of Individuals	1,262		627	
Sample Size	6,591		3,085	

Notes: Female immigrants in Germany. GSOEP, 2001 - 2011.

To test the explanatory power of cultural factors for differences in employment rates of second-generation immigrants, following Fernández and Fogli (2009), the respondent's culture is proxied by past values of female LFP rates in the country of ancestry. While the variable country of origin was constructed following Scheller (2011), the cross-country data on LFP rates for 1950 and 1990 are drawn from the information given by Fernández and Fogli (2009) as well as from the International Labor Organization (ILO)<sup>2</sup>. In order to account for the two main different immigration entry cohorts, depending on the individual's age in 2001 cultural heritage is proxied with female LFP in country of ancestry in 1950, for those over 30 years, and in 1990 for younger individuals. In contrast to Fernández and Fogli (2009), respondents with ancestry from Eastern European countries are considered in the analysis since, due to the high share of immigrants from former Eastern bloc countries and the importance of ethnic Germans within the German context. Finally, in order to make findings comparable across immigrant groups, countries of ancestry of the second generation with fewer than 20 observations and 5 individuals were dropped. Showing the composition of the final country sample, *Table 3.2* mirrors source country characteristics for 2000. The

<sup>2</sup> The ILO provides a database containing information on the labor market activity rates of the economically active population since 1945 by gender. The economically active population comprises persons older than 15 who furnish the supply of labor, employed and unemployed, for the production of goods and services.

descriptive results reveal that countries of origin still differ widely in their economic and social conditions in the year 2000. As expected the Western European countries and the United States display a higher GDP per capita as compared to Eastern European countries and Turkey. While Turkey shows the lowest secondary school enrollment rate, it has the highest number of births by women. Life expectancy, as an indicator for overall country development, varies widely across nations. Although total participation rates differ widely across countries, especially women LFP is very heterogeneous. Female participation rates range from a low of 13.5 percent for women from Spain in 1950 to a high of 62.4 for women from Kazakhstan in 1990. Thereby, in 1950, female LFP rates averaged 31.3 percent across the 20 countries used in the sample with a standard deviation of 10.7 percentage points, and an average of 41.9 with a standard deviation of 10.8 percentage points in 1990.

In order to indicate the attitudes hold in each country with respect to working women, Column (7) display the percentage of women from each country that either agreed” or “strongly agreed” with the statement “Being a housewife is just as fulfilling as working for pay” from the fourth wave of the World Values Survey (WVS). Consequently, the more women agreed with this statement the more conservative the country may be considered. Averagely 58.81 percent of women thought that being a housewife is just as fulfilling as doing paid work with a standard deviation across countries of 10.71 percentage points.

Table 3.2: Ancestry country characteristics

Country of origin	Immigrants		Sec. school enrollment	GDP per capita	Fertility rate	Life expectancy	Female LFP		% agree housework is fulfilling
	1 <sup>st</sup> generation	2 <sup>nd</sup> generation					1950	1990	
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
Austria	37	26	97.67	31,775.73	1.36	78.03	34.96	36.01	
Belgium	9	5	145.13	30,398.96	1.67	78.17	18.98	31.18	60.40
Bosnia and Herzegovina	21	8		5,095.98	1.41	74.31	31.07	35.39	67.90
Croatia	19	28	85.19	12,370.60	1.39	72.81	31.07	46.54	56.10
Czech Republic	18	8	87.33	17,340.76	1.14	74.97	35.38	51.59	70.70
Ex-Yugoslavia	105	42		7,561.37	1.92	73.02	31.07	32.95	
France	19	18	108.25	28,209.95	1.90	78.96	27.88	38.84	59.40
Great Britain	11	8	101.58	29,126.03	1.64	77.74	29.27	41.16	63.00
Greece	44	41	89.46	20,316.73	1.26	77.89	17.95	28.83	33.50
Italy	77	107	93.23	27,717.07	1.26	79.43	21.73	30.68	51.40
Kazakhstan	154	19	93.67	5,405.80	1.80	65.52	41.48	62.35	
Macedonia, FYR	4	8	83.93	7,388.37	1.67	72.91	31.07	42.46	51.20
Netherlands	16	7	123.42	33,690.78	1.72	77.99	18.65	35.54	48.00
Poland	199	51	100.59	11,753.35	1.35	73.75	42.44	55.24	55.80
Romania	69	11	81.90	6,837.97	1.31	71.16	52.80	51.80	48.00
Russia	161	13		8,612.66	1.21	65.34	41.48	60.14	59.30
Serbia and Montenegro	21	9	90.03	6,501.34	1.48	72.14	31.07	43.85	62.00
Spain	20	23	111.42	25,147.12	1.23	78.97	13.49	27.49	58.50
Turkey	244	184	71.43	9,827.63	2.38	69.45	52.76	30.34	75.20
United States	14	11	93.03	39,544.96	2.06	76.64	21.48	56.39	79.40

Notes: Data in columns (1) to (4) if for the year 2000, drawn from the World Bank's World Development Indicators Database. GDP is in PPP constant 2005 international dollars. Data for Ex-Yugoslavia is from 1990. Columns (5) to (6) show labor force participation rates based on ILO data for economically active population for 1950 and 1950. Data for the former Yugoslavian countries (Bosnia and Herzegovina, Croatia, Macedonia, and Serbia) for the year 1950 is given by the data for Yugoslavia in 1950. Data for Kazakhstan is drawn from data for USSR for 1950. Data for Ex-Yugoslavia for LFP 1990 is from 1981. Column (7) represents the percentage of females in each country that agrees with the statement "Being a housewife is just as fulfilling as working for pay." This data was drawn from the World Values Survey for the year 1998 to 2000.



## 3.2 Methodology

To capture the cultural effects on labor market outcomes (employment and weekly hours worked), regressions of the following type are run

$$Y_{iA}^{*G} = \alpha^G + C_A \beta + X'_{iA} \gamma^G + \varepsilon_{iA},$$

where  $Y_{iA}$  either denotes the binary choice of women  $i$  from ancestry  $A$  to work, or not, or the decision on her labor supply level, measured by weekly hours worked.  $G$  is an index indicating either first or second generation immigrant women.  $\alpha$  is a constant term.  $C_i$  contains the cultural proxies considered, namely female LFP in country of ancestry  $A$  in 1950 and 1990, respectively, while  $X_i$  denotes the vector of individual characteristics that were found in previous research to influence female participation choices, such as age, education, marital status, employment status and labor income of the partner and the presence of young children and regional unemployment rates. Descriptive statistics for the full set of explanatory variables is given in Appendix A, *Table A.1*. Considering these explanatory variables in the estimation means not to capture the full impact of cultural factors on labor market outcomes since many of these regressors are likely to be endogenous to one's cultural heritage. Thus, the explanatory power of culture beyond its influence on these endogenous variables is measured.  $\varepsilon$  is an unobserved stochastic error term. Given that inference may be incorrect using cluster-robust standard errors in cases with fewer than 50 clusters, the inference of the estimates from the analysis of Fernández and Fogli (2009) and Gevrek et al. (2011) may be distorted due to the small number of clusters.<sup>3</sup> Due to 20 potential clusters, standard errors may not be clustered at the country-of-ancestry level in this contribution. Thus, all results report clustered standard errors at the individual level in parenthesis to deal with possible heteroskedasticity.<sup>4</sup>

Depending on the nature of  $Y^*$ , the equation above is estimated either with a pooled probit model, where  $Y^*$  is a latent variable underlying the probability of women  $i$  of ancestry  $A$  to

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<sup>3</sup> Fernández and Fogli (2009) and Gevrek et al. (2011) cluster their observations at the country of ancestry level, since LFP in 1950 varies by parental country of origin. Fernández and Fogli (2009) use 25 clusters and Gevrek et al. (2011) chooses 18 clusters of country of ancestry.

<sup>4</sup> Alternative estimation technique would be linear random effects models to account for the non-zero covariance of the errors terms for repeated observations on the same individual. However, the null hypothesis that the unobserved individual effects are uncorrelated with the other explanatory variables is strongly rejected by a Durbin-Wu-Hausmann test. Being interested in estimating the time-invariant effect of culture on labor market choices seem not a sufficient reason for using the random effects specification.

work, or with a Tobit model<sup>5</sup>, where  $Y^*$  is a latent variable underlying the observed number of actual weekly hours worked of women  $i$  of ancestry  $A$ . Since individual wages are not included as explanatory variables in the analysis of hours worked, these regressions are of reduced form. Further, positive values for weekly hours worked are observed only for women whose desired hours to work are nonnegative. Hours worked were replaced with a value of zero for non-working women whose utility from paid work is negative. Thus, it may be argued that the data on hours worked is censored at zero. 57.11 percent of the first generation and 58.44 percent of second-generation women worked positive hours. For those working, the weekly hours worked range from 1.5 to 80 hours.

### 3.3 Explanatory variables

Assuming that cultural norms and values from country of origin related to labor market outcomes are portable and transferable to the next generation, while economic and institutional conditions are not, heterogeneous economic and institutional factors besides cultural beliefs may affect indirectly second-generation's female labor supply. In order to preclude that systematic differences in underlying economic and institutional factors across countries rather than cultural beliefs are responsible for individual results obtained, it is controlled for a wide range of individual and parental characteristics. Controlling for age and age squared is expected to capture the common non-linear relationship between age and female labor market behavior. Years of education as a proxy for accumulated human capital, representing the years of completed education, are expected to be positively correlated with female labor supply. Since naturalization may have labor market related benefits, such as reduction of labor market barriers and reduced discrimination (Liebig et al., 2010), German citizenship might have positive consequences for labor market outcomes of immigrants. To take the relation between employment chances and naturalization into consideration, a dummy variable is introduced which equals 1 if the respondent has the German nationality and 0 otherwise. Married represents a dummy variable indicating whether a woman is married or not. It may be negatively related to women's labor supply. Furthermore, for women who

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<sup>5</sup> Applying the Heckman selection model selection model yielded similar findings. A husband's educational attainment and his labor market income were used as the exclusion restrictions that selection equation, but not the hours of work equation. Although Wooldridge (2002) stated that it is reasonable to use Tobit models for analyzing female hours worked, I am aware of associated problems when applying. However, to make findings more comparable to previous studies on the cultural determinants of female LFP, Tobit is used.

are married, husband characteristics are controlled for. All regressions simultaneously control for partner's educational level and his labor income, which may be seen as a proxy for women's non-labor income. While the effect of the partner's income on female labor supply is straightforward, the effect of his education is not. On the one hand side, being married to a well-educated partner, who is supposed to have also a high level of income, may be expected to negatively affect female labor supply. On the other hand side, assuming that working preferences are positively correlated with one's education, spouse educational level may reflect his attitudes towards working women. Thus, women with higher tastes for working chose a higher educated partner (Papps, 2010). As a consequence of these two opposed factors, the effect of partner's education on female labor supply is not clear. For single women, variables indicating spouse characteristics are given a value of zero. Child younger than three years is a dummy variable indicating whether there are young children under the age of three in the household for whom individuals need to care for. Furthermore, regional unemployment rates are considered to deal with structural differences within the German labor market. Every specification includes year fixed effects. Additionally, years since migration and its square are considered as further explanatory variables for first generation women. The longer a woman already stays in Germany the higher may be her potential to adapt to the local culture and, as a consequence, the higher are her employment chances expected to be.

## **4 Cultural heritage and economic outcomes**

Now I investigate the extent to which cultural heritage is related to different economic outcomes in Germany for first- and second-generation females. Measures of labor market outcomes (employment and weekly hours worked) are regressed on measures of cultural heritage. Instead solely using country dummies as a qualitative measure of culture, a quantitative measure of culture, namely female LFP in country of origin in 1950 and 1990, respectively, is used.

Firstly, Table 4.1 reports marginal effects from a probit model regressing female employment status on female LFP in country of ancestry conditioning on a wide range of background characteristics. Column (1) presents the regression results for first-generation women. Against the expectation, the estimated coefficient of female LFP in either 1950 or 1990, depending on the age of the individual, has a negative sign, indicating that women coming from countries with a high female LFP rate, compared to women stemming from

countries with lower female LFP, have a lower probability to work. The coefficient imply a 48.61 percentage points lower propensity to work for women from a high LFP country as compared to women from a low LFP country, which is about 83.39 percent of the sample probability to work. In contrast, the estimated coefficient on the cultural variable is positive for second- generation women, as column (2) depicts. Though not statistically significant, this finding, which is consistent with my expectations, indicates that women, whose ancestries came from countries with higher female LFP, as compared to those whose parents coming from lower female LFP countries, are more likely to work.

The second part of *Table 4.1* presents the regression results for the correlation between weekly hours worked, as the dependent variable, and LFP in country of origin for first generation females in column (3) and (4) and for second generation immigrant women in column (5) and (6). Controlling for a wide range of covariates, the coefficients shown are Tobit estimates, since there is a large proportion of non-working women in the sample. However, Tobit coefficients may be interpreted directly only as the relation between the independent variable in question and a latent variable underlying the observed dependent variable, the corresponding marginal effect on the expected value of hours worked conditional on it being larger than zero are reported. Column (3) shows that the coefficient of LFP in country of origin is negative and statistically significant at the 1% level, which indicates that first-generation women coming from high female LFP countries desire significantly less hours to work for pay per week than women from low female LFP countries. However, this result is against my expectation of a positive relation between home country LFP and own working behavior. Column (4) of *Table 4.1* shows that, conditioned on hours worked being positive, first-generation women from high female LFP countries tend to work 11.22 hours less than women from low female LFP countries, which is 37.74 percent of the sample mean of weekly hours worked for those women working. However, unexpectedly, no statistically significant results were found for the second generation, though again, as expected, women whose parents were born in high female LFP countries may tend to work more hours than women whose parents came from low female LFP countries.

Table 4.1: Probit/Tobit estimates of employment probability and weekly hours worked

	(A) Working		(B) Weekly hours worked			
	1 <sup>st</sup> generation	2 <sup>nd</sup> generation	1 <sup>st</sup> generation		2 <sup>nd</sup> generation	
	(1)	(2)	(3)	(4)	(5)	(6)
			coef	E(Hrs Hrs>0)	coef	E(Hrs Hrs>0)
Female LFP in country of origin	-0.4861*** (0.1330)	0.1112 (0.1647)	-25.4065*** (7.9225)	-11.2202*** (3.4970)	12.6758 (10.0214)	5.8056 (4.5960)
Age	0.0373*** (0.0100)	0.0303*** (0.0117)	2.0455*** (0.6098)	0.9033*** (0.2698)	1.4416** (0.7107)	0.6603** (0.3270)
Age squared/100	-0.0462*** (0.0119)	-0.0302* (0.0169)	-2.4875*** (0.7156)	-1.0986*** (0.3164)	-1.4570 (1.0051)	-0.6673 (0.4614)
Years of education	0.0309*** (0.0068)	0.0345*** (0.0078)	1.8573*** (0.3612)	0.8202*** (0.1596)	2.2236*** (0.4380)	1.0184*** (0.1982)
German citizenship	0.1606*** (0.0309)	-0.0359 (0.0371)	9.3370*** (1.8205)	4.1511*** (0.8072)	-4.1667* (2.2146)	-1.9006* (1.0079)
Married	-0.1582*** (0.0495)	-0.1718*** (0.0591)	-14.3578*** (2.8075)	-6.9838*** (1.5056)	-14.7054*** (3.3510)	-6.6720*** (1.5029)
Partner's years of education	0.0097* (0.0053)	0.0094* (0.0055)	0.6502** (0.2803)	0.2872** (0.1241)	0.7831** (0.3050)	0.3586*** (0.1390)
Partner's labor income	-0.1177 (0.1333)	-0.5242** (0.2108)	-12.6741* (7.6363)	-5.5973* (3.3756)	-40.8987*** (13.4050)	-18.7318*** (6.1562)
Child under 3	-0.2958*** (0.0320)	-0.1420*** (0.0384)	-16.1238*** (2.2459)	-6.3158*** (0.7795)	-8.0910*** (2.4980)	-3.5543*** (1.0634)
Unemployment rate	-0.0193*** (0.0051)	-0.0197*** (0.0065)	-1.1736*** (0.3256)	-0.5183*** (0.1437)	-1.3258*** (0.4037)	-0.6072*** (0.1856)
Years since migration	0.0121* (0.0063)		0.7147* (0.3756)	0.3156* (0.1660)		
Years since migration squared/100	-0.0305** (0.0141)		-1.5346* (0.8320)	-0.6777* (0.3672)		
Constant			-31.1510** (13.3232)		-27.4027** (11.7683)	
Pseudo R2	0.1088	0.0750	0.0267		0.0197	
Wald test	270.8059***	121.0028***				
F-test			14.00683***		8.230647***	
Log likelihood	-3,844.5700	-1,913.2720	-19,038.6000		-9,552.5650	
Number of observations	6,357	3,085	6,357		3,085	

Notes: (A) ML-probit regressions for the probability to work. Estimates report marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on hours worked being positive. All specifications control for year fixed effects. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed. \* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

To preclude that the results for working probability and hours worked are driven by differences in individual characteristics, all regressions condition on a large vector of background characteristics. In line with former research results (Fernández, and Fogli, 2009), the relation between age and both working probability and hours worked by females display, as expected, a significant non-linear effect. One's educational attainment increases the probability to work and is positively related to female hours worked. Although the relation between labor market and naturalization choices is likely to be bi-causal, at least statements on the relation between these two variables can be made. While naturalization is found to be positively associated with first generation women's labor market outcomes, it is negatively related to second generation's labor supply behavior pointing to a negative selection effect. That is, those second generation women who may be less integrated or have language shortcomings, and, thus, face a relative weaker position at the labor market, may choose more often to naturalize to obtain access to welfare programs (Euwals et al., 2010). While being married is associated with lower female labor supply, the education of the partner is positively associated to it. Both labor market income of the partner, as a proxy for women's non-labor income, and having young children at home decreases female labor supply, as expected. Regional unemployment is also found to be negatively related to women's labor supply. The longer first-generation women live in Germany, the higher are their supposed host-country specific human capital, such as knowledge about job access and German language proficiency, and, as a consequence, the higher are their probabilities to be employment, however, with a decreasing rate.

Summing up, cultural values were found to be important for heterogeneity in labor market outcomes of first-generation immigrants. However, no support was found for the hypothesis, that labor market related cultural norms, which were assumed to be transmitted from parents to their descendants, are related to second generation labor market decisions. While positive, the effect of cultural heritage on second generation immigrant women in Germany was found to be not statistically significant<sup>6</sup>.

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<sup>6</sup> Clustering standard errors at the country of origin level yielded more statistically significant results. However, given the small number of clusters, these findings may be distorted and are thus not reported.

## 5 Robustness of results

Though the results in the previous section did not mirror the expected direction of the relation between female labor market outcomes and cultural norms regarding working, to test the robustness of these basic results, at first, two alternative measures of culture, namely country of origin dummies (section 5.1) and attitudes towards working women in country of origin (section 5.2), are used. Further analyses are conducted considering ethnic identity in section 5.3 and religious identity in section 5.4, which were found in previous research to affect female labor supply, as channels through which cultural norms may affect female labor market outcomes. To preclude that the results are driven by individual or regional differences all following analysis control for age, educational attainment, German nationality, the presence of young children, marital status, a husband's characteristics and regional labor market structure. Note that these results are all well behaving and will, thus, neither be discussed in further detail nor are they shown in the tables. Full results for all following specifications are available upon request.

### 5.1 Country of origin and labor market outcomes

Next ethnicity, as measured by country of origin dummies, is considered as the commonly used proxy for culture. It may impose specific cultural values capturing a broader channel through which culture may affect female labor supply than looking at female LFP rates in country of origin as a specific way. Given empirical support that living under a specific political system may lead to the adaptation of preferences (Alesina and Fuchs-Schündeln, 2007), at least partly, distinct incentives provided by states and societies related to female labor supply, such as in the form of the provision of public day-care, family related employment legislation, child benefits, and work-family balance regulations, may affect female labor market choices of immigrants.

*Table 5.1* reports empirical results from regressing female employment choices and hours worked on country of origin dummies controlling for the explanatory variables mentioned above. In all specification the reference category are Turkish first -or second-generation women, since those were found to have the weakest position at the labor market. Interpreting these results, however, one has to keep in mind the limited number of observations for several second generation women's country of origin, which may lead to a selection bias. Thus, only the results for countries with more than 20 individuals are discussed in further detail in the

text, while the results for all countries of origin are displayed in *Table 5.1*. Marginal effects from probit estimation in columns (1) and (2) as well as Tobit estimates in the second part of the table are reported. In contrast to findings from Constant et al. (2007) and Constant and Zimmermann (2008), empirical evidence was found for the probability of working to vary significantly by ethnicity for first-generation females. In line with Luthra (2013), Euwals et al. (2010) and Algan et al. (2010), compared to Turkish migrant women, females from other countries considered are more likely to work. Thus, Turkish women exhibit the weakest position at the labor market. The magnitude of the country of origin effect ranges from a low of 13.34 percentage points higher propensity to work for Austrian women compared to Turkish women, which is a relative mean effect of 22.88 percent, to a high of 34.21 percentage points (58.68 percent of the mean) for women coming from Bosnia-Herzegovina compared to Turkish female first-generation migrants. Thereby, the difference between working likelihood for women from these two countries is statistically significant at the 1%-level. Regarding the main guest worker-countries (Ex-Yugoslavia, Greece, Spain and Italy), statistically significant differences regarding working probabilities were further found between women from Ex-Yugoslavia and Greece, and between women from Greece and women stemming from Italy or Spain.

In order to analyze the effect of cultural origin, as measured by country of ancestry, for second generation women's labor supply, column (2) of *Table 5.1* reveals evidence that the country of origin of second generation women's parents is statistically significant related to her working choices. Thereby, except for women whose parents stemming from Croatia, most second generation women in the sample are more likely to work than Turkish women. However, compared to the findings in column (1), the relative disadvantages of Turkish women, compared to second-generation females whose parents stemmed from other nations, decreased. This may point either to a relative improvement of the position of Turkish women or to an increasing disadvantage for second generation women from other countries with respect to employment chances. Especially the differences between second generation women whose parents came from the other guest worker nations and Turkish second generation females decreased significantly. While women whose parents came from Ex-Yugoslavia, Greece or Italy, have an almost equally higher propensity to work, compared to second generation Turkish women, no significant differences for the second generation's working behavior was found between women of Spanish as compared to Turkish descent.



Table 5.1: Country of origin indicator variables

	(A) Working		(B) Weekly hours worked			
	1 <sup>st</sup> generation	2 <sup>nd</sup> generation	1 <sup>st</sup> generation		2 <sup>nd</sup> generation	
	(1)	(2)	(3)	(4)	(5)	(6)
			coef	E(Hrs Hrs>0)	coef	E(Hrs Hrs>0)
Country of origin (ref: Turkey)						
Ex-Yugoslavia	0.2032*** (0.0216)	0.0841** (0.0386)	15.0313*** (3.6593)	7.6466*** (2.1273)	5.3759 (4.0339)	2.5916 (2.0318)
Greece	0.2872*** (0.0237)	0.0779** (0.0362)	17.6965*** (4.9262)	9.4224*** (3.0941)	4.4705 (4.5674)	2.1332 (2.2655)
Italy	0.2254*** (0.0214)	0.0849*** (0.0253)	14.2895*** (3.7135)	7.2628*** (2.1383)	2.1147 (3.1859)	0.9833 (1.4989)
Spain	0.2074*** (0.0364)	-0.0612 (0.0631)	15.5031** (6.8662)	8.1051* (4.1788)	-0.5130 (7.0262)	-0.2342 (3.1914)
Austria	0.1334*** (0.0396)	0.1255*** (0.0481)	10.5364 (6.4838)	5.2186 (3.5730)	8.6006* (5.0690)	4.2871 (2.7286)
France	0.1301** (0.0543)	-0.0072 (0.0601)	11.5071 (7.2067)	5.7733 (4.0680)	-7.1169 (6.3427)	-3.0442 (2.5292)
Great Britain	0.2383*** (0.0479)	0.0944 (0.0765)	11.0548 (8.4444)	5.5250 (4.7277)	8.8093 (11.2762)	4.4189 (6.1607)
USA	0.2819*** (0.0332)	0.1014* (0.0566)	19.4057*** (6.8906)	10.5693** (4.4919)	2.1700 (7.1588)	1.0174 (3.4288)
Romania	0.2126*** (0.0280)	0.1162* (0.0660)	13.4978*** (3.5967)	6.8483*** (2.0664)	2.0536 (7.2010)	0.9621 (3.4418)
Poland	0.2718*** (0.0203)	0.0948** (0.0384)	17.6022*** (3.0607)	8.9282*** (1.7705)	6.3703 (4.7911)	3.0939 (2.4560)
Czech Republic	0.2055*** (0.0499)	0.2819*** (0.0612)	10.8456 (8.1023)	5.4055 (4.5118)	11.1732 (8.0292)	5.7395 (4.5630)
Russia	0.2283*** (0.0237)	0.0886 (0.0771)	16.7481*** (3.5903)	8.5694*** (2.1125)	8.4645 (7.6549)	4.2311 (4.1427)
Kazakhstan	0.2383*** (0.0235)	0.0791 (0.0594)	15.1428*** (3.4593)	7.6261*** (1.9766)	2.8919 (5.2051)	1.3657 (2.5237)
Belgium	0.1921*** (0.0609)	-0.2306** (0.1066)	10.2537 (7.9051)	5.0837 (4.3551)	-19.8106** (9.4360)	-7.4194*** (2.8513)
Netherlands	0.1405*** (0.0497)	-0.1843* (0.0963)	1.4644 (5.7601)	0.6583 (2.6303)	-7.1888 (10.6392)	-3.0637 (4.2029)
Croatia	0.1619*** (0.0462)	-0.0924* (0.0500)	9.3460 (7.9814)	4.5780 (4.3051)	-2.7446 (6.5033)	-1.2264 (2.8271)
Bosnia-Herzegovina	0.3421*** (0.0249)	0.1084 (0.0722)	24.5131*** (4.9433)	14.0792*** (3.4975)	6.1703 (6.0537)	3.0141 (3.1310)
Macedonia	0.2248 (0.1512)	0.0037 (0.0630)	11.4898*** (4.4388)	5.7820** (2.5002)	1.5071 (7.9101)	0.7020 (3.7400)
Serbia	0.0229 (0.0666)	0.1763** (0.0812)	-5.3913 (6.0649)	-2.2450 (2.3765)	13.7637** (5.3446)	7.2603** (3.1797)
Pseudo R2	0.1327	0.0884	0.0330		0.0221	
Wald test	1001.552***	350.449***				
F-test			10.40352***		5.196104***	
Log likelihood	-3741.6020	-1885.4610	-18915.4200		-9529.3760	
Number of observations	6,357	3,085	6,357		3,085	

Notes: (A) ML-probit regressions for the probability to work reporting marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on positive hours worked, which both include a constant term. All specifications control additionally for age, age squared/100, years of education, German citizenship, marital status, partner's years of education, partner's labor income, child under 3, regional unemployment rate and year fixed effects. Columns (1), (3) and (4) additionally control for years since migration and years since migration squared/100. Figures in bold denote countries of origin with more than 20 individuals. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed.\* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Columns (3) to (6) show Tobit estimates and the corresponding marginal effect on the expected value of hours worked given the individual is not censored, respectively. Column (3) and (4) indicate that the association between the country of ancestry indicator variable and weekly hours worked replicate the pattern found for first-generation immigrant women's working probabilities, as expected. While women from the countries considered gain, on average, a higher utility from working, as may be seen from the Tobit coefficient in column (3), exemplarily, working women whose parents stemmed from Greece tend to work 9.42 hours more than first generation women whose parents came from Turkey, which corresponds to a relative mean effect of 31.69 percent for those women working. Further, compared to first-generation women of Turkish origin, working females with Spanish origin tend to work 8.11 hours more, although this result is only significant at the 10%-level. Compared to Turkish originating women, women with Ex-Yugoslavian origin tend to work 7.64 hours and women with Italian origin work 7.26 hours more condition on hours worked being positive. Again women stemming from Bosnia-Herzegovina display a high value of desired working hours per week and those working, tend to work 14.08 hours more per week compared to first generation Turkish women. However, unexpectedly, no effects for culture on hours worked were found for second-generation immigrants, except for females with Austrian origin, who display a higher utility gain from working compared to Turkish women. Summing up, the country of origin, as a broad measure of cultural origin, reveals persisting differences across immigrant groups regarding their working behavior.

## **5.2 The role of attitudes towards working woman**

Further, cultural norms towards female LFP may not only be incorporated by a behavioral measure, such as past LFP in country of ancestry, but attitudes towards gender roles in the labor market prevalent in a society may also reflect cultural norms with respect to the supply of labor of women. There already exists empirical evidence that attitudes regarding women's role in the labor market, which vary systematically between countries (Albrecht et al., 2000) influence female working behavior (Fernández, 2007). Women coming from countries that are more conservative with regard to working women were found to participate less in the labor market.

Following Fernández (2007), country specific attitudes towards women working are used to analyze culture-induced heterogeneity in female LFP in Germany. These attitudes reflect not solely women's preferences but also economic and institutional conditions in the

respective society. Further, since attitudes towards working and leisure are likely to be related to one's own working experience and education, individual attitudes may be endogenous. However, analyzing attitudes towards women working from a woman's country of ancestry, that is, from a different period of time as well as from a distinct institutional framework, may mitigate endogeneity issues.

In *Table 5.2* employment status and weekly hours worked of first- and second-generation immigrant women in Germany are regressed on attitudes towards working woman in country of ancestry. Answers to the question on “Being a housewife is just as fulfilling as working for pay.” from the fourth wave (1999-2001) of the WVS, which contain representative national surveys on changing social and political values, are used to assess the extent to which cultural attitudes are correlated with female labor market involvement. Since no surveys in 1999 to 2001 were conducted for Austria and Kazakhstan, and Yugoslavia did not exist in 2000, the used observations dropped for that analysis to 4,867 for first-generation and to 2,722 for second-generation women. The first part of *Table 5.2* shows the results from a pooled probit regression for the propensity to work. As expected, while controlling for individual and regional differences, column (1) reveals evidence in the upper panel that first-generation migrants stemming from countries where more females agreeing that housework is as fulfilling as working for pay, that is, from a more “conservative” country, work less. They exhibit a 81.79 percentage points lower likelihood to work than women coming from a country with more liberal views on women working. This result is highly statistically significant and in line with findings from Fernández (2007). Since both the time frame and the institutional-economic background where migrant women came from changed, one may argue that this result is mainly driven by the cultural component of attitudes towards working women. However, no statistically significant results were found for second generation's probability to work in the lower panel of column (1). Second-generation women whose parents come from more conservative countries seem not behave differently from those whose parents originate from a more liberal country with respect to their working probability.

Table 5.2: Attitudes towards being a housewife is just as fulfilling as working for pay

	(A) Working	(B) Weekly hours worked	
	(1)	(2)	(3)
		Coefficient	E(Hours Hours>0)
<i>1<sup>st</sup> generation</i>			
Housewife is fulfilling	-0.8179*** (0.1577)	-40.7348*** (8.8142)	-17.6332*** (3.7975)
Pseudo R2	0.1303	0.0306	0.0306
Wald test	223.9774***		
F-test		12.01865***	
Log likelihood	-2883.7790	-14344.9200	
Number of observations	4,867	4,867	
<i>2<sup>nd</sup> generation</i>			
Housewife is fulfilling	-0.1777 (0.1582)	-8.5809 (9.5144)	-3.8328 (4.2472)
Pseudo R2	0.0712	0.0176	0.0176
Wald test	101.6374***		
F-test		5.962753***	
Log likelihood	-1703.5160	-8343.7390	
Number of observations	2,722	2,722	

Notes: (A) ML-probit regressions for the probability to work. Estimates report marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on hours worked being positive. All specifications control additionally for age, age squared/100, years of education, German citizenship, marital status, partner's years of education, partner's labor income, child under 3, regional unemployment rate and year fixed effects. The upper panel of each column controls additionally for years since migration and years since migration squared/100. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed. \* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Column (2) and (3) show Tobit estimates and corresponding marginal effects for expected weekly hours worked given that the women is not censored. The upper panel displays in column (2), that immigrant women from the first generation from more conservative nations, gain lower utility from working compared to women from a country where working women are seen more positive. Further, column (3) of the upper panel reports that if first-generation females from a more conservative country of origin are employed, they work 17.63 hours less per week than employed women from more liberal countries. This effect is about 59.63 percent of the sample mean of hours worked for those first-generation women working. Though the relation of more conservative cultural values and weekly hours worked is also negative for second-generation immigrants, as given in the lower panel of columns (2) and (3), the result is not statistically significant. In sum, the patterns of analysis above are found again when using attitudes towards women working as an alternative measure for one's

cultural heritage. While more conservative attitudes in country origin have explanatory power for labor market outcomes of first-generation women, no association was found to the labor market choices of the second-generation,

### **5.3 The role of ethnic identity**

While vertical socialization from parents and the family are the primary source socialization, next to this vertical socialization, children chose their own social and cultural identity as a member of a particular ethnic, religious or gender group (Bisin and Verdier, 2011). Belonging to a specific group may then impose incentives to behave in a certain way.

This section analyzes whether individual cultural heritage retains explanatory power once considering one's self-chosen ethnic identity and, thus, whether the effects of cultural origin on labor market outcomes may depend on how strongly individuals are connected to the host country's culture. Following Casey and Dustmann (2010), how strongly an immigrant woman self-identifies with the host country and the country of origin, respectively, is measured by two questions from the GSOEP. On a five-point scale, firstly, respondents were asked to quantify how strongly they feel as "German", and, secondly, how strongly they feel connected to their country of origin. Since these questions were asked in the period under consideration only for the years 2001, 2003 and 2010, the observations used for first-generation women fell to 1,642 and the observations used for second-generation women dropped to 638.

The obtained results from column (1) of *Table 4.1* were found to be robust to the inclusion of a first generation's women ethnic identity as measured by her feeling how strongly she is connected to Germany, as may be seen in the upper panel of column (1) in *Table 5.3*. Thus, cultural norms regarding female working decisions play an important role for first-generation women. As the upper panel of column (1) in *Table 5.3* reveals, stemming from a country with high female LFP rates is associated with a 49.26 percentage points lower probability to work, as compared to women from low female LFP countries. Further, individuals feeling not completely as German, as compared to first-generation women who do, have a lower working propensity. However, solely the effect for feeling hardly as German, as compared to feel completely as German, attains statistical significance. First-generation women who feel hardly as German are 11.10 percentage points less likely to work. These results are in line not only with previous results for Germany (Casey and Dustmann, 2010), but also within a European context (Bisin et al., 2011). Column (1) shows in the lower panel the results for second generation immigrant women. While the direction of the correlation between cultural

heritage and working probability had changed once controlling for individuals self-identification with Germany, compared to *Table 4.1*, the influence of culture on second-generation women's working probability was not found to be statistically significant. The findings regarding the relation between second-generations employment choices and ethnic self-identification are consistent with results obtained by Casey and Dustmann (2010). Self-identification with Germany is not associated with employment probability for second generation women.

Columns (2) and (3) show Tobit estimates for hours worked and marginal effects for expected hours worked. The relation between female LFP rates in the home country and both desired hours worked, upper panel of column (2), and actual hours worked for those first generation women working, upper panel of column (3), is comparable in size to the results obtained without controlling for ethnic identity in column (3) and (4) of *Table 4.1*. Thereby, first-generation women who self-identifies as being hardly or not at all connected to Germany, have a lower wish to work and if they are employed they work 2.78 and 2.48 hours less per week, respectively, than women feeling completely related to Germany, as column (2) and (3) of *Table 5.3* indicates. This corresponds to a 9.34 percent and a 8.33 percent, respectively, decrease in expected hours work for those first-generation women working. In contrast, the lower panel of column (2) and (3) do not show evidence for an association between cultural heritage and hours worked for second-generation women. However, women who feel mostly as German, as compared to women feeling completely as German, exhibit a higher wish to work and once working they are expected to work 4.01 hours more per week. Overall, those women who are less connected to Germany were found to have lower employment probabilities, as those more connected, and are actual working less hours per week..

Table 5.3: Ethnic identity – Feel as German

	(A) Working	(B) Weekly hours worked	
	(1)	(2)	(3)
		Coefficient	E(Hours Hours>0)
<i>1<sup>st</sup> generation</i>			
Female LFP in country of origin	-0.4923*** (0.1485)	-28.7888*** (8.8707)	-12.2856*** (3.7864)
Feel German (ref.: completely)			
Mostly	-0.0266 (0.0455)	-1.8359 (2.3207)	-0.7747 (0.9676)
In some respects	-0.0356 (0.0489)	-0.8901 (2.5927)	-0.3782 (1.0966)
Hardly	-0.1110** (0.0540)	-6.8283** (2.8899)	-2.7783** (1.1196)
Not at all	-0.0807 (0.0580)	-6.0938* (3.1159)	-2.4779** (1.2068)
Pseudo R2	0.1150	0.0291	0.0291
Wald test	172.5494***		
F-test		12.6867***	
Log likelihood	-994.4217	-4807.5330	
Number of observations	1,642	1,642	
<i>2<sup>nd</sup> generation</i>			
Female LFP in country of origin	-0.0522 (0.2347)	1.0128 (15.0433)	0.4414 (6.5582)
Feel German (ref.: completely)			
Mostly	0.0920 (0.0586)	8.8494** (3.6085)	4.0136** (1.7031)
In some respects	0.0196 (0.0669)	3.4885 (4.0709)	1.5407 (1.8257)
Hardly	-0.0022 (0.0861)	-0.2105 (5.4025)	-0.0916 (2.3472)
Not at all	-0.0132 (0.0944)	3.6490 (6.1213)	1.6394 (2.8413)
Pseudo R2	0.0890	0.0259	0.0259
Wald test	69.28408***		
F-test		7.533497***	
Log likelihood	-397.0795	-1891.4510	
Number of observations	638	638	

Notes: (A) ML-probit regressions for the probability to work. Estimates report marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on hours worked being positive. All specifications control additionally for age, age squared/100, years of education, German citizenship, marital status, partner's years of education, partner's labor income, child under 3, regional unemployment rate and year fixed effects. The upper panel of each column controls additionally for years since migration and years since migration squared/100. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed. \* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

Table 5.4 reports probit estimates in column (1) for the probability to work and Tobit coefficients as well as the corresponding marginal effects for expected hours work in column (2) and (3). The upper panel shows the association between first generation's labor market outcomes and their cultural heritage as well as their identification with their home country. Again, results obtained in the analysis of the relation between past female LFP rates in country of origin, as measure for labor market related cultural norms (see *Table 4.1*) were found to be robust to the inclusion of home-country identity. Further, in line with Casey and Dustmann (2010), home-identity is negatively related to employment probabilities. The less first-generation women are connected to their home country, the higher are their employment probabilities, although merely the results for women who are hardly connected to their home country, as compared to women who are completely related to their home country, were found to be statistically significant. They are 8.82 percentage points more likely to work in Germany, as compared to women completely connected to their home country. While no significant regarding the association between female LFP rates in ancestral country and second-generation working probabilities were found, in contrast to Casey and Dustmann (2010), second-generation women who are only hardly connected to the country of their parents' origin, were found to be 14.62 percentage points less likely to work than women completely with a very strong country of origin-identity. However, being merely significant at the 10%-level, this result may be driven by a large fraction of Turkish women in this analysis. Those are supposed to rely on a dense network of Turkish decedents when finding a job. Thus, the lower their connection to the country of origin of their parents is, the lower may be their returns from those networks.

Turning to the analysis of the Tobit estimates in *Table 5.4*, as in the previous analysis of the relation between cultural values, host-country identification and hours worked, once controlling for home-country orientation, the cultural measure remains a significant component of first-generation female decision of how much hours to work. However, besides the effect of cultural norms on hours worked, home-country orientation was found to be also related to the desire to work as well as to the expected weekly working hours of those working. First generation women who are connected to their home country only in some respects or hardly, as compared to women who are completely connected to their home country, have a higher wish to work and once employed they work, they work 1.93 and 2.41 hours more per week, respectively.



Table 5.4: Ethnic identity – Connected to country of origin

	(A) Working	(B) Weekly hours worked	
	(1)	(2)	(3)
		Coefficient	E(Hours Hours>0)
<i>1<sup>st</sup> generation</i>			
Female LFP in country of origin	-0.5276*** (0.1487)	-31.5442*** (8.9564)	-13.4299*** (3.8175)
Connected to country of origin (ref.: completely)			
Mostly	0.0175 (0.0412)	0.7143 (2.5108)	0.3051 (1.0757)
In some respects	0.0626 (0.0438)	4.4559* (2.6532)	1.9287* (1.1684)
Hardly	0.0882* (0.0524)	5.4307* (3.1021)	2.4146* (1.4379)
Not at all	0.0866 (0.0647)	3.9748 (3.6585)	1.7570 (1.6767)
Pseudo R2	0.1148	0.0288	0.0288
Wald test	172.4019***		
F-test		12.27323***	
Log likelihood	-997.1374	-4812.7850	
Number of observations	1,645	1,645	
<i>2<sup>nd</sup> generation</i>			
Female LFP in country of origin	-0.0492 (0.2357)	1.4924 (15.0533)	0.6506 (6.5644)
Connected to country of origin (ref.: completely)			
Mostly	-0.0638 (0.0660)	-3.7629 (3.9136)	-1.6117 (1.6453)
In some respects	-0.1024 (0.0684)	-7.7290* (4.2029)	-3.3058* (1.7647)
Hardly	-0.1462* (0.0807)	-8.6996* (4.8339)	-3.5721* (1.8695)
Not at all	-0.1075 (0.1055)	-12.9369** (6.0231)	-5.0413** (2.0925)
Pseudo R2	0.0919	0.0263	0.0263
Wald test	67.96123***		
F-test		7.354865***	
Log likelihood	-395.8000	-1890.6750	
Number of observations	638	638	

Notes: (A) ML-probit regressions for the probability to work. Estimates report marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on hours worked being positive. All specifications control additionally for age, age squared/100, years of education, German citizenship, marital status, partner's years of education, partner's labor income, child under 3, regional unemployment rate and year fixed effects. The upper panel of each column controls additionally for years since migration and years since migration squared/100. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed. \* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

With respect to the correlation of cultural heritage and second generation's woman desired weekly working hours and her expected hours of work once working, the lower panel of

columns (2) and (3) of *Table 5.4* reveal no empirical evidence. In accordance to the obtained results for second generations employment probabilities in the upper panel of column (1), second generation women who are not strongly connected to their parental country wish to work less and if working, the work less hours per week compared to women completely related to their parents' country of origin. Especially second-generation women, who do not feel at all to belong to their parents' country of origin, wish to work fewer hours per week, and once employed, the work 5.04 hours less than second generation immigrant women who are strongly connected to their country of ancestry. This corresponds to a 15.42 decrease of expected hours work for those women working. While the hypothesis that that cultural heritage is related to second generation female working behavior is not supported by the data, in contrast to Casey and Dustmann (2010) empirical evidence was found for second generation's immigrant woman orientation towards the country of origin of her parents to be significantly associated to her labor supplying behavior.

#### **5.4 The role of religious identity**

Closely related to the concept of ethnic identity is one's religious identity as Bisin et al. (2011) demonstrated. Given that parents endow their children with specific "family commodities" (Becker and Tomes, 1994), they may also transmit "religious capital" to the next generation. While being primarily inherited by children rather than being voluntarily acquired, religious traditions may directly influence individual economic behavior by its impact on traits and attitudes (Barro, 2003). With respect to labor market outcomes, religious preferences may influence the view about women in society as well as female active LFP. Thus, this paragraph examines whether individual cultural heritage retains explanatory power once controlling for religious identity.

Religiosity as a determining factor of labor market outcomes has been addressed in several papers. While some studies found wage premium for religious people, and especially for Jews (Chiswick, 1993) and Catholics (Ewing, 2000), others examine the relation between religiosity and labor supplying decisions. Lehrer (1995) for the USA, and Maneschöld and Haraldsson (2007) for Sweden analyzed female labor supply decisions for married women and found that the strength of female religious beliefs and the strictness of her religious tradition is negatively associated to her labor supplying decision. For Germany, both Spenkuch (2011) and Heineck (2004) found individual religiosity to affect working patterns of individuals, and especially of married women.

The questions on one's religious affiliation were asked in the period of consideration only for the years 2003, 2005 and 2011. Thus, the used observations fell from 6,357 to 1,671 for first-generation women and from 3,085 to 819 for second-generation women. In each specification the reference category are not affiliated people defined as those not belonging to any religious organization. Considering explicitly religious identity as a specific channel through which working habit may be influenced, at least partly, *Table 5.5* shows the results for the association between one's religious affiliation and one's labor market outcomes as measured by employment and hours worked. Column (1) exhibits in the upper panel that once controlling for religious affiliation, cultural heritage is not related to working probability of first-generation women in Germany. Compared to the coefficients obtained from regressing employment status on female LFP rates in country of origin and controls for the same sample, for which the results are not presented here, the effect of past LFP on working almost halved, though this effect was not significant. However, in line with findings from Heineck (2004), being Muslim is statistically significant and negatively associated with a first-generation woman's probability to work. Being Muslim, as opposed to be not-affiliated at all, decreases employment likelihood by 15.95 percentage points, which equals 27.36 percent of the sample average. However, no statistically significant effects were found for the association between belonging to one of the other religions and female labor supply. The same pattern is found for second generation immigrant women, as shown in the upper panel in column (1). While the female LFP rate in parents' country have no statistical significant explanatory power for second generation female employment choices, being Muslim is significantly negative related to second generation women's working decisions. Second generation women belonging to Islam display a 16.22 percentage points lower working likelihood than not-affiliated people.

These results remain robust, when analyzing weekly hours worked as the dependent variable in columns (2) and (3). First-generation Muslim women, while gaining a lower utility from working, those who are employed, work 4.43 hours per week less than not-affiliated first-generation women. Likewise, those second-generation Muslim women employed, work 4.41 hours less per week, as compared to not-affiliated second generation females, which corresponds to 13.49 percent of the sample mean of weekly hours worked for those second generation women working. Thus, while cultural norms with respect to working, as measured by past female LFP in country of origin, were neither found to be relevant for first-nor second-generation women, Muslim religious norms were consistently found to play an important role for female labor force choices for both generations.

Table 5.5: Religious identity

	(A) Working	(B) Weekly hours worked	
	(1)	(2)	(3)
		Coefficient	E(Hours Hours>0)
<i>1<sup>st</sup> generation</i>			
Female LFP in country of origin	-0.2381 (0.1529)	-10.3979 (8.7658)	-4.7593 (4.0121)
Religious affiliation (ref.: not-affiliated)			
Catholic	0.0566 (0.0496)	3.2181 (2.5963)	1.4887 (1.2120)
Protestant	0.0076 (0.0558)	0.2346 (2.8497)	0.1076 (1.3086)
Other Christian religion	0.0082 (0.0600)	-0.2588 (3.3248)	-0.1182 (1.5150)
Muslim	-0.1595*** (0.0596)	-10.3518*** (3.2968)	-4.4330*** (1.3253)
Pseudo R2	0.1217	0.0298	0.0298
Wald test	196.3407***		
F-test		13.39846***	
Log likelihood	-987.9428	-5087.2140	
Number of observations	1671.0000	1671.0000	
<i>2<sup>nd</sup> generation</i>			
Female LFP in country of origin	0.0976 (0.1955)	11.0777 (11.4382)	5.2126 (5.3946)
Religious affiliation (ref.: not-affiliated)			
Catholic	-0.0376 (0.0780)	-2.3884 (4.2267)	-1.1163 (1.9633)
Protestant	-0.1037 (0.0941)	-8.7080* (5.0554)	-3.8227* (2.0716)
Other Christian religion	-0.0185 (0.0906)	-2.4854 (5.0884)	-1.1468 (2.3004)
Muslim	-0.1622** (0.0814)	-9.7902** (4.4315)	-4.4110** (1.9076)
Pseudo R2	0.0995	0.0263	0.0263
Wald test	98.14457***		
F-test		9.969486***	
Log likelihood	-490.9732	-2553.2250	
Number of observations	819	819	

Notes: (A) ML-probit regressions for the probability to work. Estimates report marginal effects at the mean of all covariates. (B) Tobit estimates and corresponding marginal effects for expected hours worked condition on hours worked being positive. All specifications control additionally for age, age squared/100, years of education, German citizenship, marital status, partner's years of education, partner's labor income, child under 3, regional unemployment rate and year fixed effects. The upper panel of each column controls additionally for years since migration and years since migration squared/100. Robust standard errors in parenthesis. At the bottom, results for chi-square Wald test and F-test, respectively, on the joint significance of regression coefficients are shown. Further, the value of the log likelihood function is displayed. \* denotes statistical significance at the 10% level, \*\* at the 5% level and \*\*\* at the 1% level.

## 6 Discussion and concluding remarks

The purpose of this contribution was to examine the hypothesis whether cultural norms regarding female labor working behavior are related to female labor market outcomes in Germany. It was assumed that females stemming from a country with a high female LFP take with them the cultural norms encompassed in that measure to Germany, where the institutional and economic factors determine female LFP rates in country of origin should not be relevant anymore. Further, these labor market related cultural norms were supposed to be transmitted from the parents to their descendants, and thus, labor market outcomes of the second generation may also be influenced by female LFP rates in parental country of origin.

The previous sections yielded somehow unexpected results. While cultural norms, as measured by the female LFP rates in country of ancestry, were found to be strongly negatively related to first-generation labor market behavior, no statistically significant results were found for the second generation. Based on the weakness of the epidemiological strategy outlined by Fernández (2007), one may think of several explanations for the obtained results. Further, this section presents some thoughts on why different results as compared to the USA (Fernández, 2007; Fernández and Fogli, 2009) and Canada (Gevrek et al., 2011) were found. At the beginning the obtained results for the first generation are discussed followed by a discussion of the findings for the second generation.

The significant and robust negative relation between past female LFP rates in country of ancestry and working probability as well as hours worked for first-generation women, as opposed to the expectation of a positive association, may be explained by deviant behavior due to migration shocks. Although controlling for years since migration, one may think of variables not necessarily captured by this variable. Exemplarily, uncertainty about the permission to stay in Germany may cause first-generation women to supply less work, though they come from high female LFP countries or though they may have positive attitudes towards working. Further, certain empirical studies point to the existence of ethnic discrimination which may affect the labor supply of first generation women negatively, while coming from high female LFP countries. Hunkler (2009) reports employer discrimination, especially for Turkish immigrants, Kaas and Manger (2012) recently found evidence for statistical discrimination based on foreign-sounding names in a field experiment. Consequently, immigrant females from high female LFP countries, even if they wish to supply work, are forced to stay at home due the presence of ethnic discrimination in the German labor market. Another reason, which may prevent first generation immigrant women

to supply labor as desired, may be found in the structural conditions of the German labor market, which may be seen as strongly emphasizing professional qualifications. However, since the recognition and transferability of foreign qualification to Germany is limited, even highly educated and motivated immigrant females may display a lower probability to work. Furthermore, given that culture is a social phenomenon, to replicate individual female behavior of the home country in Germany, a social environment is required, that provides the incentives to do so. Exemplarily, on the one hand side, one may imagine women from high female LFP countries to find “German women” less working as compared to women in their home country, since average weekly hours worked of women is comparably low in Germany in an international view. Thus, while having a high taste for working, they do not find the incentive structure to replicate their working behavior in Germany. Further, on the other hand side, women from low female LFP countries, may find incentives in the form of higher relative wages in Germany compared to their home country, and thus, may deviate from their original behavior and supply more work, although they exhibit low working preferences.

Further, given that immigrants may differ in systematically ways from their average home country’s population, and thus, are unlikely to represent the working preferences of their home country’s population, concerns regarding the results to be driven by selection may occur. One may argue that, given an identical distribution of working preferences across countries, first-generation immigrants from high female LFP countries come from the lower part of the utility-of labor distribution, while immigrant women from low female LFP countries may be drawn from the upper part of the distribution. Exemplarily, immigrant women from former Eastern bloc countries consist mainly of Ethnic Germans, who are supposed to share the relative conservative attitudes with respect to working women prevalent in “German culture” (Albrecht et al., 2000). Thus, they are expected to show low labor supply in Germany, while their “home-countries” are supposed to exhibit high female LFP rates due to the historical important role of the Communist regime. Women from the classic guest worker countries, such as Spain, Greece and Italy, are another example. While these countries typically show low female LFP rates, it may be argued that women with a relative high taste for working, that is those from the upper part of the distribution, immigrated to Germany to work and earn money. While this selection argument may be plausible for women who came from former Eastern bloc countries and women of the guest worker countries, it seems not plausible for women immigrating from more western-oriented cultures, such as the USA, or France.

However, an important factor pointing against selection as a driving force for the negative relation between cultural norms in home country and female labor supply of first-generation women in Germany is the finding regarding the attitudes towards working women in country of origin as an alternative measure for one's cultural heritage. Attitudes of females regarding the division of labor between market and homemaker reflect the views of an average woman in country of origin. Since these *average* female attitudes towards working women in country of origin have significant explanatory power for first generation immigrant women's labor market behavior in Germany, selection may not be a severe problem.

With regard to the second generation, the relation between past female LFP rates in parental country of origin and working probability as well as hours worked, were found to be of the expected direction, namely positive, and robust once alternative measures of culture or religious identity was included. However, neither of these findings attains statistical significance. There are some facts which may explain these insignificant results for second-generation immigrant women. The most prominent explanation may be the fact that second-generation immigrants become more integrated and assimilated to Germany by investing in country specific human and social capital and, thus, cultural norms with regard to women working from the country of origin of their parents may only play an inferior role in determining their labor market position. Therefore, it is not surprising that empirical studies found that second-generation immigrants improved their position at the labor market due to better educational attainment (Euwals et al., 2010, Algan, 2010, Luthra, 2013). Furthermore a selection bias may also explain the obtained insignificant results for the second generation. As outlined by Scheller (2011), a particular share of second-generation immigrants is not assignable to a particular country of origin in the GSOEP. In the period under consideration, no country of origin was assignable for 179 individuals with indirect migration background. Apart from that, the limited number of individuals for the second generation in combination with only little within variance, that should be explained, may yield insignificant results for this group.

Finally, there are likely a lot of unobserved factors, altering first and second generation woman's tastes for work independently of one's cultural heritage, such as individual labor market experience. However, since I am interested in the effect of culture on female labor supply, and not in the determinants of it, individual labor experience is not considered in the paper. However, results from auxiliary regressions not presented here show that the size of the cultural proxy coefficient was found to decrease once including labor market experience. Nevertheless, the pattern of results remained robust. Further, strong families ties, as has been

revealed by Alesina and Giuliano (2010), are negatively associated to female labor force participation. Thus, while coming from a high female LFP country, the social environment of the women may emphasize a strong family culture which imposes restrictions on female labor supply. The effect of cultural norms on female labor choices may also be driven by unobserved differences in parental human capital. Parents stemming from a country recognizing the role of educational attainment more, as compared to parents from countries with a lower emphasize on education, may also invest more in their children's early childhood learning and schooling (Fernández and Fogli, 2009). One may expect higher parental education to positively affect labor market outcomes of their descendants independently of the cultural background. Differences across female labor market outcome may then traced back to an omitted variable bias due to unobserved parental human capital rather than to incentives set by distinct cultural norms. Regressing female employment probabilities and the weekly hours worked, respectively, on past female LFP in country of ancestry, as the quantitative measure for labor culture, and the commonly used explanatory variables including mother's and father's educational attainment reveals a significant negative association between female LFP in country of ancestry and working probability as well as hours worked for first generation immigrant women. For second generation women the relationship attain positive, however, not statistically significant. These results, not shown here, are available upon request.

Summing up, while this study was not able to replicate findings for Northern America in Germany on a statistical significant level for second-generation immigrants, labor market outcomes of first generation immigrants were found to vary systematically due to cultural norms, measured either by past female LFP in country of origin, country of origin indicator variables or attitudes towards working women prevalent in their home country. Extending previous research attempts on the impact of cultural norms on labor market outcomes using the epidemiological approach, I found that the results for first generation immigrants are neither driven by their nationality nor by their ethnic identity, as measured by their feeling of affiliation with either Germany or the home country.

More importantly, religious identity, as a specific cultural trait, was found to be more important than the measures of cultural heritage for labor market behavior of both first and second generations. Especially Islam belief was found to be negatively associated to employment probabilities and actual hours of work. This finding may be seen as evidence for the disadvantaged position of Turkish females in Germany, since most of the adherences to Islam are of Turkish descent.



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# Appendix A

Table A.1: Descriptive statistics

Variable	1 <sup>st</sup> generation					2 <sup>nd</sup> generation				
	Obs	Mean	Std. Dev.	Minimum	Maximum	Obs	Mean	Std. Dev.	Minimum	Maximum
<u>Dependent variables</u>										
Working (d)	6,591	0.5829		0	1	3,085	0.6062		0	1
Labor force participation (d)	6,591	0.7205		0	1	3,085	0.7760		0	1
Weekly working hours'	6,591	16.9779	17.7730	0	80	3,085	19.1041	18.8537	0	80
Weekly working hours' for those working	3,764	29.7293	13.1907	1.5	80	1,803	32.6879	12.8092	1	80
<u>Independent variables of interest</u>										
Country of origin	6,591			1	20	3,085			1	20
Female LFP rate 1950	6,591	0.3925	0.1120	0.1349	0.528	3,085	0.3550	0.1377	0.1349	0.528
% Females in country of origin agreeing housework is fulfilling	5,073	0.6101	0.1123	0.335	0.794	2,722	0.6054	0.1346	0.335	0.794
German Citizenship (d)	6,591	0.4673		0	1	3,085	0.4506		0	1
Feel German (ref.: completely)										
Mostly (d)	1,694	0.2196		0	1	638	0.2837		0	1
In some respects (d)	1,694	0.2769		0	1	638	0.3166		0	1
Hardly (d)	1,694	0.1800		0	1	638	0.1332		0	1
Not at all (d)	1,694	0.1358		0	1	638	0.0940		0	1
Connected to country of origin (ref.: completely)										
Mostly (d)	1,697	0.2952		0	1	638	0.2680		0	1
In some respects (d)	1,697	0.3335		0	1	638	0.3746		0	1
Hardly (d)	1,697	0.1355		0	1	638	0.1599		0	1
Not at all (d)	1,697	0.0689		0	1	638	0.0721		0	1
<u>Individual explanatory variables</u>										
Years since migration	6,357	20.6376	9.7073	1	50	1,161	31.2214	9.9397	12	59
Years since migration squared/100	6,357	5.2013	4.4778	0.01	25	1,161	10.7349	6.4570	1.44	34.81
Age	6,591	42.7199	10.4370	18	60	3,085	31.5475	9.1608	18	60
Age squared / 100	6,591	19.3391	8.7929	3.24	36	3,085	10.7914	6.4434	3.24	36
Years of completed education	6,591	10.7397	2.4531	7	18	3,085	11.3893	2.3148	7	18

Table 5.A.1: Descriptive statistics(continued)

Child younger than 3 in household (d)	6,591	0.1613		0	1	3,085	0.2480		0	1
Religious affiliation (ref.: no religion)										
Catholic (d)	1,721	0.3603		0	1	819	0.3675		0	1
Protestant (d)	1,721	0.1865		0	1	819	0.1282		0	1
Other Christian religion (d)	1,721	0.1156		0	1	819	0.1343		0	1
Muslim (d)	1,721	0.2167		0	1	819	0.2894		0	1
Married (d)	6,591	0.7984		0	1	3,085	0.4606		0	1
<u>Characteristics of Partner</u>										
Years of education - Partner	6,591	9.3275	4.6151	0	18	3,085	5.6671	5.7805	0	18
Labor income - Partner (in 10,000 Euros)	6,591	0.1268	0.1302	0	1.5	3,085	0.0847	0.1103	0	0.74
<u>Parental education</u>										
School leaving degree mother (ref.: low school degree)										
Medium school degree (d)	5,802	0.0789		0	1	2,883	0.0898		0	1
High school degree (d)	5,802	0.0602		0	1	2,883	0.0323		0	1
Other school degree mother (d)	5,802	0.0827		0	1	2,883	0.2778		0	1
School leaving degree father (ref.: low school degree)										
Medium school degree (d)	5,613	0.0921		0	1	2,823	0.0631		0	1
High school degree (d)	5,613	0.0695		0	1	2,823	0.0414		0	1
Other school degree father (d)	5,613	0.0958		0	1	2,823	0.3383		0	1
<u>Regional characteristics</u>										
Unemployment rate in Bundesland	6,591	8.9145	2.9341	4.3	22.1	3,085	8.7145	2.9308	4.3	21.5
16 German Federal states	6,591			1	16	3,085			1	16

Notes: (d) denotes dummy variables. Female immigrants in Germany. GSOEP, 2001 - 2011.

*Table A.2: Description of country of origin characteristics*

Variable	Description
Secondary school enrollment	Female or male secondary school enrollment rate: Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown. Secondary education completes the provision of basic education that began at the primary level, and aims at laying the foundations for lifelong learning and human development, by offering more subject- or skill-oriented instruction using more specialized teachers.
GDP per capita, PPP	GDP per capita based on purchasing power parity (PPP). PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 international dollars.
Fertility rate (births per woman)	Total fertility rate represents the number of children that would be born to a woman if she were to live to the end of her childbearing years and bear children in accordance with current age-specific fertility rates.
Life expectancy	Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.
LFPR	Labor force participation rate is the proportion of the population ages 15 and older that is economically active: all people who supply labor for the production of goods and services during a specified period.

Source: World Development Indicators, The World Bank



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