Globalized markets, globalized information, and female employment: accounting for regional differences in 30 OECD countries

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Abstract

Accounting for within-country spatial differences is a neglected aspect in many cross-country comparisons. This paper highlights this importance in this empirical analysis of the impact of a country's degree of informational and economic globalization on female employment in 30 OECD countries, using a micro pseudo panel of 110'000 persons derived from five waves of repeated cross-sections from the World Values Survey, 1981 to 2008. I conjecture that informational globalization affects societal values and perceived economic opportunities, while economic globalization impacts actual economic opportunities. A traditional cross-country analysis suggests that the informational dimension of globalization but not the economic one increases the probability of employment for women – contradicting the Becker (1957)-hypothesis of international competition mitigating discrimination in employment. However, accounting for sub-national regional gender heterogeneity reveals that the impact of worldwide information exchange works rather at the regional level, while economic globalization (trade) increases female employment in general.

JEL codes: C33, D83, F14, F16, F66, J16, J71, R23, Z13

Key words: Globalization, economic integration, labor market, employment, regions, social norms, communication, discrimination, gender, World Values Survey

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accounting for regional differences in 30 OECD countries.[1]

1. Introduction

Women's employment is a debated topic in economics and in the public, particularly since it has become evident that the ordinary family profits from women's contributions to household resources. In addition, the welfare state might also profit from increased female employment: in times of growth volatility and higher job turn over female employment might reduce men's demand for automatic macroeconomic stabilizers and reduce social transfers (e.g. EU, 2010). According to Becker (1957, 1971), if non-participation and non-employment of women is a result of their discrimination in the domestic labor market, a country's exposure to global competition through imports, exports, and FDI should mitigate this phenomenon: more women are predicted to be working as a country opens up to world markets. In addition, I conjecture that the exchange of information around the world might lead to self-criticism and re-assessment of cultural traditions, such as the traditional role model that attributes the man as the role of sole breadwinner in the family. Additionally, the worldwide exchange of information may also affect how women perceive their occupational 'choice set' and their resulting labor supply decisions. For this reason, greater exposure to worldwide information flows should equally lead to more women participating in the labor market.

This article empirically investigates the impact of globalization on female labor market participation and female employment in OECD countries; this study employs 'globalization' in two of its manifestations: first, in form of a country's economic integration into global markets ('economic globalization'), and second, in form of worldwide information exchange between people through tourism and the internet ('informational globalization'). This empirical analysis of globalization effects for female employment focuses on two questions: 1) to what extent does each country's global integration lead to more women in paid employment and 2) are there within-country spatial differences in these globalization effects. I employ a micro pseudo panel - a collection of repeated cross-sections of individual-level survey data - for 30 OECD countries using 110'000 observations of the World Values Survey from 1981 to 2008, which I match with indicators of a country's

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economic and informational openness developed by the KOF (Technical University of Zurich); the variations of such indicators across time and space allows for the identification of globalization effects. The World Values Survey also contains information on the sub-national region where the interview had been conducted which I use for investigating regional differences.

Previous empirical studies on the effects of international trade for women's labor market participation suffer from being case studies for single countries only; they have revealed mixed evidence for developing and developed countries, for the type of sectors affected and for the production technology employed (see also Lee, 2005). Nordas (2003) compares in her case study Mauritius, Mexico, Peru, the Philippines and Sri Lanka; international trade appears to have created jobs for women, particularly in the exporting sector (see also Nowbutsing and Ancharaz, 2011). Irrespective of heterogeneous wage level effects, case studies for Bangladesh, Madagascar, Turkey, and Tunisia equally show that female employment in the formal sector rose (Fontana and Wood 2000, Glick and Roubaud 2004, Haouas et al, 2003, Ozler, 2000). Also, Cagaty and Berik (1990), Joekes and Weston (1994), and Aguayo-Tellez et al. (2010) showed increased female employment for Turkey and Mexico as a consequence of trade liberalization, as do Gaddis and Pieters (2012) for Brazil. Contrasting evidence is reported for the OECD member state Mexico by Sauré and Ziabi (2009) who show decreased female employment; they argue that in the contracting sector male workers were laid off who then replaced female workers in the exporting sector, which is originally female-labor intensive. Similarly, negative employment effects for women have been revealed by Al Azzawi (2013) for Egypt, and Kucera (2001) and Kongar (2005) for Germany, Japan, and the USA.

The contribution of this article to the existing literature is two-fold: first, this study defines globalization not only in terms of international exchange of goods and cross-national transfers of money - but also in terms of exposure to worldwide information flows. Second, this paper makes an attempt to take account for regional heterogeneity in a thorough manner: Spatial variation within countries exists with respect to local culture and institutions, but also industry structures; consequently, globalization may well exert differential impacts depending on the sub-national region the respondent lives in. In contrast to most previous cross-country studies, this regional differentiation in my empirical approach is only possible because the analysis I use exploits individual-specific information around the world.

My results show clearly how important it is not to neglect spatial differences and to differentiate between transmission channels when investigating globalization effects. The first set of cross-country estimations suggest that worldwide information flows between

people and cultural exchange increase the employment probability of women, while economic integration as such does not appear to exert such gender-specific effects. Contrasting results are obtained for the second set of estimations in which I assume that gender effects differ by regions: now it is economic integration but not information exposure that appears to raise female labor market activity. Overall, both informational and economic globalization appear to increase labor market participation of women, with the transforming forces of informational globalization working more at the regional level and those of economic globalization more at the national level.

The paper is organized as follows: The next section derives from relevant literature testable hypotheses on economic and informational globalization and female employment. Section 3 describes the data while section 4 introduces the empirical model. Section 5 presents the basic results, while section 6 pays particular attention to spatial differences. Section 7 concludes the paper.

2. Hypotheses

Empirical studies on the impact of trade and FDI on labor markets are manifold – most of them find a positive effect on general employment, particularly in cities (for a trade literature review see Fischer, 2012a; for more spatial approaches, see Pastore and Ferragina, 2008). Female participation in the labor market might be enhanced by foreign trade for several reasons: first, in the domestic goods markets trade might add a foreign demand to the already existing domestic demand so that more workers need to be employed, with female workers being drawn overproportionally, who had been largely occupied with household production before the country opened up (for empirical evidence, see Ozler 2000). Second, Becker (1957, 1971) predicts that international competition forces firms to produce at efficient costs, making them act less discriminatory toward employing women by choosing any worker suited best for a position. However, Busse and Spielmann (2006) provide empirical evidence that, when facing fierce international competition, domestic firms substitute expensive male workers with female laborers who are less costly (as a result of their discrimination). Finally, international trade theory conjectures that economic integration generates technological spill-overs across countries – progress in household production technology, however, reduces the opportunity (time) costs for female employment (e.g., Goldin, 2006).

However, not only economic integration, but also the worldwide flow of information on foreign cultures and values might play a decisive role for female labor market participation and employment; obtaining information about other countries through media and travel

implies exposure to other societies and values that challenge one's own beliefs and convictions (e.g. Huntington, 1996). Possibly, such exposure to alternative ways of living and philosophies aids women in finding new idols for identification, expanding their subjective set of economic opportunities, and helps them in overcoming the traditional role model. Based on these arguments, I can establish the following testable hypothesis:

Hypothesis 1:

Economic integration, but also informational globalization increases women's labor market participation and employment probabilities.

An important contribution of this paper lies not only in differentiating between the economic and other, societal dimensions of globalization, but also in taking into account within-country spatial heterogeneity. Previous studies on trade effects for labor markets combine aggregate measures of trade with aggregate measures of unemployment, neglecting regional effects (e.g. Felbermayer et al., 2011). Such studies, albeit being the current standard, assume implicitly that countries are homogeneous across subnational regions in their economic and social structures. Those regional differences in social norms, industrial structures and production technologies (both at home and in manufactures) play a role for female labor market participation which has been suggested by various authors (e.g. Goldin, 2006; Goto, 2006; Pastore and Tenaglia, 2013). For example, Munshi and Rosenzweig (2006) have shown that men and women in India react in their schooling choices completely differently to globalization, while Bettio et al. (2012) reveal that men and women in Europe show partly different reactions to the current economic crisis. Thus, I conjecture that the employment effects of globalization are, again, not only different between men and women, but also across regions – I also assume that such gender heterogeneity equally differs across regions. Hence, the second hypothesis could be formulated as:

Hypothesis 2:

The impact of globalization on female employment is different across sub-national regions.

3. Data

This study employs the World Values Survey (WVS, 2013), 1981-2008, an international survey that has collected in five waves individual-specific information on 340'000 persons; pooling these five waves of individual cross-sectional data into one micro sample yields a so-called 'micro pseudo panel' where an unbalanced panel structure emerges at the country level. This data set includes respondents' employment status, age, gender, household income, education, and marital status, the year of the interview, and the country of residence. Information on the sub-national region where the interview was conducted is available for about 80% of interviewees, and, on average, each country was divided in about 10 regions. Labor market participation ('active') is defined as being 'employed' or being 'unemployed', that is actively seeking a paid position; 'inactive' persons include then housewives and early retired. As 'employed' are defined persons with either a full-time position, a part-time position or who are freelancers; the comparison group is then not only the officially recorded unemployed, but also housewives and early retired persons – 'housewives' and 'early retired' are still marginally attached to the labor market and close to entering. The analysis is restricted to the group of persons who can be expected to be active in the labor market - that is the 18 to 60 year-old. Overall, I have excluded pupils at schools, students at universities, old-aged persons, and disabled persons, yielding a world sample of 264'000 persons. Altogether, the sample of suitable interviewees in OECD countries that are used in this analysis amount to about 110'000 persons in 30 countries; about 50% of the interviewees are female, and about 70% are employed (see also the summary statistics in Table 1). For about 18'800 observations in the OECD sample, no information on region of residence is available. There are about 630 coded regions in the data; I exclude regions with less than 15 observed persons to avoid multicollinearity; about 570 regions remain. The panel structure at the country (regional) level, in combination with the individual–specific information available in form of repeated cross-sections, allows me to build a micro pseudo panel.

To account for the degree of globalization, I employ two measures: the KOF index of economic globalization and the KOF index of informational globalization (see Dreher et al., 2008). Both indices range from 0 (complete isolation) to 100 (complete openness). The index of economic globalization measures a country's exposure to the global economy; this index is based on national statistical information mainly on volumes of exports, imports, and FDI. The index of informational globalization reflects a country's degree of exposure to the worldwide flow of information: it is based on national statistics of travel activity, flows of tourists, exposure to US culture, media consumption, and Internet diffusion (see also Appendix Table 1). Employed in their log-forms to account for a decreasing marginal impact as globalization rises, the correlation coefficient of economic with informational

globalization is 0.75 in the full sample and 0.76 in the regional sample. These moderate correlations allow the separate identification of the two dimensions of globalization. Both measures show sufficient variation across countries and time (see also Fischer and Somogyi, 2012). The KOF index of globalization is the most widely employed measure of globalization and has been used in more than 100 papers of the recent economic literature (e.g. Potrafke, 2013, 2014; Berggren and Nilsson 2014, Fischer, 2012b, 2012c).

Table 1 provides summary statistics of the variables and measures employed in the empirical analyses. In the pooled sample there are 110'253 persons, out of which 52.5% are female. Of the 106'648 persons whose occupational status is known, 72.8% are recorded as employed, 79.8% are reported active, while the difference of 6.9% represents the group of unemployed persons. In absolute numbers, most regression samples utilize about 77'700 employed, 7'400 unemployed, and 21'500 persons who are out of the active population for reasons described above. The measures of informational and economic globalization show similar characteristics in their distributions, but are correlated only with 0.75 (see also above).

Table 1: Descriptive statistics of main variables (106 648 observations)

Variable	Mean	Std. Dev.	Min.	Max.
Active	0.80	0.40	0	1
Employed	0.73	0.44	0	1
Unemployed	0.07	0.25	0	1
Economic globalization	69.14	13.48	28.45	97.51
Economic glob. (log)	4.22	0.21	3.35	4.58
Informational globalization	69.03	14.67	37.27	90.23
Info. glob. (log)	4.21	0.24	3.62	4.50
Female	0.52	0.50	0	1
Age	38.44	11.59	18	60
Year of survey	1994.59	7.58	1981	2008

4. Methodology

The empirical analysis estimates Logit regressions on the probability of being gainfully employed compared to not being employed, and the likelihood of participating in the labor market ('active') compared to being 'inactive' in the labor market, respectively, where being 'active' includes both employed and unemployed persons (see also section 3).

The focal variables are the two measures of economic and informational globalization; in order to account for their female labor participation effects, these two globalization measures have been interacted with the respondent's gender.

The baseline specification takes the following form:

$$y_{its} = \alpha + \beta\, globalization_{ts} + \gamma\, female_{its} + globalization_{ts} * female_{its}\,'\delta + X_{its}'\zeta + FE_t + FE_s + \varepsilon_{its}$$

Where y_{its} is a dichotomous indicator of labor market participation of individual *i* in year *t* in country *s*. Respondent *i*'s gender at year *t* in country *s* ($female_{its}$) and $globalization_{ts}$ in country *s* at year *t* are both estimated as direct effects determining individual *i*'s labor market participation. In addition, the coefficient on their interaction term ($globalization_{ts}$ * $female_{its}$) is estimated - it is this interaction term I am particularly interested in.

FE_t , FE_s represent sets of country- and time-specific fixed effects that control for unobserved shared national characteristics such as culture and history, but also global financial market shocks. In the estimations, wave fixed effects account for these unobservable time fixed effects. In the case of stable OECD countries, country fixed effects also account for population size and political institutions. X_{its} includes (non-linear) age as individual-specific control, and ε_{its} is an error term clustered within country-years - cluster standard errors are robust to arbitrary heteroskedasticity and arbitrary intra-group correlation. Logit estimations yield coefficient vectors β and δ that represent the direction of these globalization effects.

Further model extensions include adding a set of individual-specific predictors of employment to X_{its} in order to include household income, educational attainment, and marital status, which could all be impacted by globalization; interacting country fixed effects with time fixed effects (FE_t * FE_s) allows to control for unobservable within-country changes of either institutions or the macroeconomic state.

Without instrumenting globalization or exploiting a quasi-natural experiment setting, causality is derived from the inclusion of country-specific and time-specific fixed effects (and their interactions) only. On the other hand, the idea of a reversed causality appears rather unrealistic: in that case, increased domestic (female) labor market participation should have triggered the economic need of, and political demand for, more international trade.

5. Findings

Table 2 presents the results for the impacts of economic globalization and informational globalization on the probability for women to be employed or to be actively participating in the labor market, as compared to men - this gender-specific heterogeneity of globalization effects is reflected by the two interaction terms. Columns 1 and 2 present the estimates of the baseline model - column 1 for employment, column 2 for labor market participation. Columns 3 and 4 repeat this analysis but add marital status, household income, and educational attainment as socio-demographic controls to the baseline model, considerably improving the model fit as measured by the Pseudo R2s. Unobserved changes in institutions or economic development are accounted for by interacting country fixed-effects with time fixed-effects in columns 5 and 6. (Results for the control variables are reported in Appendix Table 2.) The estimated coefficients of the two interaction terms ('economic globalization * female' and 'informational glob. * female') appear robust to these alterations in model specification.

Table 2 reveals that globalization effects differ across gender – but only for informational globalization, as its significant interaction term estimate with gender indicates: as a country becomes more exposed to worldwide flows of information and cultural exchange, the probability of being active in the labor market and working in gainful employment increases for women over men, all other things being equal. This finding is consistent with my hypothesis of changes in social norms or in individual's perceived occupational choice set which are triggered by inflowing information about other countries and cultures, putting the traditional values and perceptions into question.

In contrast, classical economic integration does not affect employment probability or labor market participation likelihood of women as compared to men – contradicting the Becker (1957)-hypothesis of a discrimination-alleviating effect of economic integration. The absence of a female employment increasing influence of economic globalization (international trade) in developed countries has already been reported by Wood (1991, 1994).

Table 2 also reveals some additional information: women appear, in general, less likely to be active or employed than men, either caused by the traditional role model or caused by periods of motherhood. Based on column 3 of Table 2, the estimated probability of employment for women at sample mean age of 38 years is 60.68%. (men: 85.8%) The picture for women changes, however, with her age: At the age of 30 to 40, a woman's predicted probability of being employed is 65%, while at the age of 50 to 59, she shows a lower estimated likelihood of 59% and 36%, respectively. In contrast, between 30 and 60

years of age men reveal consistently higher predicted probabilities of being employed than women: at ages 30 through 50 years likelihoods range between 85% and 89% and at the age of 59 the estimated probability is still 69%.

Table 2: Globalization and female employment in 30 OECD countries, 1981-2008

	(1)	(2)	(3)	(4)	(5)	(6)
	Employed	Active	Employed	Active	Employed	Active
Female	-10.858***	-13.257***	-11.565***	-14.229***	-11.847***	-14.459***
	[1.269]	[2.253]	[1.371]	[2.434]	[1.377]	[2.500]
Female * econ. glob. (log)	0.091	-0.219	-0.036	-0.320	0.056	-0.301
	[0.458]	[0.831]	[0.472]	[0.865]	[0.469]	[0.898]
Female * info. glob. (log)	2.102***	2.765***	2.396***	3.087***	2.369***	3.119***
	[0.342]	[0.568]	[0.369]	[0.590]	[0.376]	[0.613]
Econ. glob. (log)	-0.320	-0.313	0.049	0.003	-3.606***	-2.681***
	[0.492]	[0.783]	[0.603]	[0.814]	[0.427]	[0.841]
Info. glob. (log)	-2.312***	-3.131***	-1.980***	-3.017***	8.550***	12.846***
	[0.414]	[0.546]	[0.418]	[0.611]	[0.997]	[1.337]
Age	yes	yes	yes	yes	yes	yes
Household income, marital status, education	no	no	yes	yes	yes	yes
Country FE	yes	yes	yes	yes	yes	yes
Wave FE	yes	yes	yes	yes	yes	yes
Country FE * Wave FE	no	no	no	no	yes	yes
Obs.	102'947	102'947	102'609	102'609	102'609	101'875
Countries	30	30	30	30	30	30
Clusters	102	102	102	102	102	101
Pseudo R2	0.1696	0.2768	0.2218	0.3313	0.2300	0.3359

Notes: Logit estimations with standard errors clustered at the country-year level. Analysis is restricted to the age group of the 18 to 60 years old. 'Employed' refers to doing full-time employment, part-time employment or freelance work, with unemployed, housewives/housemen and early retired serving as comparison group. 'Active' includes both employed and unemployed. '**', '*' indicate statistical significance at the 1 percent and 5 percent levels, respectively. Complete results are reported in Appendix Table 2. Estimated with Stata 13.

Coefficients on interaction terms between gender and globalization indicate only directions of influence – these are more meaningfully interpreted as marginal effects of gender on employment probabilities as a country opens up to the world; Table 3 derives the gender-specific changes in predicted employment probabilities from the estimated model in column 3 of Table 2. (Qualitatively identical results based on column 1 of Table 2 are reported in Appendix Table 3). Let me first start with economic globalization, whose interaction term with gender showed no significant impact on employment (see Table 2). Starting with a minimum level of economic globalization (in log-form) of 2 points that I let increase until the maximum of 5 points, evaluated at their mean ages of 38 years, predicted employment probabilities of both men and women appear to stay constant - for men at roughly 85% and for women at about 60%. Thus I conclude: as economic globalization increases, the odds for being employed of women relative that of men remain unaffected.

The picture for informational globalization is different; evaluated at respondents' mean age of 38, predicted employment probabilities for women increase continuously as information flows across countries intensify; at the minimum of informational globalization (log) of 2 points female employment probability is 42.4%, while at its maximum of 5 points employment probability for women has increased by 50% to 66.9%. In contrast, at lower levels of informational globalization the employment likelihood for men stays largely unaffected (99%-89%), while at higher levels it falls down to 62%, even below the female level of 67%. In sum, predicted employment likelihoods for women rise relative to those for men as national exposure to cross-cultural contacts intensifies.

Table 3: Predicted employment probabilities for men and women

Economic glob. (log)	Men	Women	Info. glob. (log)	Men	Women
2	84.71%	60.14%	2	99.72%	42.38%
3	85.24%	60.38%	3	98.10%	50.75%
4	85.77%	60.63%	4	89.40%	59.05%
5	86.28%	60.87%	5	61.98%	66.87%

Notes: Measured at respondents' mean age of 38 years. Based on column (3) of Table 2.

Altogether, the marginal effects analysis of Table 3 suggests that informational globalization increases female labor market participation and employment probability compared to that of men. While predicted probabilities for women significantly rise, those for men tend to fall, possibly indicating a substitution of male labor for female one, in support of Busse and Spielmann (2006). In the next section I will analyze to what extent differences in gender across sub-national regions might drive these results.

6. Regional differentiation

In order to understand to what extent there are within-country spatial differences with respect to the above-described employment effects of globalization for women, Table 4 adds varying sets of interaction terms that account for different forms of within-country regional heterogeneity. Column 1 of Table 4 replicates column 1 of Table 2, accounting for unobserved heterogeneity at the regional level, now using region fixed effects in place of country fixed effects and their interaction terms. 'Region' is recorded in the World Values Survey as 'the region where the interview is conducted', resulting in more than 630 entities (see section 3). In most countries, these regions are politically defined, reflecting 'states' or 'departments'.

Possibly, these regions differ with respect to the structures of their economies: some regions might have a large resource extraction industry, others might export mainly agricultural goods, while, again, others might specialize in providing financial services. Therefore, column 2 tests the idea that general globalization effects for employment are heterogeneous across sub-national regions; specifically, column 2 tests for informational and economic globalization effects in regions by adding interaction terms between region fixed effects and the corresponding two indices of globalization. Obviously, taking account of spatially differential effects of globalization supports the previous findings of Table 2: informational globalization increases women's employment probabilities over men's, while the gender-specific impact of economic globalization remains negligible.

Column 3 goes one step further by assuming that the specific impact of globalization on female employment might equally depend on the region the affected woman lives in: Regions differ not only with respect to the structure of the economy (see above), but also with respect to culture and institutions. Pastore and Tenaglia (2013) have shown that personal religious beliefs determine labor market participation decisions of women, while Munshi and Rosenzweig (2006) suggest that women and men react to a globalizing economy in different ways. Consequently, people's values and economic structures in regions might play an important role in how globalization impacts women compared to

men.

Table 4: Globalization and female employment in 30 OECD countries, 1981-2008: accounting for regional differences

	(1)	(2)	(3)
	Employed	Employed	Employed
Female	-1.762***	-1.771***	-2.127***
	[0.247]	[0.246]	[0.551]
Female * econ. glob.	-0.0785	-0.0771	0.378*
	[0.0961]	[0.0960]	[0.206]
Female * info. glob.	0.434***	0.434***	0.0747
	[0.0896]	[0.0897]	[0.297]
Econ. glob. (log)	-0.210**	-0.714	4.751*
	[0.0955]	[0.637]	[2.817]
Info. glob. (log)	1.671***	-32.13***	-17.61**
	[0.220]	[1.312]	[7.137]
Way of accounting for regional differences	wave FE * region FE	as in model (1) plus globalization * region FE	as in model (2) plus female * region FE
Age	yes	yes	yes
Household income, marital status, education	no	no	no
Country FE	no	no	no
Region FE	yes	yes	yes
Wave FE	yes	yes	yes
Region FE * wave FE	yes	yes	yes
country FE * wave FE	no	no	no
Obs.	84'683	84'683	84'683
Countries	30	30	30
Country-years	88	88	88
Adjusted R2	0.193	0.193	0.208

Notes: OLS estimations with standard errors clustered at the country-year level. T-statistics in parentheses. Prior to running the regressions, regions with less than 15 observations have been excluded. Analysis is restricted to the age group of the 18 to 60 years old. 'Employed' refers to doing full-time employment, part-time employment or freelance work, with unemployed, housewives/housemen and early retired serving as comparison group. '**', '*' indicates significance at the 1 percent and 5 percent levels, respectively. Estimated with Stata 13.

To account for these regional differences, column 3 adds to the previous specifications the interaction terms of 'female' with 'region fixed effects'. Now I observe a switch in the results: at the (cross-)country level, the female employment effect appears now entirely driven by economic globalization (significance at the 10 percent level), while informational globalization plays no decisive role. Obviously, the impact of informational globalization on female employment takes place at the regional level and is taken account of by addressing regional heterogeneity of women's reaction (to globalization). However, because of possible quasi-multicollinearity in the model specification between region fixed effects and their interactions with gender and globalization, this result needs to be taken *cum grano salis*, calling for more in-depth research on regional heterogeneity of globalization effects using more refined data.

Table 5: Robustness test

	Sensitivity to single country	Sensitivity to single wave
Female		
Min	-10.94***	-13.65***
	(1.254)	(1.502)
Max	-12.85***	-10.82***
	(1.269)	(1.418)
Female * econ. glob. (log)		
Min	-0.190	-0.614
	(0.577)	(0.502)
Max	0.983	0.297
	(0.495)	(0.542)
Female * info. glob. (log)		
Min	2.187***	1.984***
	(0.436)	(0.461)
Max	2.651***	2.815***
	(0.344)	(0.380)

Note: Model of column 3 in Table 2 estimated with Logit. Dependent variable: 'being employed'.

An issue of concern is that certain countries might drive our empirical findings; for example, some of the more recent OECD member states experienced a decisive increase in their exposure to global markets, resulting in a sharp increase in the respective globalization indices I employ. A related concern is that certain years or time periods might be

particularly influential. The presence of influential countries or time periods would cast doubt on the generality of the estimates presented before. Table 5 tests the sensitivity of the main findings of column 3 of Table 2 with respect to, first, single countries and, second, waves of the World Values Survey; the five waves cover roughly the periods 1980-1985, 1990, 1995-1997, 2000, 2005-2008. Overall, the main findings appear robust.

7. Conclusion

Most empirical studies on the employment effects of economic integration suffer from two shortcomings: first, most studies neglect that world-wide integration goes beyond pure exchange of goods, services and money: growing cross-country linkages also transport information about foreign people, societies, and cultures. Second, most studies are for single countries only, neglecting aspects of cross-country comparisons. The present empirical analysis of the impact of economic and informational globalization on female employment in 30 OECD countries tries to remedy both shortcomings.

Using occupational information on 110'000 persons in 30 OECD countries between 1981 and 2008 obtained from the World Values Survey, I construct a micro pseudo panel that I match with measures of informational and economic globalization at the country level – individual's employment probabilities are estimated with Logit. Causal inference is made through the inclusion of two-way fixed effects and their interactions at the country or regional level.

My results show that there are two channels of globalization at work that exert differential effects; in addition, the modeling of sub-national regional structure appears to influence how the impact of economic and informational globalization on female employment becomes evident. The traditional empirical model that exploits cross-country variation only indicates strongly that worldwide information flows bear the main effect for the higher employment probability of women as compared to men; in contrast, international trade does not appear to exert such gender-specific employment effect. This finding contradicts the traditional Becker-hypothesis of a discrimination-alleviation that is triggered by competitive pressure through globalized markets only. However, when assuming that gender-specific responses differ by subnational region, the results for the national level reveal a tendency that solely economic globalization raises female employment, while informational globalization exerts no such effect. It can be concluded that the impact of informational globalization for women works rather at the regional level. These heterogeneous findings when varying between regional and national models of globalization effects do not have to be regarded as contradicting each other – on the

opposite, they might complement each other.

One possible interpretation of my findings is that both informational and economic dimensions of globalization increase female employment, one working at the regional level, the other one at the national level: Economic globalization might relate to increased demand for female laborers through international trade, manifesting at the national level. In contrast, the transforming forces of informational globalization through the inflow of foreign values and cultures possibly relate to changes in social norm and/or perceived economic opportunities – such changes, however, are likely to occur with some differences across subnational regions. I leave this particular question of differentiating between social norm change and occupational choice set change to future research. Overall, this paper delivers important insights that bear considerable implications for social and economic policies aiming at societal changes: such policies might be more effective when taking account for spatial differences, when being decided on and implemented at the regional level.

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APPENDIX

Appendix Table 1: Composition of economic and informational globalization indices

Indices and Variables		**Weights**
Economic Globalization		**[36%]**
i) Actual Flows		(50%)
	Trade (percent of GDP)	(21%)
	Foreign Direct Investment, stocks (percent of GDP)	(28%)
	Portfolio Investment (percent of GDP)	(24%)
	Income Payments to Foreign Nationals (percent of GDP)	(27%)
ii) Restrictions		(50%)
	Hidden Import Barriers	(24%)
	Mean Tariff Rate	(27%)
	Taxes on International Trade (percent of current revenue)	(26%)
	Capital Account Restrictions	(23%)
Social [Informational] Globalization		**[37%]**
i) Data on Personal Contact		(34%)
	Telephone Traffic	(25%)
	Transfers (percent of GDP)	(4%)
	International Tourism	(26%)
	Foreign Population (percent of total population)	(21%)
	International letters (per capita)	(25%)
ii) Data on Information Flows		(35%)
	Internet Users (per 1000 people)	(33%)
	Television (per 1000 people)	(36%)
	Trade in Newspapers (percent of GDP)	(32%)
iii) Data on Cultural Proximity		(31%)
	Number of McDonald's Restaurants (per capita)	(44%)
	Number of Ikea (per capita)	(45%)
	Trade in books (percent of GDP)	(11%)

Notes: Source: KOF Globalization index 2012, http://globalization.kof.ethz.ch/

Appendix Table 2: Complete estimation results

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	employed	active	employed	active	employed	active
Female	-10.858***	-13.257***	-11.565***	-14.229***	-11.847***	-14.459***
	[1.2695]	[2.2530]	[1.3707]	[2.4341]	[1.3775]	[2.5005]
Female * econ. glob.(log)	0.091	-0.219	-0.036	-0.320	0.056	-0.301
	[0.4579]	[0.8311]	[0.4722]	[0.8649]	[0.4691]	[0.8984]
Female * info. glob.(log)	2.102***	2.765***	2.396***	3.087***	2.369***	3.119***
	[0.3422]	[0.5685]	[0.3692]	[0.5900]	[0.3757]	[0.6126]
Econ. Glob. (log)	-0.320	-0.313	0.049	0.003	-3.606***	-2.681***
	[0.4925]	[0.7830]	[0.6030]	[0.8140]	[0.4269]	[0.8406]
Info. Glob. (log)	-2.312***	-3.131***	-1.980***	-3.017***	8.550***	12.846***
	[0.4142]	[0.5457]	[0.4184]	[0.6108]	[0.9971]	[1.3367]
Age	-0.245***	-0.827***	-0.174***	-0.512***	-0.179***	-0.526***
	[0.0562]	[0.0794]	[0.0556]	[0.0804]	[0.0552]	[0.0802]
Age^2/100	0.813***	2.176***	0.659***	1.494***	0.673***	1.529***
	[0.1478]	[0.2071]	[0.1468]	[0.2094]	[0.1458]	[0.2090]
Age^3/10'000	-0.870***	-1.932***	-0.749***	-1.440***	-0.761***	-1.469***
	[0.1235]	[0.1713]	[0.1230]	[0.1729]	[0.1224]	[0.1727]
Elementary			-0.358***	-0.349***	-0.450***	-0.429***
			[0.0526]	[0.0628]	[0.0440]	[0.0582]
Secondary	Reference	category				
Tertiary			0.572***	0.573***	0.573***	0.577***
			[0.0406]	[0.0636]	[0.0425]	[0.0640]
Married/cohabiting	Reference	category				
Divorced			0.573***	1.136***	0.591***	1.157***
			[0.0658]	[0.0781]	[0.0650]	[0.0761]
Separated			0.449***	1.031***	0.471***	1.058***
			[0.0808]	[0.1167]	[0.0787]	[0.1127]
Widowed			0.299***	0.519***	0.308***	0.534***
			[0.0875]	[0.0956]	[0.0880]	[0.0951]
Single			0.614***	1.820***	0.611***	1.821***
			[0.0569]	[0.0871]	[0.0560]	[0.0860]
Income cat. 1	Reference	category				
Income cat. 2			0.512***	0.133	0.500***	0.121
			[0.0726]	[0.0890]	[0.0721]	[0.0865]
Income cat. 3			0.865***	0.418***	0.869***	0.399***

			[0.0844]	[0.0749]	[0.0875]	[0.0779]
Income cat. 4			1.194***	0.625***	1.234***	0.630***
			[0.0968]	[0.0794]	[0.0945]	[0.0781]
Income cat. 5			1.367***	0.810***	1.396***	0.826***
			[0.0995]	[0.0717]	[0.1003]	[0.0722]
Income cat. 6			1.631***	1.020***	1.657***	1.041***
			[0.1133]	[0.0923]	[0.1152]	[0.0919]
Income cat. 7			1.778***	1.135***	1.815***	1.172***
			[0.1162]	[0.0935]	[0.1174]	[0.0929]
Income cat. 8			2.001***	1.324***	2.054***	1.376***
			[0.1243]	[0.1040]	[0.1253]	[0.1015]
Income cat. 9			2.092***	1.441***	2.157***	1.509***
			[0.1259]	[0.1109]	[0.1264]	[0.1061]
Income cat. 10			2.204***	1.520***	2.253***	1.588***
			[0.1416]	[0.1287]	[0.1386]	[0.1238]
No income reported			1.234***	0.767***	1.271***	0.775***
			[0.1148]	[0.0945]	[0.1146]	[0.0899]
Country FE	yes	yes	yes	yes	yes	yes
Time FE	yes	yes	yes	yes	yes	yes
Country FE * Time FE	no	no	no	no	yes	yes
Observations	102'947	102'947	102'609	102'609	102'609	101'875
Clusters (country-years)	102	102	102	102	102	101
Countries	30	30	30	30	30	30
Pseudo R-squared	0.1696	0.2768	0.2218	0.3313	0.2300	0.3359

Notes: Logit estimations with standard errors clustered at the country-year level. Analysis is restricted to the age group of the 18 to 60 years old. 'Employed' refers to doing full-time employment, part-time employment or freelance work, with unemployed, housewives/housemen and early retired serving as comparison group. 'Active' includes both employed and unemployed. '**', '*' indicate statistical significance at the 1 percent and 5 percent levels, respectively. Estimated with Stata 13.

Appendix Table 3: Predicted employment probabilities for men and women

Economic glob. (log)	Men	Women	Info. glob. (log)	Men	Women
2	92.64%	69.48%	2	99.88%	68.68%
3	90.29%	65.15%	3	98.84%	64.67%
4	87.33%	60.56%	4	90.38%	60.45%
5	83.68%	55.78%	5	55.31%	56.86%

Notes: Measured at respondents' mean age of 38 years. Based on column (1) of Table 2.

Qualitatively, a marginal effects analysis for the baseline model in column 1 of Table 2 in the main text yields identical results as the marginal effects reported in Table 3 of the main text. For reasons of completion, Appendix Table 3 is briefly discussed here: In the case of economic globalization we observe that predicted employment probabilities of both men and women years fall; however, the difference in employment probability across gender remains roughly constant. Thus we can conclude: as economic globalization increases, relative employment probability for women is not changed.

In the case of informational globalization, however, the decline in employment likelihood is asymmetric across gender: this decline occurs more rapidly for men than for women. At the minimum of informational globalization employment probabilities are 99.8% for men and 68.6% for women, while at its maximum employment probabilities have almost equalized (55.3% versus 56.8%). In sum, when informational globalization gains momentum predicted employment likelihoods fall much faster for men than for women; put differently, relative to men, women gain in employment probability as national exposure to cross-cultural contacts intensifies.