Globalization, Gender, and the Family*

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The recent halt of women's gains in labor force participation ended a decades-long process during which women would postpone marriage and having children until later and later in life. Not any longer. The age at which a Danish woman has her first child has virtually not changed since the early 2000s, for example. This paper examines the role of globalization in the family-market work decision. Using employer-employee matched data from Denmark we find that rising import competition from China - which reduces labor market opportunities - has a statistically and economically significant impact on the family-market work balance. Exposure to import competition reduces divorce rates, increases marriage rates, as well as leads to a greater number of children. Notwithstanding the fact that marriage and childbirth are decisions made by couples, we find these pro-family, pro-child effects to be gender biased in the sense that they mostly reflect changes in women's labor market and family work. Observable differences between jobs held by men and women do not fully account for this; our results are consistent with gender identity playing a role.

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1 Introduction

Gender roles are written anew as economies undergo deep structural change, altering the balance between an individual's family and labor market activities. Time use data reveals a decline of 12 hours per week in women's non-market work over the last five decades in some high-income countries, compared to an increase of 6 hours per week of market work.[1] Recently, this shift of women from family to market activities has come to a standstill in many high-income countries; Figure 1 shows that the age of women at first birth in the US and Denmark has remained virtually unchanged since around 2003.[2]

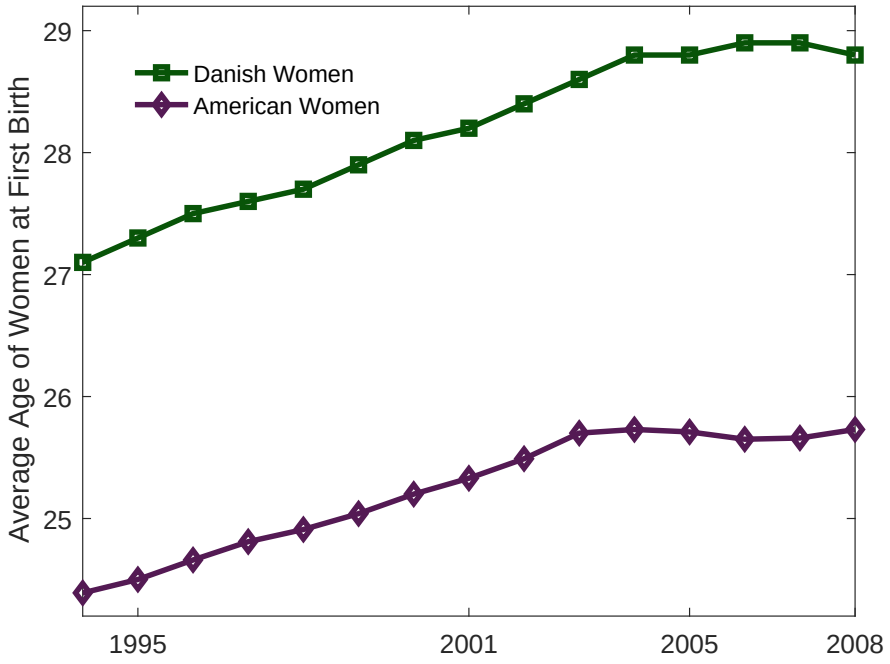

Figure 1: Women have stopped postponing motherhood

Globalization has been noted as a factor affecting the role of gender for family-market work deci-

[1] Men's market work declined by 12 while non-market work rose by 4 hours (US data, Bertrand 2010).

[2] In the U.S. and Canada, women's labor force participation has plateaued in the 1990s. A slowdown in gender wage gap at the same time period is documented by Blau and Kahn (2006).

sions (World Bank 2012)-after all, globalization affects the size of the market. And yet, we know rather little on the effect of globalization on family (versus market work) decisions, in particular in rich countries such as Denmark where women's time spent in the market does not converge to men's anymore (UN 2016).[3]

Since Becker's (1973, 1974) seminal work researchers have studied family decisions to better understand labor supply, inequality, and fertility decisions. In this paper we examine the impact of rising import competition on marriage, divorce, and fertility decisions of men and women using Danish register data for 1999 to 2009.[4] There is a pressing need to better understand today's family-versus-market decisions not least because the trend towards greater equality in men and women's labor market participation has stopped in many countries (Fortin 2011), and it is natural to hypothesize that some of the same factors explaining the change in the age-at-first-birth trends shown in Figure 1 may play a role.

The 2000s were a period of rising import competition in Denmark, drastically lowering the labor market opportunities of workers employed in certain sectors. Exploiting the massive increase of Chinese imports during the years 1999 to 2009 as a measure of import competition, we employ an instrumental-variables approach to show that overall, Danish workers were less likely to divorce, and more likely to marry if they were exposed to rising import competition from China. Import competition has increased the number of marital unions in Denmark. Furthermore, workers exposed to import competition who were in a relationship had more children than *ex-ante* virtually identical workers who were not exposed to import competition.

These results, obtained from a broad sample of workers across occupations and industries that vary widely in their trade exposure, are reinforced by quasi-experimental findings for Danish textile workers affected by the lifting of textile quotas following China's entry into the World Trade

[3]Men's market work declined by 12 while non-market work rose by 4 hours (US data, Bertrand 2010).

[4]Marriage and divorce are family decisions because they establish and dissolve, respectively, the household. Raising children is one of the most important family activities (Becker 1973, 1974).

Organization in 2001. The impact of globalization on the family-market work decision is gender-biased in the sense that the imports-induced response of women in favor of marriage, against divorce, and in favor of additional children tends to be larger than that of men. For example, single female workers subject to import competition from China via her quota producing firms have 14 % higher likelihood of getting married over the nine post shock years than observationally similar other single female workers employed within the same initial industry. Single male workers, on the other hand, have significantly lower likelihood of getting married due to import competition.[5] Worker heterogeneity is not a primary explanation for these findings because they are confirmed in longitudinal analysis focusing on within-worker variation.

Employing matched employee-employer data that yields key workplace- and individual-level characteristics, we find that some but not all of this gender effect can be accounted for in terms of observables. Not surprisingly, crucially affecting family decisions are the individuals' labor market outcomes. While exposure to import competition tends to reduce employment and labor earnings for both genders, women's labor market outcomes take a bigger hit than men's. Women are also relatively more likely to suffer from periods of unemployment due to import competition. This finding does not simply reflect that women tend to be 'in the wrong spot' when hit by import competition. We find, in particular, that the earnings reduction from import competition for female and male textile workers on impact is quite similar once differences in age, education, experience, and occupation are accounted for.

Instead, the evidence shows that men and women make different family decisions in response to rising import competition, and that helps to explain the different labor market outcomes. Consistent with this, we find that imports-affected women tend to exit from the labor market while affected men do not. Import competition has also heterogeneous effects on labor market outcomes by skill level–considerably more negative for low-skill, low-income workers, which confirms recent results

[5] At the same time, in the quasi-experimental setup we see more evidence that import competition decreases divorce rates; see below.

on heterogeneous effects of the 2008/9 Great Recession. College-educated women, in contrast, are found to experience a smaller reduction, if any, in their market work. Taken together, observable characteristics explain part of the gender gap in family-market work decisions, though they do not eliminate the gap. Behavioral differences between men and women, perhaps driven by gender identity, are likely playing a role as well.

Certain innovations can reduce gender differences, either by minimizing the biological differences between women and men, such as oral contraceptives (the pill; Goldin and Katz 2002) and infant formula (Albanesi and Olivetti 2016), or because given some initial division of labor they benefit one sex more than another (new home production technologies, see Bertrand 2010). The present analysis is in line with the view that globalization might affect the gender balance by altering gender-wage gap (Black and Brainerd 2004, Boler, Javorcik, and Ulltveit-Moe 2015, World Bank 2012). We complement this literature with a focus on a substitution between family and labor market outcomes and propose globalization in form of rising import competition as a new explanation for the halt in the convergence labor market outcomes by gender.[6]

By studying the effects of a plausibly exogenous rise in import competition we are part of a small non-experimental literature on gender differences.[7] Acemoglu, Autor, and Lyle (2004) and Fernandez, Fogli, and Olivetti (2004) employ variation in the male WWII draft across US states, and perhaps most closely related to us, Huttunen and Kellokumpu (forthcoming) and Del Bono, Weber, and Winter-Ebmer (2012) examine the effect of plant closings on certain family outcomes. In comparison, the employer-employee matched Danish register data affords us a better opportunity to assess the role of individual- and firm-level characteristics for gender differences in labor market versus family outcomes. Most important is that we account for the labor market- and family status of each individual's cohabitant (spouse or partner). Our cohort analysis also eliminates the impact from changes in the composition of the sample, such as migration.

[6]Fortin (2009) argues that the HIV/AIDS crisis might have been a factor in this.
[7]Bertrand (2010) discusses the experimental literature, see section 2.5.

We contribute to a large literature examining the impact of import competition on labor market outcomes in high-income countries, especially from China (Autor, Dorn, and Hanson 2013, Bloom, Draca, and van Reenen 2016, Pierce and Schott 2016a, Utar 2014; Utar 2015; Autor, Dorn, and Hanson 2016a surveys). Recent work has related Chinese import competition to health, mortality, and gender ratios (Pierce and Schott 2016b, Autor, Dorn, and Hanson 2016b). Generally, women in US regions subject to rising import competition are less likely married and have fewer births than non-exposed women, although Autor, Dorn, and Hanson (2016b) find also evidence for higher marriage and birth rates when defining their trade shock in a gender-specific way, which brings their work closer to our analysis using micro data. More generally, we show that the impact of globalization on family outcomes is not only driven by changes in labor earnings and the marriageability of men but also, and especially by the family-labor market work decisions of women.

The remainder of the paper proceeds as follows. The following section 2 introduces our empirical approach, centering on the sources of identification in our two complementary samples, the (1) Danish textile workers and (2) All Danish workers. The section also introduces the data, with additional information given in Utar (2016), Keller and Utar (2016). Section 3 examines the role of rising import competition on Danish marital unions, first with a focus on divorce behavior followed by an analysis of marriage rates. Fertility responses to import competition are presented in section 4. Section 5 brings together the individuals' labor market decisions in response to import competition with their family decisions, extending the analysis for divorce in section 3. A number of concluding remarks are offered in section 6.

2 Empirical Approach and Data

We employ the exogenous shock of the dismantling of quotas on Chinese textile imports in conjunction with China's WTO accession and investigate the causal effect of trade on family outcomes

in a quasi-experimental setting. Our approach follows Utar (2014, 2016) to which we refer the reader for more details. Since the relatively small size of the sample combined with the fact that we focus on rare events, changes in family structure, may prevent to identify significant relationships between import competition and family outcomes, we employ a complementary approach. Following the so-called differential exposure approach (Goldberg and Pavcnik 2007), we construct an economy-wide labor demand shock using import penetration from China across six-digit product categories (NACE) and generalize our results in an economy-wide sample. At the industry-, occupation-, or regional level the differential exposure approach has been widely applied in recent work.[8]

2.1 Quasi-natural Experiment

Our definition of exposure to import competition exploits variation at the worker level due to a specific policy change, the removal of Multi-fibre Arrangement (MFA) quotas for China. The entry of China in December 2001 into the WTO meant the removal of binding quantitative restrictions on China's exports to countries of the European Union (EU); it triggered a surge in Chinese imports in Denmark (see Figure 2), and prices declined (Utar 2014). This increase in import competition is plausibly exogenous because Denmark did not play a major part in negotiating the quotas or their removal, which was managed at the EU level and finalized in the year 1995. Moreover, the sheer magnitude of the increase in imports after the quota removal was unexpected, and in part driven by the allocative efficiency gains in China (Khandelwal, Wei, and Schott 2013).

We implement this approach by identifying all firms that in 1999 produce narrowly defined goods (8-digit CN) in Denmark that are subject to the MFA quota removal for China. We then employ the employer-employee link provided by Statistics Denmark to identify workers that were employed in in these firms. This is our treated or exposed group of workers. Within broad product categories the

[8] See Autor, Dorn, and Hanson (2013), and Dix-Carneiro and Kovak (2015) for example.

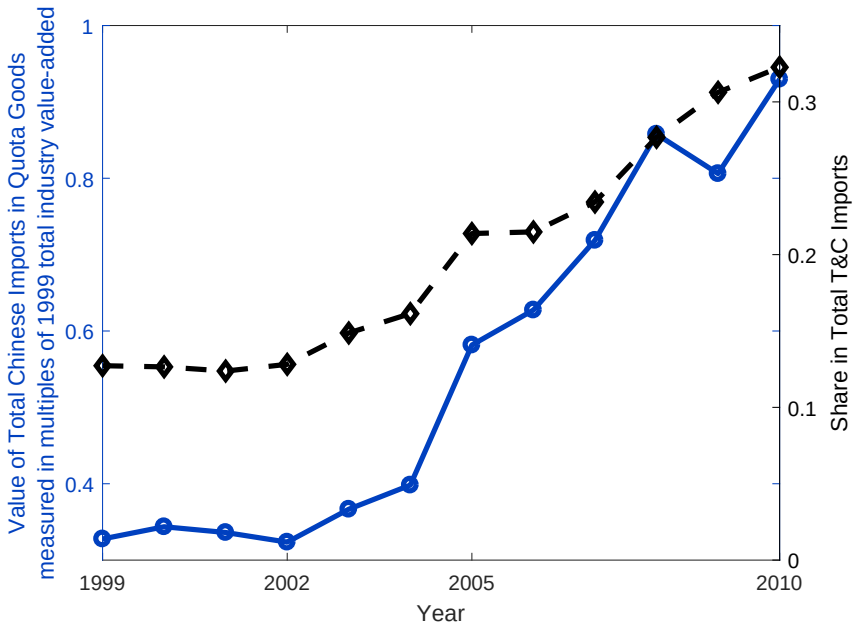

Figure 2: Evolution of Chinese Imports in Response to Quota Removal

quotas did not protect all goods. Workers who were employed in other other textile and clothing manufacturers consist of our control group of workers. In the year 1999, about half of the textile and clothing workers are exposed to rising import competition. Table 1 provides summary statistics across the exposed and non-exposed group of workers in the initial year 1999. Workers had similar characteristics. This setting affords us a powerful way to get a causal evidence in a quasi-natural experiment.

Table 1: Worker Characteristics in the textile sample 1999

	Treated: Employed in T&C firms with domestic production of MFA goods as of 1999		Control: Employed in other T&C firms as of 1999			
	Mean	SD	Mean	SD	Mean Difference	t-test
Number of obs	4,917		5,594			
Age	38.88	10.19	38.70	10.33	0.18	0.89
Immigrant	0.05	0.22	0.07	0.26	-0.02*	-4.36
Experience†	14.71	5.88	14.16	5.79	0.56*	4.85
Past Unemployment Spells†	1.13	1.62	1.40	1.98	-0.27*	-7.53
Negative Trend at Workplace	0.43	0.50	0.45	0.50	-0.02	-1.93
with College Education	0.13	0.33	0.10	0.30	0.03*	4.07
with Vocational Education	0.35	0.48	0.35	0.48	0.00	0.47
Machine Operator (ISCO 82)	0.35	0.48	0.35	0.48	-0.00	-0.17
Annual (Primary) Wage	214,968	132,948	215,047	130,459	-79.32	0.03
Total Annual Wages	228,866	134,376	228,930	128,441	-64.07	0.02
1996-1999 Average Annual Wage	203,870	122,648	204,146	122,658	-276.18	0.12

Notes: †: expressed in years. Values are expressed in year 2000 Danish Kroner. * indicates significance at the 5 % level. Negative Trend at Workplace is an indicator variable that takes one if the total employment of worker *i*'s workplace declined at least 5 % compared to year 1998.

2.2 Instrumental Variable Approach

Turning to the second approach, the change in import penetration from China is defined as:

$$\Delta IP^{CH}_{j(i)} = \frac{M^{CH}_{j(i),2009} - M^{CH}_{j(i),1999}}{C_{j(i),1999}}. \tag{1}$$

where the numerator gives the change in Danish imports from China in six-digit product line j in which worker i is employed in year 1999, and the denominator is Danish consumption in that product line, also in year 1999.

We address potential endogeneity by instrumenting the numerator of with changes in imports from China in eight other high-income countries. A key requirement for this strategy is that Chinese export success is explained to a large extent by China's increased supply capacity, which affects

high-income countries' imports from China similarly, and that Chinese import growth is not driven by product-level demand shocks that are common to all advanced countries.

The relatively small size of Denmark helps because, for example, it lowers the likelihood that China's exports target a particular Danish product. To address possible sorting in anticipation of import changes, our instrumental-variables approach utilizes consumption levels from the year 1996. We employ two additional instrumental variables at the six-digit level: geography-based transportation costs and a measure of the importance of retail channels. These variables are the log average of the distance from Denmark's import sources using the 1996 imports as weights, and the share of retail firms that import directly over the total number of importing firms in 1996.

Data on international trade are from the UN Comtrade Database that provides bilateral imports for six-digit CN products. To concord these data to six-digit NACE industries, we construct our own mapping based on Danish Domestic Production Database (VARES) that reports manufacturing firms' ten-digit products and a standard concordance provided by EU-RAMON.

We exploit the employer-employee link to capture technology differences in more than six hundred product/service categories proxied by the wage share of college educated workers in the total wage bill. We also include two-digit industry fixed effects to avoid capturing differences in growth of Chinese imports across industries due to broad technological differences. As a result, we are not capturing Chinese import growth due to the potentially disproportional effect of a decline in the costs of offshoring or automatization across broader industries.

2.3 Data

The main database used in this study is the Integrated Database for Labor Market Research of Statistics Denmark, which contains administrative records on individuals and firms in Denmark. We have annual information on all persons of age 15 to 70 residing in Denmark with a social

security number, information on all establishments with at least one employee in the last week of November of each year, as well as information on all jobs that are active in that same week. Marriage and divorce information for all residents come from the Central Population Register. We also derive child birth information from the Fertility Database that provides parental information on every child born. We complemented these data files with international transactions of firms, UHDI, information on domestic production and import data from UN Comtrade to assess exposure to import competition.

The worker information includes their annual salary, hourly wage, industry code of primary employment, education level, demographic characteristics (age, gender and immigration status), as well as occupation of primary employment. We have around 2 million workers in the sample across all Danish industries. These are men and women workers with positive wage and who are at most 55 years old as of our initial sample period of 1999. As we focus on different aspects of family life we consider smaller samples for obvious reasons. For example, for analysis of divorce we only consider married men and women. When we focus on marriage we consider only single workers as of 1999. When we focus on fertility we consider workers who are in a fertile age throughout the sample period. We take the maximum age for women as 36, and maximum age of men as 45 (as of 1999) for biological reasons.

We now turn to the regression results.

3 Import Competition and Marital Unions

3.1 Does import competition affect divorce rates?

It is natural to begin the analysis of discrete, relatively rare divorce outcomes with a probit regression. To measure differential family outcomes among workers under direct threat of increased com-

petition through the quota removals in comparison to observationally similar other textile workers we use a simple difference-in-difference (DID) analysis as follows:

$$X_{it} = \alpha_0 + \alpha_1 CompExp_i * PostWTO_t + W_i + \tau_t + \varepsilon_{it} \tag{2}$$

where $PostWTO_t = 1$ when year $\geqslant 2002$ and 0 otherwise. X_{it} is worker i's outcome in year t. $CompExp_i$ is the worker-level measure of exposure to competition. To limit any anticipation effects, the year 1999 is used to determine workers' subsequent exposure to the quota removal. The treatment variable, $CompExp_i$, takes the value of one if in 1999 worker i is employed in a firm that domestically manufactures a product that with China's entry into the WTO is subject to the abolishment of the MFA quotas for China, and zero otherwise. The aggregate trends in the industry and in the labor market are controlled for by using year fixed effects, τ_t. It is possible that workers employed by the exposed firms are systematically different than the rest of the textile & clothing (T&C) workers and these differences may be correlated with divorce or marriage hazard. W_i is a vector of demographic, family, employer and spouse characteristics as of the initial year, 1999.

The panel structure of the data allows us also to control for unobservable worker characteristics. Because it is not possible to do so with probit estimation due to a well-known incidental parameter problem, we employ a linear probability model (LPM) and estimate the following difference-in-difference specification with worker fixed effects using OLS:[9]

$$X_{it} = \alpha_0 + \alpha_1 CompExp_i * PostWTO_t + \delta_i + \tau_t + \varepsilon_{it} \tag{3}$$

In this regression, all time-invariant differences across workers and across their 1999 firms are controlled for by worker fixed effects, δ_i. It is solely the within-worker changes that identify

[9] See Angrist and Krueger (2009) for an advocation of the LPM.

the effect of exposure to import competition in equation 3. In addition to yearly regression, we also form two periods, pre- and post-treatment, in order to address potential issues discussed in Bertrand, Duflo, and Mullainathan (2004).[10]

[10]Bertrand et al. (2004) note that in a DID setting with long time horizon standard errors may be underestimated, and recommend forming a two-period DID analysis; note that we also allow for correlation within a group of workers employed in the same firm and cluster standard errors for each worker's initial firm.

Table 2: Import Competition and Divorce–Quasi experiment

Specification:	OLS	OLS	Probit	Probit	Probit	Probit
Sample:	Women	Men	Women	Men	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A. Yearly Panel					
CompExp*PostWTO	-0.058***	-0.035*	-0.186***	-0.109**	-0.173***	-0.074
	(0.018)	(0.020)	(0.042)	(0.048)	(0.047)	(0.054)
Worker Fixed Effects	yes	yes	no	no	no	no
Year Fixed Effects	yes	yes	yes	yes	yes	yes
Worker and Family Characteristics	no	no	yes	yes	yes	yes
Employer Characteristics	no	no	yes	yes	yes	yes
Spouse Characteristics	no	no	no	no	yes	yes
N	48,963	35,482	48,318	35,150	42,769	27,305
	Panel B. Data Aggregated into two (pre- post- shock) periods					
CompExp*PostWTO	-0.407***	-0.273**	-0.284***	-0.170**	-0.264***	-0.117
	(0.106)	(0.120)	(0.066)	(0.072)	(0.072)	(0.080)
Worker Fixed Effects	yes	yes	no	no	no	no
Period Fixed Effects	yes	yes	yes	yes	yes	yes
Worker and Family Characteristics	no	no	yes	yes	yes	yes
Employer Characteristics	no	no	yes	yes	yes	yes
Spouse Characteristics	no	no	no	no	yes	yes
N	8,303	6,077	8,190	6,015	7,235	4,641

Dependent variable in all columns is an indicator variable that takes one when there is a divorce event at a given period. OLS coefficient estimates are multiplied by 10 for the ease presentation. Standard errors, clustered for initial employer, are in parentheses. ***/**/* means significance at the 1% / 5% / 10% level. The sample consists of textile workers who were married as of 1999. Worker characteristics include age, immigration status, the number of kids, an indicator whether an individual resides with a kid, education, all belong to the initial year, 1999. Employer characteristics include the size, average wage and separation rate of the workplace as of 1999. Spouse characteristics include spouse's education and exposure status.

Table 2 show divorce results based on annual data in Panel A (upper part) and based on two periods, pre- and post-shock, in Panel B (lower part). The first key finding is that exposure to import competition reduces the probability that the worker separates from his or her spouse. Three sets of

results are shown by gender, namely OLS results with worker fixed effects as well as probit results without and with controls for spousal characteristics (columns (3), (4) and (5), (6), respectively). In all specifications, we find based on the point estimate that in their divorce behavior women are more affected than men by import competition. The size of the negative divorce coefficient for men is usually about 60% of that for women, and in some cases there is no significantly negative divorce effect for men. Our pre vs. post-treatment specification results are qualitatively similar to those with annual data, though the precision of the coefficient estimate increases.

A lower divorce probability caused by exposure to import competition may be due to a number of factors, including the tendency of workers to stay in their marriage as an insurance mechanism. Or it would be that divorce becomes a relatively costly outcome in the face of economic difficulties so that couples delay their already existing marital problems. On the other hand labor demand shock may lead to increased stress thereby exacerbates marital problems. The extent to which of this and other factors matter will depend to some extent on the spouse they are married to. For example, if import competition leads to decline in divorce because men and women tend to delay divorce as it becomes more 'costly' to divorce in difficult times, then we should expect to see that import competition decreases divorce hazard for especially those marriages which are prone to experience problems. The next section examines these issues.

3.1.1 Mechanisms of the lower-divorce effect

In order to pin down the mechanisms of the import competition effect we form a triple difference equation:

$$\begin{aligned} X_{it} = \beta_0 + \beta_1 CompExp_i * PostWTO_t + \beta_2 PostWTO_t * Char_i + \\ \beta_3 CompExp_i * PostWTO_t * Char_i + \tau_t + \delta_i + \varepsilon_{it}, \end{aligned} \tag{4}$$

The coefficient of interest, β_3, measures the variation in the outcome variable, X_{it}, of worker i particular to exposed workers with a specific worker/partner/family characteristics as of the initial year 1999 (relative to exposed workers without such characteristic) in the period after the WTO accession of China.

The specifications shown in Table 8 examine the importance of four mechanisms ($Char_i$) related to the spouse for the competition-induced change in divorce behavior. They are (1) whether the spouse is exposed to import competition (so that both the worker and his or her spouse is exposed), (2) whether the worker holds a full-time position, (3) whether the spouse has higher income, and (4) how divorce behavior changes with the relative age of the spouses. Since import competition affects family outcomes, all of these own and spouse characteristics are time-unvarying, as of 1999 characteristics. We know from Table 8 that having a spouse with a full-time job is 'bad' for men's marriage but 'good' for women's marriage. Table 8 also shows that a situation where the spouse's income is higher de-stabilizes men's marriage but it is good for women's marriage. We conjecture that if 'delaying marital problems in the face of economic difficulties' is a significant factor leading to decline in divorce rates, then we should expect stronger decline in less stable marriages due to import competition.

We start with spouse's exposure to competition: we see from column 1 of Table 3 that women exposed to import competition divorce less (coefficient -0.060) than non-exposed women, except if their spouse is also exposed to import competition, in which case they actually tend to divorce more than non-exposed women (-0.060 + 0.106). Notice that we find among both men and women import competition leads to decline in hazard rates. However, when both are exposed, then this effect disappears for women, which is in line with the idea of marriage as an insurance mechanism. For men the analogous triple DID coefficient is also positive, that is the decline in divorce hazard less when both spouses are exposed, however is not precisely estimated (column 2). Now we move to investigate whether the divorce effect is stronger in more unstable marriages, for men these

Table 3: Import Competition and Survival of Marriages-Mechanism

Specification:	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS
Sample:	Women	Men	Women	Men	Women	Men	Women	Men
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CompExp*PostWTO	-0.060***	-0.044**	-0.086*	0.020	-0.064*	-0.014	-0.050***	-0.025
	(0.018)	(0.021)	(0.044)	(0.036)	(0.035)	(0.022)	(0.017)	(0.029)
CompExp*PostWTO*Spouse's Exposure	0.106***	0.102						
	(0.035)	(0.088)						
PostWTO*Spouse's Exposure	-0.084***	-0.040						
	(0.014)	(0.083)						
CompExp*PostWTO*Spouse is employed full-time			0.034	-0.087*				
			(0.046)	(0.045)				
PostWTO*Spouse is employed full-time			0.018	0.036				
			(0.027)	(0.027)				
CompExp*PostWTO*Spouse has higher income					0.007	-0.122**		
					(0.037)	(0.061)		
PostWTO*Spouse has higher income					0.010	0.035		
					(0.028)	(0.035)		
CompExp*PostWTO*AgeDifference(Age-Spouse's age)							-0.026*	-0.004
							(0.014)	(0.010)
PostWTO*AgeDifference(Age-Spouse's age)							0.017**	-0.001
							(0.008)	(0.007)
Worker Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes
Year Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes
N	48,963	35,482	48,963	35,482	48,963	35,482	48,963	35,482

Estimation of equation 4. Dependent variable in all columns is an indicator variable that takes one when there is a divorce event at a given period. Coefficient estimates are scaled by 10 for the ease presentation. Standard errors, clustered for initial employer, are in parentheses. ***/**/* means significance at the 1% / 5% / 10% level. The sample consists of textile workers who were married as of 1999. All own and spouse characteristics belong to year 1999.

characteristics are: having a full-time employed wife, or having a wife with higher income; for women these are e.g. women being older than husband. We see that exposed men who are married to a full-time employed spouse are less likely to divorce compared to non-exposed men (column 4) due to import competition, there is no such effect is present for women (column 3). We also see that divorce hazard is indeed decreases especially among men with richer wife (column 6), declining divorce hazard due to import competition do not respond to existence of richer husband on the other hand. When we, on the other hand, look at unstable marriages from the perspective of women such as the age difference, we find that the decline in divorce hazard is stronger as woman is older relative to her husband. These results indicate that workers delay their marital problems in the face of economic difficulties.

Overall, we see that the labor market status of the spouse has a significant impact on the divorce behavior of workers affected by rising import competition. If the spouse's status is relatively weak (exposure) it raises the divorce probability, while if it is relatively strong (full-time employment) it reduces the divorce probability. The results are consistent with marriage providing additional insurance to the workers. Interestingly, what matters to women is primarily their partners' exposure, while what matters to men is primarily the full-time employment status of their spouse. The exposure to import competition of her partner means women are more likely to divorce, while part-time or non-employment of the spouse of an exposed male worker means that he has higher divorce probability. This insurance mechanism is largely gender-symmetric.

The following set of results shows that the gender-symmetry does not extent to the relative income of the spouse. We see that male workers exposed to import competition will divorce less than non-exposed men only when their spouse has a higher income than they have themselves (column 6). In contrast, relative income does not play a role for the divorce behavior of exposed female workers (column 5). Finally, we see from the last set of results that the tendency of exposed women to divorce less is much more strongly related to age relative to her spouse than for men exposed to

import competition. In particular, the difference in divorce probability between female and male workers is increasing in exposed worker's age relative to the spouse. Exposed female workers married to younger men are particularly unlikely to divorce, compared to unexposed female workers. Notice that this relative age effect helps to explain the overall stronger shift from labor market to family activities that we estimate for women compared to men.

We now turn to the dynamics of the divorce response (Table 4). For women exposed to import competition, there is a steady increase of the reduction in divorce probability over time, from about -6% in the first year (2002) to -41% in the last year of our sample, 2010. In contrast, the increase in divorce probability is rather rapid during the first three years for exposed men, to a higher level than for women in facto by year 2004. After that however, the effect on divorce for exposed men plateaus before rising again around the year 2008, the onset of the Great Recession. We conclude that the change in mens' divorce behavior is more pronounced in the short-term even though it is smaller than that for women, and that men might be more affected by the general business cycle than women.

3.1.2 Labor market outcomes and the shift towards family

The following analysis begins to match up family and labor market outcomes for these workers. Recall that in year 1999, all workers, female and male, are employed in the Danish textile and apparel industry. Over time, these workers change their labor market status to work in other sectors, become unemployed, or move out of the labor force, and one might expect that the extent to which this happens varies for exposed and non-exposed workers. Table 5 shows the divorce impact of exposure to import competition overall and for workers in four distinct parts of the labor market (columns 1 and 2 to 5, respectively). Women's divorce results are shown in Panel A while mens' are shown in Panel B.

Table 4: Import Competition and Survival of Marriages-Yearly Evolution

Data Aggregated into two (pre- post- shock) periods Divorce event by:	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Panel A. Married textile women as of 1999								
CompExp*PostWTO	-0.061	-0.122**	-0.133*	-0.219***	-0.281***	-0.328***	-0.348***	-0.355***	-0.407***
	(0.047)	(0.059)	(0.069)	(0.084)	(0.094)	(0.097)	(0.098)	(0.101)	(0.106)
Worker Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	8,298	8,299	8,301	8,302	8,302	8,302	8,302	8,302	8,302
	Panel B. Married textile men as of 1999								
CompExp*PostWTO	-0.096	-0.146*	-0.175**	-0.177*	-0.151	-0.144	-0.193*	-0.218*	-0.273**
	(0.066)	(0.080)	(0.088)	(0.099)	(0.105)	(0.110)	(0.110)	(0.116)	(0.120)
Worker Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
N	6,068	6,071	6,072	6,074	6,077	6,077	6,077	6,077	6,077

Dependent variable in all columns is an indicator variable that takes one when there is a divorce event at a given period. Coefficient estimates are scaled by 10 for the ease presentation. Standard errors, clustered for initial employer, are in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

Table 5: Divorce event across different labor market positions

Data Aggregated into two (pre- post- shock) periods					
Divorce at:	Overall	Manufacturing	Service	Unemployed	Outside
	(1)	(2)	(3)	(4)	(5)
Panel A. Married textile women as of 1999					
CompExp*PostWTO	-0.407***	-0.104	-0.189***	-0.050*	-0.064*
	(0.106)	(0.067)	(0.057)	(0.026)	(0.034)
Worker Fixed Effects	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes
N	8,303	8,303	8,303	8,303	8,303
Panel B. Married textile men as of 1999					
CompExp*PostWTO	-0.273**	-0.161	-0.071	-0.029	-0.032
	(0.120)	(0.101)	(0.062)	(0.037)	(0.037)
Worker Fixed Effects	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes
N	6,077	6,077	6,077	6,077	6,077

Estimation of equation **??**. Dependent variable in all columns is an indicator variable that takes one when there is a divorce event at a given period while an individual's primary labor market position is as specified across columns. Coefficient estimates are scaled by 10 for the ease presentation. Standard errors, clustered for initial employer, are in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

We see that the impact of import competition on divorce probabilities is small (a statistical zero) and rather similar for men and women who (continue to) work in manufacturing industries (column 2). In contrast, notice that exposed 1999 female textile women move away more from divorce than men when they have become unemployed or have moved out of the labor force (columns 4 and 5). Labor-market wise these are bad outcomes. Interestingly, however, women move especially away

from breaking up their marriage if they have moved into the service industry. We know that rising import competition has pushed many workers from mid- into low-wage jobs, many of those in the service sector (Keller and Utar 2016). However there is also a substantial number of workers who transition from textile jobs to well-paid service jobs, and it will be important to see whether these two groups move similarly towards family activities. In any case, Table 5 makes plain that the stronger tendency of women to stay in their marriage compared to men is related to those women who move out of manufacturing, not those that stay in manufacturing. In other words, it is driven by the labor market switchers, not the stayers.

Finally, we probe deeper into the differing labor outcomes of exposed male and female textile workers, see Table 6. The results indicate that there is a stark difference between earnings and employment outcomes as a result of rising import competition. Employment-wise, women move as a result to import competition from their initial textile firm into service employment almost one for one, as do men (Panel B). In contrast, labor earnings over the period 2002-2010 of exposed women are substantially reduced through import competition, while those of men are not (Panel A). Thus, even though men experience a larger shock at their 1999 firm (as long as they stay) than women, overall exposed men recover their earnings compared to non-exposed men. In contrast, women take on more part-time employment and lower-paid (service) jobs, which we have shown above makes them tend to stay in their marriage, relative to non-exposed women.

Table 6: Labor market outcomes: Quasi-experiment

	(1)	(2)	(3)	(4)	(5)	(6)
Women						
	Cumulative Labor earnings			**Employment**		
	All Sectors	Initial Firm	Services	All Sectors	Initial Firm	Services
Import Comp	**-1,190*** **	-0.972***	-0.187	**0.095**	-0.748***	0.600***
	(0.304)	(0.108)	(0.280)	(0.068)	(0.069)	(0.076)
Worker Fixed Effects	yes	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes	yes
N	12,004	12,004	12,004	12,004	12,004	12,004
Men						
	Cumulative Labor earnings			**Employment**		
	All Sectors	Initial Firm	Services	All Sectors	Initial Firm	Services
Import Comp	**-0.140**	-1.320***	1.315***	**0.014**	-1.026***	0.883***
	(0.372)	(0.169)	(0.306)	(0.071)	(0.087)	(0.086)
Worker Fixed Effects	yes	yes	yes	yes	yes	yes
Period Fixed Effects	yes	yes	yes	yes	yes	yes
N	9,018	9,018	9,018	9,018	9,018	9,018

Estimation of equation **??**. Dependent variable in columns (1)-(3) is the cumulative labor earnings measured in initial annual earnings. Dependent variable in columns (4)-(6) is the cumulative employment measured as the number of years employed with positive earnings. Cluster-robust standard errors are reported in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

3.1.3 Divorce and import competition among all Danish workers

[Note: the following results are based on a cross-sectional research design. While the results are similar and reinforce each other, we will focus more on panel results in future drafts].

We now turn to the impact of import competition from China on divorce for Denmark as a whole, see Table 7. Out of 2 million workers 1 million of them were married which is the focus of this analysis. There are about 500 thousand men who were married in the year 1999 in our sample.

The specification is as follows:

$$DIV^{2000-2009} = \alpha_0 + \alpha_1 \Delta IP^{CH}_{j(i)} + Z^W_i + Z^F_i + Z^P_i + Z^{SP}_i + \varepsilon_i \tag{5}$$

In equation 5 Z^W_i, Z^F_i, Z^P_i, Z^{SP}_i are the set of characteristics of workers, their firms, their line of business (6-digit NACE), and their spouses that can affect divorce likelihood of individuals. $DIV^{2000-2009}$ is the logarithm of the number of divorce events that individual i has over 2000-2009.

Recall that the excluded instruments in the first stage are (1) change in import penetration in eight other high-income countries, (2) industry transport costs, captured by weighted distance of Denmark's import source countries, and (3) the retail firm share in all importing firms. All three instrumental variables enter the first stage with the expected positive sign and two are highly significant. The cluster-robust first-stage F-statistic (Sanderson-Windmeijer) is about 10, with a p-value below 0.001. This provides evidence that the instrumental variables have power. The second-stage coefficient for the impact of import competition on men's divorce is with -0.02 close to (and not significantly different from) zero, column 1.

In the regression for the about 490 thousand women, the first-stage performs as well, in fact slightly stronger (cluster-robust F-statistic of about 11). Interestingly, import competition leads to significantly fewer divorces for women, see column 2. These results point to a first gender difference in the response to globalization: women appear to react stronger towards marital union than men.

Marital union requires the mutual agreement to not divorce from both spouses, and given the broad nature of our sample the spouses of the men of column 1 will typically be the women of column 2. It is therefore not surprising to see that the spouse's exposure to import competition enters with a negative sign of about -0.10 in the men's regression, column 3. The spouse's exposure to import competition enters with a point estimate of -5.5% in the women's regression, see column

4.[11] While this is not significant at standard levels it indicates that the decision of imports-exposed women to stay in marriage is not weakened by exposure to import competition of their spouse.

Table 7: Import Competition and Divorce

Sample:	Among Married Men	Among Married Women	Among Married Men	Among Married Women
Import Comp from China (ΔIP_j^{CH})	-0.018	-0.132*	-0.012	-0.137*
	(0.056)	(0.078)	(0.056)	(0.080)
Spouse's Import Comp from China			-0.096***	-0.055
			(0.033)	(0.048)
Worker Characteristics	yes	yes	yes	yes
Employer Characteristics	yes	yes	yes	yes
Product Line Characteristics	yes	yes	yes	yes
Spouse and Match Characteristics	yes	yes	yes	yes
N	500,720	489,537	500,720	489,537
Clusters	753	748	753	748
F statistic (SW) on excluded instruments	9.52	10.80	10.21	14.29
F-stat [p-value]	[0.000]	[0.000]	[0.000]	[0.000]
F statistic (SW) -Spouse'-			833.33	874.49
F-stat [p-value]			[0.000]	[0.000]

Dependent variable: Logarithm of number of divorce events over 2000-2009 plus one. Estimation by two-stage least squares. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

Economically, the impact of import competition from China on divorces during the years 1999 to 2009 is just under 5%, substantial but not extremely large. As we will document below the impact of import competition on divorce behavior is quite heterogeneous across women, as well as men.

We now turn to evidence from the abolishment of the textile quotas. In contrast to the economy-

[11] On average, the 489 thousand married women divorce 0.095 times over the years 1999 to 2009, while imports-exposed women divorce 0.091 times. Based on the 90th/10th percentile in terms of exposure to import competition and the estimate of -0.13 in column 2, Table 7.

wide sample, our quasi-experiment analysis is based on probit instead of two-stage least squares. Furthermore, given the focus on the textile and apparel industry we drop the six-digit product-level covariates: We find that import competition significantly decreases the likelihood of divorce among married textile workers (column 1 of Table 9). Furthermore, the economic magnitudes are substantial: exposure to import competition lowers the probability of a divorce by about one third.[12] Separately conducting the analysis among women and men shows that the impact on women is bigger and more significant. -0.222 indicates that import competition leads to, substantial, 3.2 percentage point reduction in divorce likelihood over 2002-2010. The probability that a woman chooses to divorce goes down by 40% (column 2) by the shock, in contrast to the probability that a man divorce, which falls only by 27%. This is an important quasi-experimental confirmation of our finding for the economy at large.

[12]Coefficient -0.178 indicates that an exposed worker has a 2.7 percentage point less likelihood of divorce in the next nine years in comparison to a virtually identical worker whose employer was not producing a quota product.

Table 8: Determinants of Divorce

	MARRIED MEN	MARRIED WOMEN
Selective Worker Characteristics		
Immigrant	–	–
Age	–	–
Number of Children	–	
Number of Children^2	+	
Homosexual	+	+
Full-time Job	–	+
College	–	
Vocational		+
High School	+	+
High-Wage Occ	–	
Mid-Wage Occ		–
Unemployment History	+	+
Hourly Wage		+
Union Membership	–	+
UI Membership	–	–
Experience		–
Selective Employer Characteristics		
Separation Rate	+	+
Firm Wage		+
Selective Spouse Characteristics		
Spouse's Salary	–	–
10+ age difference	+	+
Spouse has higher salary	+	–
Spouse Danish	+	–
Spouse in Manufacturing	+	–
Spouse's Age	–	–
Spouse working in the same business line (6-digit)	–	–

+ or - means a coefficient is significant at a 10% level, positive and negative, respectively.

It is interesting to examine non-trade determinants, including those identified in the canonical model of Becker (1973, 1974); correlates significant at standard levels of the specifications of columns 1 and 2 of Table 7 are marked with their sign in Table 8. We see that the number of children reduces (at a decreasing rate) the tendency of men to divorce, though not for women. Divorce rates tend to be higher for individuals with lower levels of education, as well as with a history of unemployment. Labor market experience reduces divorce rates of women though not for men.

The ability to link spouses in the micro data allows us to examine a number of questions on which there is generally less known, see the lower part of Table 8. First, both men and women divorce less if their spouse has a high salary whereas while a high age difference increase divorce rates. The former is due to the expected benefit from marriage, the latter is related to match quality, and both results arguably conform to common sense. For other spouse characteristics we find gender differences. In particular, having a full-time job decreases the likelihood of divorce for men, but it increases women's divorce likelihood. A Danish spouse increases divorce rates for men whereas it decreases it for women.

The key prediction of Becker's theory of marriage in the present context is that the incentive to be in a marital union is increasing in the difference of the two spouses market wages (this allows for greater gains from family production due to specialization in market work). First, note that conditional on own and spouse's salary, men divorce more when the spouse has a higher salary, in contrast to women who divorce less when the spouse has a higher salary. Because own salary and spouse's salary are included in the regression, these findings control for salary difference between the spouses, the key predictor in Becker's theory. A plausible explanation for this result might be gender identity, as emphasized by Bertrand, Kamenica, and Pan (2015). Men who live with a spouse, in most cases a woman, who makes more than they have a hard time to endure this, eventually leading to divorce.

Table 9: Import Competition and Divorce –Evidence from Quasi-Experiment

	Divorce Likelihood		
Sample:	(1) All Married Workers	(2) Married Women	(3) Married Men
Import Comp from China	-0.178***	-0.222***	-0.136*
	(0.049)	(0.066)	(0.079)
Worker Characteristics	yes	yes	yes
Employer Characteristics	yes	yes	yes
Spouse's and Match Characs.	yes	yes	yes
N	6,124	3,654	2,470
Chi-sq		128.28	272.52
Pseudo R-sq		0.077	0.114
Probability of divorce	0.082	0.074	0.090

The dependent variable is divorce event during 2002-2010 (indicator variable). Estimation by probit. ***/**/* means significance at the 1% / 5% / 10% level.

3.2 Import Competition and Formation of Marriages

We begin by examining marriage behavior throughout the Danish economy using the two-stage least squares approach from before. The specification is identical to equation (1) except that we replace marriage with divorce in the definition of the outcome. Furthermore, to sharpen the analysis our sample consists of individuals who are not married in the initial year 1999. Accordingly, the set of spouse characteristics, Z_i^{SP}, are replaced with the characteristics of unmarried partner (or co-habitant), $Z_i^{CH}$for individuals who live with a partner. Z_i^{CH} includes an indicator variable if

an individual lives with a partner, as well as information on partner's age, salary, citizenship and sector of employment.

The results indicate that unmarried workers in Denmark exposed to import competition were more likely to marry then non-exposed workers (see Table 10). This finding holds for workers overall, and it is driven more by women than by men, as columns 2 and 3 indicate. A trade-induced increase in marriage is in line with a decrease in divorces in that import competition favors marital unions. Quantitatively, we find the impact of trade on marriage to be smaller than on divorce. For example, exposure to import competition accounts for just over 1% of the mean marriage rate of the men and women of column 1. This points to an asymmetric effect of import competition on formation versus dissolution of marital unions.

Table 10: Import Competition and New Marriages

Sample:	All Singles	Men	Women	Textile Workers Women	Textile Workers Men
Import Comp	0.272**	0.155	0.398**	0.113**	-0.108*
	(0.131)	(0.175)	(0.176)	(0.057)	(0.062)
Worker Characs.	yes	yes	yes	yes	yes
Employer Characs.	yes	yes	yes	yes	yes
Product Line Characs.	yes	yes	yes	-	-
Co-habitant's Characs.	yes	yes	yes	yes	yes
N	812,691	441,827	395,369	2,674	2,407
F-stat [p-value]	[0.000]	[0.000]	[0.000]		
Probability of marriage				0.27	0.29

Dependent variable in columns 1 to 3 is the logarithm of number of marriage events over 2000-2009 plus one. Estimation by two-stage least squares. Dependent variable in columns 5-6 is marriage event during 2002-2010. Estimation by probit. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

Analogous to our divorce analysis, we account for an individual's partner's exposure to import competition. In the case of unmarried individuals this is a person's co-habitant, defined as a person living at the same residence. As in many countries, the importance of co-habitation has increased in Denmark over the last century, and correspondingly the age of marriage has declined. The average age of men at time of first marriage in the year 1911 was 28, compared to 34 in 2009, while women at the time of first marriage in 1911 were 25, in contrast to one hundred years later when they were 32 years old.

We find a stark gender difference in the marriage response for textile workers as well, with trade-exposed men having lower while trade-exposed women having higher marriage rates (Table 9). All of these are textile workers, we control for numerous worker characteristics, including age, experience, education, unemployment experience, as well as for firm characteristics such as size, and yet, the response of men and women is the opposite. Furthermore, the implied responses are far from zero. Imports-exposure increases a typical woman's marriage rate by about 14%, in contrast to a typical man for whom exposure reduces the marriage rate by about 13%.[13]

4 Import Competition and Child Birth

The analysis shows that across all about 1.3 million individuals, import competition is associated with a higher number of children, albeit insignificantly so (column 1). This sample includes all individuals in their fertile age.[14] Importantly, the sample includes both individuals living in a relationship, either married or unmarried, and singles.

[13]Based on the difference in import competition exposure from the 5th to the 95th percentile. Also note that our marriage result for male textile workers is similar to some of the findings in Autor, Dorn, and Hanson (2016b) for the US.

[14]We put an upper limit for age, which is below 36 years for women and below 45 years for men (for biological reasons).

Table 11: Import Competition and Fertility

Sample:	All	Women	Men	All	All
Import Comp from China	0.120	0.055	0.094	-0.012	0.069
	(0.114)	(0.138)	(0.097)	(0.120)	(0.112)
Imp Comp × Married couple				0.327**	
				(0.100)	
Imp Comp × Unmarried couple					0.221**
					(0.096)
		age≤36	age≤45		
N	1,284,874	472,649	812,225	1,284,874	1,284,874
Clusters	761	749	758	761	761
F statistic	10.47	9.52	10.13	15.84	15.51
F-stat [p-value]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
F statistic -Interaction				9.01	9.80
F-stat [p-value]				[0.00]	[0.00]

Dependent variable: Logarithm of number of children born over 2000-2009 plus one. Estimation by two-stage least squares. All regressions include the full-sets of worker, employer, product-line, spouse/co-habitants' characteristics. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

We obtain the same result of a positive but not significant fertility effect for both women and men (columns 2 and 3). The sample of men is larger in large part because their age can be almost a decade higher (45 versus 36), though this does not drive the results. The last two columns of Table 11 show that what matters is whether workers live already in a relationship or not. If they do, exposure to import competition leads to a significantly higher number of children, especially if the worker is married (column 4). Over the period 2000 to 2009, these workers have about 6% more children than the typical worker in the sample.

The preceding analysis of divorce (section 3.1), marriage (section 3.2), and fertility (section 4) behavior has yielded two main results. First, it has shown that rising import competition from China has led in Denmark during the 2000s to a lower number of divorces, a higher number of marriages, and, for workers in established relationships, to a higher number of children. With some exceptions, we have confirmed these results employing a quasi-natural experiment approach for Danish textile workers. Thus, the response of Danish workers can broadly be characterized as pro-family, pro-child. Second, we have seen that the pro-family, pro-child response of women has generally been stronger than that of men.

To what extent is the pro-family, pro-child outcome a substitution towards family time in the presence of lower labor market opportunities? How can workers who respond in this way support their (larger) family? And what are the reasons underlying the gender difference we have seen? The remaining sections of the paper will address these questions.

There is little doubt that in the presence of rising import competition, family decisions are to some extent mediated by labor market outcomes. We thus begin by examining the workers' labor market outcomes for clues in how they may affect the individuals' family decisions. Once we have uncovered the main market outcomes, and how they differ across workers, we will probe deeper into the mechanisms underlying the family responses.

5 Labor market outcomes of import competition by gender

5.1 All Workers

We begin with our economy-wide sample and examine the employment and earnings outcomes of the workers employing the same instrumental-variables approach to estimate the impact of changes

in import penetration as above.[15] Results are given in Table 12.

Table 12: Labor market outcomes over 2000-2009: all workers

Panel A	**Employment**					
	Men			Women		
	All sectors	Manuf	Service	All Sector	Manuf	Service
Import Competition	-0.081	-5.217	6.489**	-3.057**	-8.013**	5.505**
	(0.891)	(3.482)	(3.070)	(1.458)	(3.530)	(2.678)
N	918,651	918,651	918,651	736,824	736,824	736,824
Clusters	759	759	759	750	750	750
F statistic	9.70	9.70	9.70	10.53	10.53	10.53
F stat [p-value]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]
Panel B	**Unemployment**		**Out of labor force**		**Labor earnings**	
	Men	Women	Men	Women	Men	Women
Import Comp	74.504*	191.672**	-0.736	0.632	-9.167	-28.010*
	(36.009)	(71.936)	(0.527)	(0.702)	(14.722)	(16.535)
N	918,651	736,824	918,651	736,824	918,651	736,824
Clusters	759	750	759	750	759	750
F statistic	9.70	10.53	9.70	10.53	9.70	10.53
F stat[p-value]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]	[0.00]

Dependent variable at head of columns. Estimation by two-stage least squares. All regressions include the full-sets of worker, employer, product-line, spouse and match characteristics. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

The first important result is that women, but not men experience cumulative employment losses through exposure to Chinese import competition (Panel A). While workers start out in different sectors in the year 1999, over the period 2000-2009 these workers will to some extent switch their firm, industry, or sector of employment.[16] We observed these individual employment spells in the employer-employee matched data, and can therefore distinguish the impact of import competition for the workers' employment within certain subsets of the entire economy, such as manufacturing and the service sector. While men and women shift their employment towards services in response

[15] Key identification requirement is that the instrumental variables (import penetration in other countries, transport costs, and retail share by six-digit industry) affect Danish family outcomes only through their impact on import penetration rates across Danish product lines. We see no obvious reason why this would not be the case.

[16] For an analysis of occupational shifts in response to import competition, see Keller and Utar (2016).

to the trade shock to a comparable degree, the employment losses of women in manufacturing are larger than those of men.[17] In line with the fall in employment, women exposed to import competition (but not men) see a significant decline in their labor earnings (see Panel B, last column).

The reduction of women's market work is reflected as well in the increase in unemployment that women experience (Panel B, second column). Quantitatively, the impact of import competition on female unemployment is about three times that on male unemployment. This picture indicates that labor market outcomes of women are more drastically affected by rising import competition than those of men. The main margin is unemployment. Exposure to imports increases women's unemployment by about 19%, it reduces their employment by about 1.2%, and it increases their status outside the labor force by about 2.5% (based on the point estimate in Panel B, column 4).[18]

We are interested in whether these results are due to differences in the sectoral composition of male versus female employment, in the size of the initial trade shock, or in the post-shock decisions that men and women take.

The first step towards addressing these questions is to focus on workers that in 1999 were employed in the textile sector, since the trade shock faced by these workers was relatively similar.

5.2 Textile Workers

We now relate our Chinese import competition variable based on the MFA quota removal quasi-experiment to labor market outcomes of textile workers. Table 13 shows results from these OLS regressions, with cumulative hours worked shown in Panel A and cumulative labor earnings shown in Panel B. While all workers were employed at textile firms in the year 1999, over the post-trade shock period (2002-2010) these workers will to some extent switch their firm, industry, or sector of employment. In Table 13, we distinguish the impact of the initial shock (at a firm where she was

[17] This is for primary, full-time employment; part-time employment does not change the picture.
[18] Import exposure increases male unemployment by about 14%.

employed in 1999) from subsequent employment at the service sector, which is indeed the main margin of adjustment to the shock (Utar, 2016).

Table 13: Labor market outcomes: Quasi-experiment

Panel A	**Labor earnings over 2002-2010**					
		Men			Women	
	All Sectors	Initial Firm	Services	All Sectors	Initial Firm	Services
Import Comp	-0.321	-0.960***	0.692***	-1.028***	-0.945***	0.035
	(0.267)	(0.112)	(0.251)	(0.242)	(0.087)	(0.221)
N	4,979	4,979	4,979	6,406	6,406	6,406
Panel B	**Employment hours over 2002-2010**					
		Men			Women	
	All Sectors	Initial Firm	Services	All Sectors	Initial Firm	Services
Import Comp	-0.318*	-0.942***	0.533***	-0.714***	-0.869***	0.197
	(0.145)	(0.094)	(0.136)	(0.172)	(0.079)	(0.146)
N	4,979	4,979	4,979	6,406	6,406	6,406

Dependent variable in panel A is the cumulative employment hours over 2002-2010 measured in worker's own initial annual hours worked. The dependent variable in panel B is the cumulative labor earnings measured in initial annual earnings. All regressions include the full-sets of worker, employer, spouse/co-habitants' characteristics. ***/**/* means significance at the 1% / 5% / 10% level.

The results indicate that although there is a gender difference in the long-run labor market outcomes due to the shock, the impact of the initial shock is indeed very similar between male and female workers. The impact of the initial shock amounts to 96% of an annual earnings reduction over the decade for men, and almost identical, 95% of an annual earnings decline for women. Subsequently, majority of the loss of earnings is recovered among men, resulting with no significant earnings difference between exposed versus non-exposed male workers. On the other hand, women suffer a long run loss of 100% of an initial annual earnings effect. That is, women were not able to recover their initial losses in contrast to men. Results on Panel B shows that the effect is mainly felt as reduction in employment rather than reduction in hourly wages. These results also show

that women were not able to gain employment in the service sector as much as men, and this is the main adjustment difference between men and women. In sum, our analysis shows that the different long-run outcomes between men and women stem from differences in the success of adjustment to the shock.

5.3 Mechanisms underlying the gender difference

Table 14: Impact of Import Shock on Labor Force Participation by Gender

Panel A. Prime age (25-44) full-time women					
	Years in Outside Labor Market during 2000-				
	2002	2003	2004	2005	2009
Import Competition	0.368*	0.487*	0.542*	0.687*	0.907
	(0.2)	(0.276)	(0.328)	(0.4)	(0.685)
Worker Characteristics	yes	yes	yes	yes	yes
Employer Characteristics	yes	yes	yes	yes	yes
Product Line Characteristics	yes	yes	yes	yes	yes
N	448,892	448,892	448,892	448,892	448,892
Cluster	747	747	747	747	747
Panel B. Prime age (25-44) full-time men					
	Years in Outside Labor Market during 2000-				
	2002	2003	2004	2005	2009
Import Competition	0.025	0.004	0.053	0.040	-0.160
	(0.082)	(0.111)	(0.140)	(0.183)	(0.364)
Worker Characteristics	yes	yes	yes	yes	yes
Employer Characteristics	yes	yes	yes	yes	yes
Product Line Characteristics	yes	yes	yes	yes	yes
N	537,141	537,141	537,141	537,141	537,141
Cluster	753	753	753	753	753

Dependent variable at head of columns. Estimation by two-stage least squares. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

Is the relatively unsuccessful adjustment of women to the labor market shock related to their preference for family work or gender roles? Table 12 shows no significant long-run effect of competition on labor market exit of women. If women replaces initial loss of employment with household activities, it is possible that the shock leads to temporary or short-run exit of women. To that end Table 14 shows the annual impact of competition on the years outside of labor market among prime-aged women (Panel A) and men (Panel B). The results show that competition shock indeed leads to significant decrease in labor force participation of women, but not of men. That is, in addition to more unemployment that exposed women experience, women also tend to exit the labor market in response to the shock. This, at the end, is probably one reason behind the unsuccessful adjustment of women to the same shock.

We also find higher unemployment rate for women than men. Is that, in any way, related with gender roles or household specialization? Table 15 shows that having a kid (as of 1999), especially when unmarried, increases women's trade-induced unemployment spells. This is not the case for

men. Indeed, married men with kids are less likely to experience trade induced unemployment.

Table 15: Trade-induced Unemployment, Household Condition and Gender

Dep. Var.	Cumulative spells of unemployment over 2000-2009.			
Panel A. Women w/ full-time employment as of 1999				
Import Comp from China	191.672***	232.222***	156.665**	169.037**
	(71.936)	(88.870)	(74.718)	(67.555)
Import Comp × Married		-67.515		
		(50.743)		
Import Comp × w/ Kid			46.406*	
			(24.235)	
Import Comp × Single w/ Kid				112.615**
				(56.032)
Worker Characteristics	yes	yes	yes	yes
Employer Characteristics	yes	yes	yes	yes
Spouse's and Match Characs.	yes	yes	yes	yes
N	736,824	736,824	736,824	736,824
Cluster	750	750	750	750
Panel B. Men w/ full-time employment as of 1999				
Import Comp from China	74.504**	94.890**	97.508**	73.227**
	(36.009)	(40.799)	(41.115)	(35.877)
Import Comp × Married		-38.431*		
		(20.083)		
Import Comp × w/ Kid			-36.170**	
			(17.922)	
Import Comp × Single w/ Kid				8.772
				(14.730)
Worker Characteristics	yes	yes	yes	yes
Employer Characteristics	yes	yes	yes	yes
Spouse's and Match Characs.	yes	yes	yes	yes
N	918,651	918,651	918,651	918,651
Cluster	759	759	759	759

Dependent variable: Fraction of time spent as unemployment over 2000-2009. Estimation by two-stage least squares. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

We also study marriage and child-birth likelihoods during unemployment spells. Table 16 shows that pro-family, pro-child attitude of women due to import competition is clearly coinciding with lower labor market opportunities of women. Import competition significantly increases marriage likelihood while being unemployed among single women. Import competition exposure of women's co-habitant on the other hand decreases likelihood of marriage during women's unemployment. We confirm the mirror effect of the impact in the analysis conducted among single men (column 2 of Table 16). We also find women are significantly more likely to give a birth due to competition shock while unemployed. Similarly we uncover significant and negative effect of co-habitant's (or spouse if married) exposure on child birth. These results confirm the Beckerian model of family and indicate gender specific household specialization is still valid in Denmark.

Table 16: Spells of *Productive* Unemployment

Dep. Var.	Marriage during Unemployment		Birth during Unemployment
Sample:	Single Women	Single Men	Fertile Age Women
Import Comp from China	0.139**	-0.054**	0.101***
	(0.071)	(0.027)	(0.036)
Co-habitant's Import Comp	-0.055*	0.029**	-0.036***
	(0.030)	(0.015)	(0.012)
Worker Characteristics	yes	yes	yes
Employer Characteristics	yes	yes	yes
Product Line Characteristics	yes	yes	yes
Co-habitant's Characteristics	yes	yes	yes
N	369,720	439,956	450,752
Clusters	739	752	747

Dependent variable at head of columns. Estimation by two-stage least squares. Cluster-robust standard errors in parentheses. ***/**/* means significance at the 1% / 5% / 10% level.

6 Concluding Remarks

[**Incomplete**] The recent halt in high-income countries of women's gains in labor force participation ended a decades-long process during which women would postpone marriage and having children until later and later in life. In this paper we have examined the role of globalization in form of rising import competition for this structural break in the family-market work decision. Using Danish employer-employee matched register data we find that rising import competition from China, which reduces labor market opportunities, has a statistically and economically significant impact on the family-market work balance in Denmark. Exposure to import competition reduces divorce rates, increases marriage rates, as well as leads to a greater number of children.

Notwithstanding that marriage and childbirth are decisions made by couples, we find these pro-family, pro-child effects to be gender biased in the sense that they mostly reflect the substitution of women's labor market participation for family work. Observable differences between jobs held by men and women do not fully account for this; our results are consistent with gender identity playing a role. The labor-market response towards globalization appears to be shaped by the perceived gender roles of men and women.

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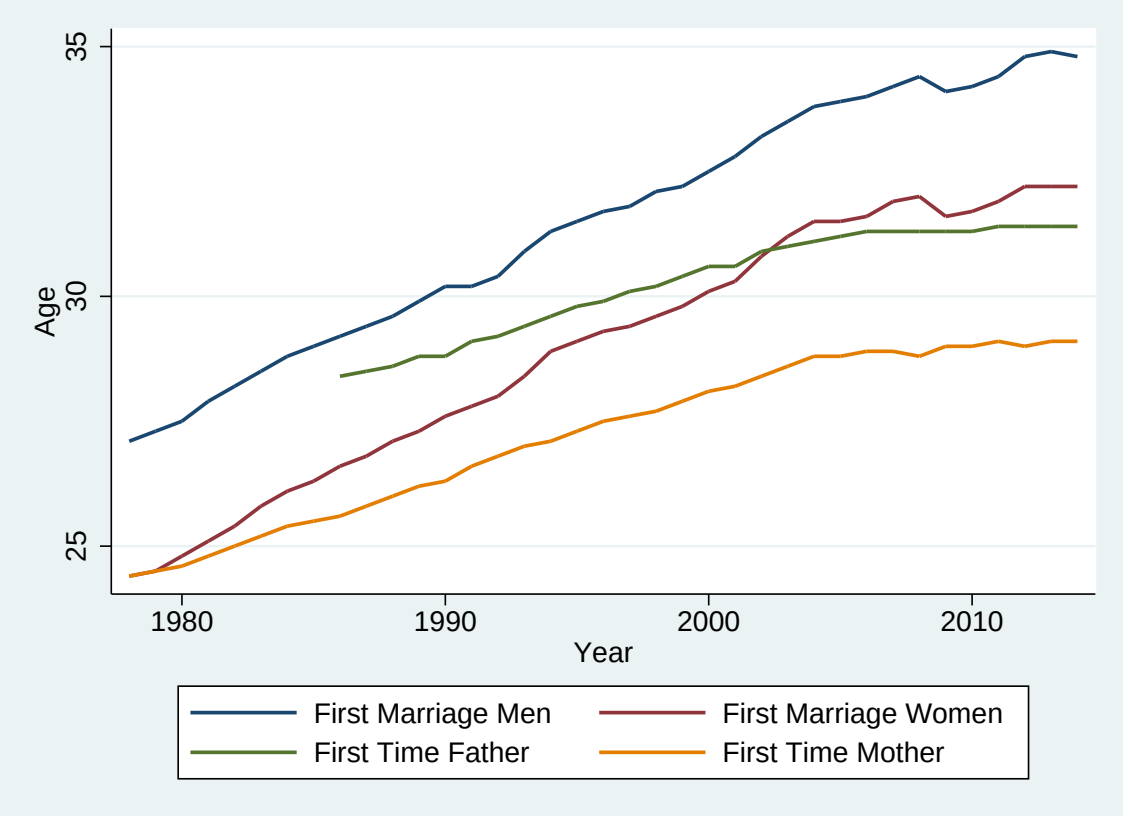

Figure A-1: Age at First Marriage, Age of First Time Mothers, Fathers in Denmark