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Start Me Up – How Fathers' Unemployment Affects their Sons' School-to-Work Transitions

RWI #583

Imprint

Ruhr Economic Papers

Published by

Ruhr-Universität Bochum (RUB), Department of Economics
Universitätsstr. 150, 44801 Bochum, Germany

Technische Universität Dortmund, Department of Economic and Social Sciences
Vogelpothsweg 87, 44227 Dortmund, Germany

Universität Duisburg-Essen, Department of Economics
Universitätsstr. 12, 45117 Essen, Germany

Rheinisch-Westfälisches Institut für Wirtschaftsforschung (RWI)
Hohenzollernstr. 1-3, 45128 Essen, Germany

Editors

Prof. Dr. Thomas K. Bauer
RUB, Department of Economics, Empirical Economics
Phone: +49 (0) 234/3 22 83 41, e-mail: thomas.bauer@rub.de

Prof. Dr. Wolfgang Leininger
Technische Universität Dortmund, Department of Economic and Social Sciences
Economics – Microeconomics
Phone: +49 (0) 231/7 55-3297, e-mail: W.Leininger@wiso.uni-dortmund.de

Prof. Dr. Volker Clausen
University of Duisburg-Essen, Department of Economics
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Phone: +49 (0) 201/1 83-3655, e-mail: vclausen@vwl.uni-due.de

Prof. Dr. Roland Döhrn, Prof. Dr. Manuel Frondel, Prof. Dr. Jochen Kluve
RWI, Phone: +49 (0) 201/81 49-213, e-mail: presse@rwi-essen.de

Editorial Office

Sabine Weiler
RWI, Phone: +49 (0) 201/81 49-213, e-mail: sabine.weiler@rwi-essen.de

Ruhr Economic Papers #583

Responsible Editor: Jochen Kluve

ISSN 1864-4872 (online) – ISBN 978-3-86788-675-8

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RWI

Bibliografische Informationen der Deutschen Nationalbibliothek

Die Deutsche Bibliothek verzeichnet diese Publikation in der deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über: *http://dnb.d-nb.de* abrufbar.

http://dx.doi.org/10.4419/86788675
ISSN 1864-4872 (online)
ISBN 978-3-86788-675-8

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Abstract

Using data from the German Socio-Economic Panel (SOEP), continuous-time duration models are applied to examine whether paternal unemployment delays sons' school-to-work transitions and thus leads to a spell of early career non-employment. The results show that substantial delaying effects of fathers' unemployment exist and that they are heterogeneous among educational groups. Therefore, paternal unemployment implies long-run intergenerational costs by hindering sons' smooth school-to-work transitions which can be expected to have long-lasting negative labor market consequences.

JEL Classification: J64

Keywords: School-to-work transition; parental unemployment; youth unemployment

October 2015

1 Michael Kind, RWI, Hohenzollernstr. 1-3, 45128 Essen, Germany, e-mail: Michael.Kind@rwi-essen.de

1 Introduction

The period between the end of education and entry into the first job is called the school-to-work transition. If such a transition is slow, youth unemployment or at least youth labor market inactivity can be observed. According to, for example, Tominey and Gregg (2005) or Burgess, Propper, Rees, and Shearer (2003) youth unemployment has long-run negative wage effects and increases the likelihood of further unemployment spells in future careers. Thus, a smooth school-to-work transition is of great personal and societal interest.

In this study, the focus is on the role of fathers' unemployment within their adolescent's school-to-work transitions. Previous research has already examined some of the determinants of successful school-to-work transitions. Often mentioned aspects are the desired quality of the first job (Gebel, 2009), parental socio-economic status (Marcenaro-Gutierrez and Vignoles, 2009), labor market institutions (Ryan, 2001) as well as the use of networks (for an overview see Ioannides and Datcher Loury (2004)). The use of networks can help to improve the speed of transitions and the quality of the first job. Previous studies such as Pellizzari (2010) find that the usage of networks results in a faster take-up of the first job and is not punished by e.g. wage losses. Furthermore, even direct transmission of employers from one generation to the next occurs. Corak and Piraino (2011) analyze the intergenerational transfer of employers as a result of son's usage of parental networks. Their empirical results suggest that about 40% of young Canadian men choose to work for an employer their father worked for before. As parental networks are important and intensively used by young adolescents, the effect of parental unemployment on the son's school-to-work transition is examined in this study.

In the present study, data from the German Socio-Economic Panel (SOEP) is used to analyze the effect of relevant paternal unemployment within the school-to-work transition on the duration until the first job is taken up. The study contributes to the literature in at least two aspects. First, in contrast to previous studies (e.g. Mäder, Müller, Riphahn, and Schwientek (2014) or Pedersen and Madsen (2002)) this study analyzes the immediate effect of parental unemployment. Here, the effect of parental unemployment at the time of the school-to-work transition is analyzed in contrast to e.g. past parental unemployment during childhood. During school-to-work transitions immediate effects of paternal unemployment are likely to exist, as fathers are unable to give their sons access to active labor market

networks. Furthermore, current paternal unemployment increases financial pressure on the household leading most likely to a change in the reservation wage of the sons (e.g. financial support of the family is likely to decrease). Second, the SOEP data entails rich and most importantly direct information on the fathers. One of the major strengths of the SOEP, namely that parents and children are both respondents to the questionnaire, is used in the analysis to overcome shortcomings of previous studies on intergenerational transmission. The data allow to control for various important observable characteristics of the fathers, which reduces the likelihood of an omitted variable bias. Furthermore, the data gives access to specific information on the reason of paternal unemployment. Thus, it can be accounted for the case that the father entered unemployment due to company closure, which according to e.g. Kassenboehmer and Haisken-DeNew (2009) is argued to be exogenous. Thus, the results provide evidence on the causal effect of paternal unemployment on the son's school-to-work transitions.

By applying duration analysis in order to detect the impact of parental unemployment within the school-to-work transition on the duration until the first job is taken up, several noticeable results are highlighted. First, fathers' unemployment at the time of sons' school-to-work transitions significantly delays labor market entry of the sons. The likelihood of transition into the first job is decreased by about 50% at each point in time for sons whose fathers are in unemployment. Furthermore from the empirical analysis one can conclude that with a probability of 50% sons without fathers in unemployment enter their first job after two months, whereas sons of fathers who experience unemployment take up their first job after nine months with a probability of 50%. Second, this effect varies between educational subgroups. The results show that children of low educated fathers suffer to a larger extent than sons from well educated fathers, while the dependence on fathers' labor market status appears to be much more prevalent among highly educated sons. Descriptives indicate that this result appears is driven by changes in job search behavior of these groups of sons. The results are found to be robust to the choice of empirical models and variations in sample composition.

The study highlights the importance of intergenerational effects of unemployment. Long-lasting labor market consequences of early-career unemployment have been shown by previous studies. The identification of the substantial role of fathers' labor market status at the beginning of the career of the sons is the major contribution of this study. Policy makers

need to be aware of such transmissions as the costs of unemployment are much higher than previously thought. They extend from the individual's labor market outcomes to family members. This suggests that labor market agencies should assist not only the unemployed themselves but also help their adolescents who are about to enter the labor market.

2 Data

The aim of the analysis is to investigate the direct effect of paternal unemployment within the school-to-work transition on the speed and likelihood of the sons' take-up of the first job in Germany. The German Socio-Economic Panel (SOEP) is very well suited. The SOEP is a panel data set which started in 1984. Since then a yearly questionnaire is asked to about 20,000 individuals (11,000 households) each year. The SOEP includes a reasonable number of sons who enter the labor market for the first time. Due to calendar information and the longitudinal dimension of the dataset, one is able to follow the sons throughout their search for the first job until the take-up can be observed. The biggest strength of the SOEP is that the parent is a respondent of the survey himself. Through a unique person-identifier, the data on the sons can be directly merged to the information of the parents. Therefore, all information that is available for the child is also available for the parent. Further detailed information on the SOEP can be found in Haisken-DeNew and Frick (2005). The focus of the present study is on the transmission of fathers' unemployment on sons, as Kramarz and Skans (2010) argue that the effects of fathers are larger than the effects of mothers, and sons are more affected than daughters.

The unit of observation i is the son entering the labor market for the first time. The entry into the labor market is identified by the calendar information of the SOEP. Here, the individual reports his labor force status for each month of the previous year. A son enters the school-to-work transition when he finishes (tertiary) education, vocational training or military or community service. Biographies might incorporate more than one of these exits, i.e. individuals leave high school, fulfill their military service, complete a vocational training and then add a university degree. In these cases of multiple exits, the latest completion of a spell is counted as the entry into the labor market. To exclude outliers, individuals who are older than 35 when they leave education/ vocational training or community/ military service are dropped out of the sample.

Then, the individuals are followed on a monthly basis (using retrospective calendar information) until their transition into employment can be observed or the spell is censored. Here, the transition into employment of the child is defined as the take-up of a full- or part-time job. Right censoring of the observations occurs when e.g. a son moves to a different place and is not followed by the data providers. Then, it is unclear when and whether a transition into employment occurs.

4,828 sons are observed to enter the school-to-work transition in the time period from 1991 to 2011 from any of the above mentioned states of origin.[1] The analysis excludes years prior to 1991 to avoid dealing with issues of the German reunification. Furthermore, immigrants are excluded from the analysis due to the incomparability to the group of natives in terms of school-to-work transitions. After restricting the sample to only those non-migrants who entered the labor market at age 35 or younger and whose fathers are 65 or younger (the normal retirement age for most of the sample period) 1,121 sons remain in the sample. By adding the control variables of the final specification another 115 individuals are lost due to missing information on at least one control variable. The final sample consists of 1,006 individuals where for 580 of them a transition into employment can be observed. In a final step, individuals are assumed to be right censored, if their school-to-work transition lasts at least 36 months. It is assumed that these sons are unlikely to enter employment thereafter and are therefore treated as outliers and excluded of the analysis. The estimation then relies on 10,198 person-months observations.

The analysis includes several control variables on the individual-level (i.e. the level of the son) that are argued to be relevant determinants of the school-to-work transition. These variables are age, living in West Germany, handicap level, years of education and variables accounting for an exit out of vocational education and military or community service (leaving (tertiary) education serves as the reference group). In order to control for macroeconomic and labor market conditions, monthly unemployment rates on the state level are included in the regression as well as year-fixed effects.

The key variable of interest is an identifier of paternal relevant unemployment. Here, the focus is on a father being unemployed in a specific month of the school-to-work transition

[1] The data used in this paper was extracted using the Add-On Package PanelWhiz for Stata. PanelWhiz (http://www.PanelWhiz.eu) was written by Dr. John P. Haisken-DeNew (john@PanelWhiz.eu). See Haisken-DeNew and Hahn (2010) for details. The PanelWhiz generated DO file to retrieve the data used here is available from me upon request. Any data or computational errors in this paper are the author's.

of the son, conditional on that his father's unemployment spell is of at least three months. Thus, a dummy variable is included in the analysis that is equal to one if the father is in a relevant unemployment spell in the specific month and zero otherwise. Note that unemployment spells of less than three months are treated as continuous employment spells. Here, it is argued that unemployment spells of such a short time period are not relevant enough for the son in order to impact his school-to-work transition.

Table 1: Descriptive Statistics

	Mean	Std.Dev.	Min.	Max.
Father is in Relevant Unemployment	0.10	(0.30)	0	1
Father Out of Labor Force	0.10	(0.30)	0	1
Age	21.50	(3.25)	17	35
West Germany	0.61	(0.49)	0	1
Handicap Lvl	2.47	(13.37)	0	100
Left Vocational Training	0.38	(0.49)	0	1
Left Military or Community Service	0.04	(0.20)	0	1
Monthly UE Rate	12.25	(4.94)	4	26
Past UE Experience (Father)	1.11	(2.61)	0	20
Years of Education (Father)	11.99	(2.39)	7	18
Age (Father)	50.44	(5.79)	37	65
Handicap Lvl (Father)	5.52	(16.96)	0	100
No. of observations	10198			
Subsample:				
Father Exogeneously Unemployed	0.01	(0.07)	0	1
Father Endogeneously Unemployed	0.02	(0.15)	0	1
No. of observations	10147			

Note: Authors' calculations based on SOEP (1991-2012).

Previous literature has raised the concern that the proposed variable does not help to identify a causal effect of parental unemployment (e.g. Lam and Schoeni (1993) or Agnarsson and Carlin (2002)). If solely fathers' unemployment is included in the analysis an omitted variable bias occurs. That is, the variable of interest reflects intergenerational correlations of e.g. ability or work preferences. If these unobservables are not accounted for, the variable of interest does not show the effect of parental unemployment but only a correlation between paternal unemployment and sons' difficulties in school-to-work transitions.[2]

Here, it is argued that by controlling for father's age, father's disability level, father's years of education and father's past unemployment experience (measured in years and month), the ability, work preferences etc. are sufficiently controlled for. Using these observable variables as proxies for unobservables (e.g. skills or abilities), the ceteris paribus assumption of the empirical method assures that the variable of interest is net of skill or ability effects. If this

[2]Note that the correlation itself is already of great importance as already a valuable information that these sons suffer.

assumption is correct, the key variable of interest reflects the "bad luck" of the son that his father is unemployed just in the time the adolescent son is in the school-to-work transition. The SOEP data allow for a further step of the analysis. Irrespective of unobservable characteristics which cannot be directly included in the analysis, the estimations identify a causal effect if paternal unemployment can be argued to be exogenous. Kassenboehmer and Haisken-DeNew (2009) argue that company closure can be regarded as involuntary (thus exogenous) unemployment. The individuals do not decide to enter unemployment but are forced to enter unemployment as their company closes. By using SOEP data it can be controlled for the reason of paternal unemployment. As the fathers answer the questionnaire themselves, they also report the reason for their current unemployment spell. Here, plant closure is assumed to be an exogeneous reason for unemployment. Endogeneous reasons for unemployment are own resignation, dismissal, mutual agreements, the end of a temporary job or apprenticeship, reaching retirement age, suspension or self-employment ended. Within the present study, it is argued that if the father enters unemployment involuntarily, this has to be exogenous not only for the father himself but also for the son. Therefore, the estimated hazard ratio of the effect of paternal involuntary unemployment is expected to provide a causal effect.

3 Empirical Approach

As the empirical method the tool of duration analysis is used. Here, the time-event-relationship - the relationship between the duration of job-search and the likelihood of a transition into employment - is explicitly controlled for. Furthermore, the method allows to include all the right censored observations from the dataset, for whom a successful transition into employment cannot be observed. And finally, the empirical results do not only allow an interpretation in terms of changes in probabilities but also in terms of transition duration.

In the following equation 1 is estimated.

$$\lambda_i(t|x) = \lambda_0(t) \exp[\beta_1 \text{SC}_{it} + \beta_2 \text{Macro}_{it} + \beta_3 \text{Father}_{it} + \beta_4 \text{Father in UE}_{it}] \qquad (1)$$

Here, $\lambda(t|x)$ denotes the hazard rate of the transition into the first job in a specific month t conditional on the observable characteristics x. The hazard rate consists of a baseline

hazard $\lambda_0(t)$ which only depends on time t and is the same for every son. This baseline hazard is then shifted by a shift factor that depends on the individual characteristics of the son (SC_{it}), the macroeconomic conditions ($Macro_{it}$) e.g. regional unemployment rate, observable characteristics of the father ($Father_{it}$) and the labor force status of the father (Father in UE_{it}) in each specific month of the school-to-work transition. The shift factor shifts the baseline hazard proportionally depending on the control variables.

The results presented in the paper are drawn from a COX-proportional hazard model and a parametric model assuming a Weibull distribution. The proportional hazard assumption is verified by a graphical test (see figure 1 in the Appendix) and by the log-rank test.

In order to relax the proportional hazard assumption, piecewise constant hazard models are run. Here the proportional shift of the baseline hazard is allowed to vary between predetermined time intervals. The results are shown in table 8 in the appendix. In another step, a competing risk model suggested by Fine and Gray (1999) is run differentiating between a transition into full- or part-time employment.

4 Results

Column one to three in Table 2 show the results of the COX-Model. Column one in table 2 shows a bivariate regression that suggests a delaying effect of paternal unemployment. In column two individual control variables of the sons (e.g. age, years of education, health) and year dummies are added to the set of control variables. Here, the coefficient is argued to be subject of an omitted variable bias due to the father's unobservable characteristics. It can be seen that in contrast to the bivariate regression, controlling for individual characteristics does not impact the point estimate of the coefficient of interest.

As argued in section 2, column one and two show hazard ratios which might be biased due to father's unobservable ability which is transferred to the next generation. In order to control for the unobservable ability of the father, paternal control variables are added to the regression in column three. Paternal controls such as father's age, handicap level, unemployment experience and years of education are argued to proxy a majority of the unobserved abilities of the father. By including these control variables, it is argued that father's labor market status variables reflect the "bad luck" of the son that his father is unemployed or inactive at the time of the son's school-to-work transition. Following the ceteris paribus

Table 2: Paternal Unemployment on Transition to First Job

	COX-Model			Parametric Model		
	(1)	(2)	(3)	(4)	(5)	(6)
Father is in Relevant Unemployment	0.697	0.600*	0.597*	0.378***	0.330***	0.338***
	(0.184)	(0.170)	(0.182)	(0.103)	(0.100)	(0.113)
Father Out of Labor Force	1.245**	0.886	0.811*	1.293**	0.833	0.742*
	(0.116)	(0.090)	(0.094)	(0.160)	(0.117)	(0.115)
ln ρ				0.551***	0.597***	0.606***
				(0.010)	(0.014)	(0.014)
Individual Controls	No	Yes	Yes	No	Yes	Yes
Year Dummies	No	Yes	Yes	No	Yes	Yes
Paternal Controls	No	No	Yes	No	No	Yes
N	10198	10198	10198	10198	10198	10198

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated using a COX-Model. Column four to six are estimated assuming a weibull distribution in a parametric model.

assumption, the fathers are equal in terms of observables and the only observable difference is the appearance of fathers' unemployment or labor market inactivity. The hazard ratios from column three suggest that paternal unemployment within the school-to-work transition decreases the likelihood of entering the first job by about 40%. Paternal labor market inactivity shows to decrease the likelihood of transition just as paternal unemployment, but only by about 19%. The results imply that while about 50% of the sons whose fathers are in employment entered the first job six months into the school-to-work transition, only about 25% of the sons whose fathers are in a relevant unemployment spell entered the first job by that time.

Column four, five and six show the results for the parametric model assuming a Weibull distribution. The results from the COX-Model are confirmed but the size of the effects appears to be much larger. The results imply that the father being in a relevant unemployment spell decreases sons' probability to enter a job in a given period by about 65%. Thus, only 15% of the sons took up their first job six months after leaving education when their fathers are in relevant unemployment, compared to about 40% of the sons whose fathers are in employment. The negative effect of the father being out of the labor force amounts to a reduction in the transition probability six months after leaving school of about 10%. Following Chen and Feng (2011) paternal background proxies the availability of networks and nepotism in the school-to-work transmission, therefore one has to assume that due to fathers' unemployment, sons' are less likely to make use of their fathers' networks and therefore suffer in terms of delayed transitions.

As a robustness check the failure variable is reconstructed to indicate the take-up of a first significant job. Here, the entry into the first significant job is defined as the take-up of a full-time position that lasts for at least six further months. The results of this robustness checks can be found in table 6 in the Appendix. While the failure event considerably differs from the main specification (section 4) the results remain qualitatively stable. However, one has to note that the number of failures significantly decreases in the robustness checks, as further restrictions are imposed on the failure variable.

One could argue that the decision that relevant unemployment is of a minimum of three months is arbitrary. Robustness checks for one month and six months paternal unemployment spells show that the results vary to the expected extent (Table 7 in the Appendix). Shorter paternal unemployment spells appear to have relatively weaker effects, whereas longer unemployment spells affect the school-to-work transition of the son to a larger extent. To be able to account for labor market inactivity, another dummy variable is generated that controls for the case that the father is out of the labor force. Thus, employed fathers serve as the reference group.

In the appendix different duration models are applied in order to test the robustness of the results in terms of the econometric model. While the piecewise constant hazard model (table 8) shows comparable results, the differentiation between full- and part-time employment in the first job by applying a competing risk model (table 9) shows interesting insights. Column one to three in table 9 in the appendix show the results for full-time employment in the first job as the failure event, whereas part-time employment in the first job serves as the competing event. The results from the baseline specification (full- and part-time employment as the failure event) are confirmed. Column four to six where part-time employment is the failure event whereas full-time employment serves as the competing event show a completely different effect. Statistically insignificant hazard ratios suggest that paternal unemployment accelerates school-to-work transitions into part-time employment. This suggests that sons will be more likely to accept part-time jobs if their fathers are in relevant unemployment. However, the hazard ratios are not statistically significantly different from one. This stems from the relatively low number of failures (only 54 sons take up part-time jobs). Therefore, this results has to be treated with caution.

In table 3 the results of the estimations where it is differentiated between voluntary and involuntary unemployment are shown. Paternal involuntary unemployment is defined as the

father being in an unemployment spell of more than three months due to company closure. Thus, it is argued that the hazard ratios in row one provide causal effect.

Table 3: Paternal Involuntary Unemployment on Transition to First Job

	COX-Model			Parametric Model		
	(1)	(2)	(3)	(4)	(5)	(6)
Father Exogeneously Unemployed	1.065	0.996	0.951	0.504	0.467	0.459
	(1.104)	(1.053)	(1.004)	(0.506)	(0.497)	(0.481)
Father Endogeneously Unemployed	0.937	0.904	0.956	0.519	0.539	0.597
	(0.373)	(0.373)	(0.402)	(0.229)	(0.248)	(0.282)
Father Out of Labor Force	1.255**	0.892	0.845	1.330**	0.858	0.827
	(0.117)	(0.091)	(0.101)	(0.164)	(0.120)	(0.132)
ln ρ				0.543***	0.588***	0.599***
				(0.010)	(0.014)	(0.014)
Individual Controls	No	Yes	Yes	No	Yes	Yes
Year Dummies	No	Yes	Yes	No	Yes	Yes
Paternal Controls	No	No	Yes	No	No	Yes
N	10147	10147	10147	10147	10147	10147

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated using a COX-Model. Column four to six are estimated assuming a weibull distribution in a parametric model.

The direction of the estimated effect is line with the baseline specification from table 2. The hazard ratios of the COX-Model suggest a 5% decline in the transition rate into employment. The hazard ratios from the parametric model assuming a Weibull distribution suggest a decline of about 50%. However, the hazard ratios are not statistically significantly different from one. This is driven by the relatively low number of cases where the father experiences involuntary unemployment. Therefore, the results can only be regarded as a background check and cannot serve as the major specification of the study. However, the statistically insignificant hazard ratios support the argument of paternal unemployment within the school-to-work transition having a delaying effect on the take-up of the first job by the sons.

4.1 Subgroup Analysis

It might be the case that the effects are homogeneous across different sub-populations, but it might also be the case that differences exist. As Kramarz and Skans (2010), Coate (2013) or Marcenaro-Gutierrez and Vignoles (2009) argue the use of parental networks to find the first job significantly differs by the son's own level of education as well as the parent's level of education. Thus, table 4 shows the differences in the effects according to the sons' and fathers' level of education. Only the results of the parametric model assuming a Weibull

distribution are displayed throughout this section. The results of the COX-Model are very similar and available on request.

Table 4: Paternal Unemployment on Transition to First Job (Subgroup Analysis)

	Father's Education		Son's Education	
	Low	High	Low	High
	(1)	(2)	(3)	(4)
Father is in Relevant Unemployment	0.194***	0.572	0.624	0.208***
	(0.106)	(0.222)	(0.300)	(0.111)
Father Out of Labor Force	0.650**	0.776	1.023	0.636**
	(0.135)	(0.189)	(0.348)	(0.115)
ln ρ	0.610***	0.627***	0.593***	0.623***
	(0.023)	(0.020)	(0.028)	(0.019)
Individual Controls	Yes	Yes	Yes	Yes
Year Dummies	Yes	Yes	Yes	Yes
Paternal Controls	Yes	Yes	Yes	Yes
N	4589	5609	3917	4592

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). All models are estimated assuming a weibull distribution in a parametric model.

It can be seen that regardless of the fathers' level of education a delaying effect of paternal unemployment on the duration of sons' school-to-work transition can be found. However, sons whose father's level of education (column one) is below the median suffer much more (decrease of the baseline hazard of about 80%) than sons whose fathers' level of education is above the median (column two; decrease of the baseline hazard of about 43%). This result is interesting, as according to Corak and Piraino (2011) or Kramarz and Skans (2010) one would assume that the effect should be much more pronounced for sons of highly educated fathers. The results suggest that there might be more to the story than simply network effects. A loss of self esteem as argued by the non-monetary costs of parental unemployment (see Kind and Haisken-DeNew (2012b) or Kind and Haisken-DeNew (2012a)) could be part of the story.

The SOEP entails information on job search effort and the channels of job search used by individuals. Taking a look on these variables shows that sons of high educated fathers do not adjust their search intensity nor their channels for job search when their fathers enter unemployment. However, this is different for sons of less educated fathers. These sons increase job search activities. Furthermore, they increase their search behavior via Internet platforms or newspaper advertisements. However, this adjustment in job search behavior does not lead to a faster take-up of first jobs.

In terms of son's own education column three and four of table 4 display the results. Inter-

estingly, the delaying effect of father's unemployment can only be found for sons with above median years of education (column four). Thus, it appears to be the case that especially better educated sons suffer from father's unemployment. Here it is important to note that the high educated sons in the sample are a somewhat selected group. In contrast to the majority of the high-skilled population the sons more often stayed at home while studying. Thus, it can be argued that their ties to their families are quite strong (see section 4.2 for a detailed discussion). As a result, their fathers' unemployment might be of much more importance than it is for an average son of the German population. In terms of job search behavior, it can be seen that high educated sons adjust their search behavior when their fathers are unemployed in contrast to low educated sons. While high educated sons do not adjust their search intensity, they choose different channels to search for a job. SOEP data suggests that these sons do not use their relatives and friends in order to find a job but turn to more "official" job search advisors (i.e. unemployment agencies). Unfortunately this adjustment in behavior is unable to compensate the delaying effect of paternal unemployment.

4.2 External Validity of the Results

The reader might be concerned of self selection into the sample. The SOEP is a household questionnaire that interviews all household members who are older than 16 and who are willing to participate in the survey. Thus, the sons who are subject in this study, enter the sample by the age of 17 and can be divided into four groups.

Table 5: Groups of the Population

	Continues to answer questionnaire	Does not continue to answer questionnaire
Lives with parents	Group A	Group B
Moved out	Group C	Group D

Group A and B stay with their parents until they finish (tertiary) education, vocational training or military/community service and enter the labor market. While group A continues to participate in the survey, group B might decide to drop out of the survey for whatever reason. While group A will enter the sample in this study, group B is cannot be included in the analysis. Furthermore, group C and D decide to leave their parent's household while in (tertiary) education, vocational training or military/community service. While group C

decides to stay in the data set and continues to answer the questionnaire every year, group D decides to stop answering the questionnaire. As a result, only group A and C are included in the sample of this study while group B and D are excluded. While group B might be a relatively low share of the population, it is assumed that group D is the majority of the population. If group D systematically differs from the other three groups - or even more important from group A and C - the results of the present study might be not externally valid for the German population.

The sample is very likely to be not representative for Germany and therefore the results are not generalizable to the entire German population. The effects found are of large quantity and imply long-run costs for a specific group of adolescents. While the analysis should not lead to large policy programs for all adolescents, it provides strong arguments to target this specific group of adolescents. Sons with strong ties to their parents and who experience paternal unemployment suffer to large extents from paternal unemployment and should therefore be specifically targeted by unemployment agencies.

5 Conclusion

The long-lasting career consequences of youth unemployment have been subject to many studies (e.g. Tominey and Gregg (2005)). The present study contributes to the literature on the determinants of smooth school-to-work transitions and the role of intergenerational transmission (e.g. Kramarz and Skans (2010) and Corak and Piraino (2011)). Here, it is examined whether paternal unemployment while the son is searching for the first job has a direct effect on the duration of the school-to-work transition. While financial pressure on the household could accelerate school-to-work transition, missing networks or assistance from the father could delay labor market entries. Thus, an empirical investigation is needed. One strength of the SOEP is the possibility to link labor market biographies of fathers to their sons' school-to-work transitions. Applying continuous time duration models on panel data for the years 1991-2011 sons' school-to-work transitions are analyzed.

The results show that the father being in a relevant unemployment spell - i.e. the unemployment spell lasts for at least three consecutive months - delays labor market entry of the sons. The likelihood to take-up the first job in a given period is decreased by about 50-80%. To put it differently, the share of sons who take-up of their first job six months into the

school-to-work transition is decreased from about 40% to about 20% when the father is in relevant unemployment.

The results are heterogeneous between different educational groups. The analysis shows that unemployment of low educated fathers appears to have the strongest impact on the adolescent sons. Furthermore, high educated sons are affected to a larger extent by paternal unemployment. This difference among different subgroups can be explained by different adjustments in job search behavior of the sons. It appears to be the case that the sons who suffer the most do adjust their search behavior but do this unsuccessfully.

The disadvantage of young men whose fathers are unemployed while they are entering the labor market is of high relevance, as early career unemployment has life-long consequences in terms of wages and employment stability. This highlights once more the importance of intergenerational effects of unemployment. Unemployment agencies should pay extra attention to unemployed men whose children are entering the labor market. The present study shows that the adolescent sons suffer and unsuccessfully adjust their job search behavior. This process should be guided by unemployment agencies in order to smooth school-to-work transitions.

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A Appendix

Figure 1: Kaplan-Meier Survivor Function.

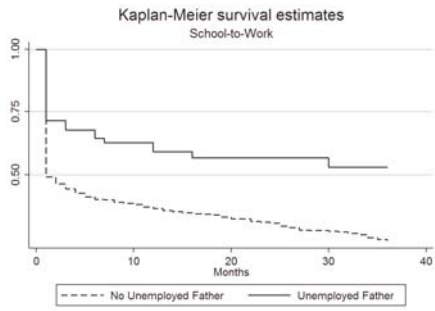

Table 6: Paternal Unemployment on Transition to First Job (Significant Job)

Dep.Var.:	Full-Time for min. 6 months		
	(1)	(2)	(3)
Father is in Relevant Unemployment	0.284***	0.250***	0.278***
	(0.110)	(0.104)	(0.129)
Father Out of Labor Force	1.323*	0.832	0.769
	(0.208)	(0.145)	(0.146)
Age		1.180***	1.156***
		(0.017)	(0.020)
West Germany		0.755	0.743
		(0.202)	(0.200)
Handicap Lvl		0.983*	0.981*
		(0.010)	(0.010)
Left Vocational Training		1.981***	2.219***
		(0.249)	(0.293)
Left Military or Community Service		0.915	0.995
		(0.296)	(0.323)
Monthly UE Rate		0.951*	0.957
		(0.029)	(0.028)
Past UE Experience (Father)			0.934
			(0.039)
Years of Education (Father)			1.076***
			(0.025)
Age (Father)			1.022*
			(0.014)
Handicap Level (Father)			1.004
			(0.003)
ln ρ	0.559***	0.608***	0.621***
	(0.013)	(0.018)	(0.019)
Year Dummies	No	Yes	Yes
N	10198	10198	10198

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated assuming a weibull distribution in a parametric model.

Table 7: Paternal Unemployment on Transition to First Job (Months of paternal UE)

	(1)	(2)	(3)	(4)	(5)	(6)
Baseline:						
Father is in Relevant Unemployment (min. 3 months)	0.742*	0.648*				
	(0.129)	(0.146)				
Father is in Relevant Unemployment (min. 1 months)			0.597*	0.338***		
			(0.182)	(0.113)		
Father is in Relevant Unemployment (min. 6 months)					0.573	0.320***
					(0.195)	(0.119)
Father Out of Labor Force	0.807*	0.752*	0.811*	0.742*	0.811*	0.743*
	(0.094)	(0.116)	(0.094)	(0.115)	(0.094)	(0.115)
Age	1.112***	1.136***	1.111***	1.135***	1.111***	1.136***
	(0.011)	(0.016)	(0.011)	(0.016)	(0.011)	(0.016)
West Germany	0.840	0.904	0.830	0.877	0.835	0.883
	(0.121)	(0.188)	(0.121)	(0.185)	(0.122)	(0.186)
Handicap Lvl	0.985**	0.980**	0.985**	0.981**	0.985**	0.981**
	(0.007)	(0.008)	(0.007)	(0.008)	(0.007)	(0.008)
Left Vocational Training	1.825***	1.938***	1.843***	1.978***	1.850***	1.985***
	(0.142)	(0.205)	(0.147)	(0.213)	(0.147)	(0.214)
Left Military or Community Service	2.460***	2.916***	2.473***	2.986***	2.489***	3.003***
	(0.312)	(0.569)	(0.314)	(0.589)	(0.317)	(0.594)
Monthly UE Rate	0.973*	0.973	0.973*	0.973	0.973*	0.973
	(0.015)	(0.022)	(0.015)	(0.022)	(0.015)	(0.022)
Past UE Experience (Father)	0.983	0.973	0.984	0.972	0.985	0.971
	(0.022)	(0.027)	(0.023)	(0.029)	(0.023)	(0.030)
Years of Education (Father)	1.031**	1.053***	1.032**	1.054***	1.031**	1.054***
	(0.013)	(0.020)	(0.014)	(0.020)	(0.014)	(0.020)
Age (Father)	1.017**	1.021*	1.017**	1.021**	1.017**	1.022**
	(0.008)	(0.011)	(0.008)	(0.011)	(0.008)	(0.011)
Handicap Level (Father)	1.002	1.003	1.002	1.004*	1.002	1.004*
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
ln ρ		0.600***		0.606***		0.605***
		(0.014)		(0.014)		(0.014)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes
N	10304	10304	10198	10198	10100	10100

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated using a COX-Model. Column four to six are estimated assuming a weibull distribution in a parametric model.

Table 8: Piecewise Constant Hazard

	(1)	(2)	(3)
Months 0-3 of school-to-work transition	0.220***	0.010***	0.004***
	(0.011)	(0.004)	(0.002)
Months 3-6 of school-to-work transition	0.027***	0.002***	0.001***
	(0.005)	(0.001)	(0.000)
Months $\geq$ 6 of school-to-work transition	0.016***	0.001***	0.000***
	(0.002)	(0.000)	(0.000)
Father in Relevant UE in months 0-3	0.303**	0.289**	0.275**
	(0.152)	(0.146)	(0.140)
Father in Relevant UE in months 3-6	0.529	0.462	0.471
	(0.385)	(0.336)	(0.345)
Father in Relevant UE in months $\geq$6	0.730	0.586	0.604
	(0.254)	(0.206)	(0.222)
Father Out of Labor Force (Combined)	1.307**	0.848	0.762*
	(0.159)	(0.109)	(0.114)
Individual Controls	No	Yes	Yes
Year Dummies	No	Yes	Yes
Paternal Controls	No	No	Yes
N	10198	10198	10198

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect).

Table 9: Competing Risk Model

Failure Event:	Full-Time Employment		Part-Time Employment			
Competing Event:	Part-Time Employment		Full-Time Employment			
	(1)	(2)	(3)	(4)	(5)	(6)
Father is in Relevant Unemployment	0.680	0.568*	0.585	1.751	2.172	1.733
	(0.198)	(0.180)	(0.199)	(1.080)	(1.377)	(1.315)
Father Out of Labor Force	1.218*	0.873	0.816	1.328	0.906	0.797
	(0.129)	(0.102)	(0.111)	(0.468)	(0.334)	(0.398)
Individual Controls	No	Yes	Yes	No	Yes	Yes
Year Dummies	No	Yes	Yes	No	Yes	Yes
Paternal Controls	No	No	Yes	No	No	Yes
N	10198	10198	10198	10198	10198	10198

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect).

Table 10: Paternal Unemployment on Transition to First Job (extended)

	COX-Model			Parametric Model		
	(1)	(2)	(3)	(4)	(5)	(6)
Father is in Relevant Unemployment	0.697	0.600*	0.597*	0.378***	0.330***	0.338***
	(0.184)	(0.170)	(0.182)	(0.103)	(0.100)	(0.113)
Father Out of Labor Force	1.245**	0.886	0.811*	1.293**	0.833	0.742*
	(0.116)	(0.090)	(0.094)	(0.160)	(0.117)	(0.115)
Age		1.129***	1.111***		1.158***	1.135***
		(0.009)	(0.011)		(0.013)	(0.016)
West Germany		0.845	0.830		0.886	0.877
		(0.123)	(0.121)		(0.185)	(0.185)
Handicap Lvl		0.986**	0.985**		0.982**	0.981**
		(0.007)	(0.007)		(0.008)	(0.008)
Left Vocational Training		1.755***	1.843***		1.840***	1.978***
		(0.133)	(0.147)		(0.192)	(0.213)
Left Military or Community Service		2.349***	2.473***		2.794***	2.986***
		(0.286)	(0.314)		(0.529)	(0.589)
Monthly UE Rate		0.971*	0.973*		0.968	0.973
		(0.016)	(0.015)		(0.022)	(0.022)
Past UE Experience (Father)			0.984			0.972
			(0.023)			(0.029)
Years of Education (Father)			1.032**			1.054***
			(0.014)			(0.020)
Age (Father)			1.017**			1.021**
			(0.008)			(0.011)
Handicap Level (Father)			1.002			1.004*
			(0.002)			(0.002)
ln ρ				0.551***	0.597***	0.606***
				(0.010)	(0.014)	(0.014)
Year Dummies	No	Yes	Yes	No	Yes	Yes
N	10198	10198	10198	10198	10198	10198

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated using a COX-Model. Column four to six are estimated assuming a weibull distribution in a parametric model.

Table 11: Paternal Unemployment on Transition to First Job (extended)

	COX-Model			Parametric Model		
	(1)	(2)	(3)	(4)	(5)	(6)
Father Exogeneously Unemployed	1.065	0.996	0.951	0.504	0.467	0.459
	(1.104)	(1.053)	(1.004)	(0.506)	(0.497)	(0.481)
Father Endogeneously Unemployed	0.937	0.904	0.956	0.519	0.539	0.597
	(0.373)	(0.373)	(0.402)	(0.229)	(0.248)	(0.282)
Father Out of Labor Force	1.255**	0.892	0.845	1.330**	0.858	0.827
	(0.117)	(0.091)	(0.101)	(0.164)	(0.120)	(0.132)
Age		1.129***	1.111***		1.157***	1.135***
		(0.009)	(0.011)		(0.013)	(0.016)
West Germany		0.846	0.827		0.903	0.885
		(0.123)	(0.122)		(0.188)	(0.189)
Handicap Lvl		0.986**	0.986**		0.983**	0.981**
		(0.007)	(0.007)		(0.008)	(0.008)
Left Vocational Training		1.727***	1.826***		1.769***	1.943***
		(0.131)	(0.146)		(0.186)	(0.211)
Left Military or Community Service		2.359***	2.492***		2.774***	2.969***
		(0.284)	(0.315)		(0.518)	(0.583)
Monthly UE Rate		0.971*	0.973*		0.967	0.972
		(0.016)	(0.016)		(0.022)	(0.022)
Past UE Experience (Father)			0.962*			0.929**
			(0.022)			(0.027)
Years of Education (Father)			1.033**			1.056***
			(0.014)			(0.020)
Age (Father)			1.017**			1.019*
			(0.008)			(0.011)
Handicap Level (Father)			1.002			1.002
			(0.002)			(0.003)
ln ρ				0.543***	0.588***	0.599***
				(0.010)	(0.014)	(0.014)
Year Dummies	No	Yes	Yes	No	Yes	Yes
N	10147	10147	10147	10147	10147	10147

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Column one to three are estimated using a COX-Model. Column four to six are estimated assuming a weibull distribution in a parametric model.

Table 12: Paternal Unemployment on Transition to First Job (Subgroup Analysis, Extended)

	Father's Education		Son's Education	
	Low	High	Low	High
	(1)	(2)	(3)	(4)
Father is in Relevant Unemployment	0.194***	0.572	0.624	0.208***
	(0.106)	(0.222)	(0.300)	(0.111)
Father Out of Labor Force	0.650**	0.776	1.023	0.636**
	(0.135)	(0.189)	(0.348)	(0.115)
Age	1.114***	1.170***	1.046	1.077***
	(0.023)	(0.022)	(0.058)	(0.020)
West Germany	0.758	0.830	1.124	0.975
	(0.259)	(0.222)	(0.504)	(0.244)
Handicap Lvl	0.994	0.955**	0.982*	0.987
	(0.005)	(0.021)	(0.009)	(0.013)
Left Vocational Training	1.714***	2.515***	5.074***	1.193
	(0.297)	(0.336)	(1.569)	(0.171)
Left Military or Community Service	3.306***	2.400***	4.812***	2.215***
	(0.848)	(0.669)	(2.116)	(0.524)
Monthly UE Rate	0.937*	0.997	1.015	0.981
	(0.033)	(0.027)	(0.047)	(0.025)
Past UE Experience (Father)	0.978	0.916	1.010	0.948
	(0.038)	(0.052)	(0.052)	(0.038)
Years of Education (Father)	1.080	1.050*	1.011	1.067***
	(0.153)	(0.028)	(0.048)	(0.025)
Age (Father)	1.013	1.041***	1.023	1.023*
	(0.016)	(0.015)	(0.022)	(0.014)
Handicap Level (Father)	1.009***	1.001	1.006	1.006*
	(0.003)	(0.003)	(0.004)	(0.003)
ln ρ	0.610***	0.627***	0.593***	0.623***
	(0.023)	(0.020)	(0.028)	(0.019)
Year Dummies	Yes	Yes	Yes	Yes
N	4589	5609	3917	4592

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). All models are estimated assuming a weibull distribution in a parametric model.

Table 13: Subgroup Analysis

	Left Voc. Education		Lives in West Germany		Age of Son		Economic Conditions	
	Yes	No	Yes	No	Young	Old	Good	Bad
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father is in Relevant Unemployment	0.336**	0.408*	0.209**	0.503*	0.202**	0.402***	0.223*	0.394***
	(0.144)	(0.205)	(0.141)	(0.185)	(0.164)	(0.142)	(0.186)	(0.138)
Father Out of Labor Force	0.849	0.597**	0.683**	0.859	0.913	0.739*	0.799	0.671*
	(0.211)	(0.126)	(0.123)	(0.232)	(0.278)	(0.127)	(0.184)	(0.148)
Age	1.059**	1.174***	1.143***	1.132***	1.344**	1.090***	1.146***	1.138***
	(0.027)	(0.022)	(0.019)	(0.030)	(0.200)	(0.020)	(0.022)	(0.022)
West Germany	0.912	0.976	1.000	1.000	0.842	1.085	0.805	0.982
	(0.282)	(0.278)	(.)	(.)	(0.363)	(0.255)	(0.486)	(0.237)
Handicap Lvl	0.980**	0.986	0.995	0.914**	0.978*	0.983**	0.997	0.972**
	(0.009)	(0.017)	(0.005)	(0.037)	(0.013)	(0.008)	(0.009)	(0.012)
Left Vocational Training	1.000	1.000	2.116***	1.882***	6.120***	1.158	2.370***	1.840***
	(.)	(.)	(0.282)	(0.359)	(1.827)	(0.150)	(0.362)	(0.264)
Left Military or Community Service	1.000	3.129***	3.688***	2.660***	4.907***	2.086***	3.354***	2.829***
	(.)	(0.660)	(0.996)	(0.728)	(2.494)	(0.446)	(1.061)	(0.683)
Monthly UE Rate	0.965	1.000	0.978	0.973	0.989	0.996	0.970	1.002
	(0.032)	(0.029)	(0.029)	(0.038)	(0.044)	(0.024)	(0.039)	(0.029)
Past UE Experience (Father)	0.956	1.002	1.003	0.909*	0.989	0.975	0.969	0.959
	(0.041)	(0.038)	(0.039)	(0.044)	(0.049)	(0.034)	(0.053)	(0.035)
Years of Education (Father)	1.061*	1.043*	1.061***	1.064*	0.951	1.059***	1.057**	1.064**
	(0.033)	(0.027)	(0.025)	(0.036)	(0.054)	(0.023)	(0.029)	(0.028)
Age (Father)	1.011	1.037**	1.028**	1.013	1.013	1.020	1.028*	1.014
	(0.015)	(0.016)	(0.013)	(0.020)	(0.021)	(0.012)	(0.015)	(0.016)
Handicap Level (Father)	1.002	1.006	1.004	1.004	1.006	1.004	1.000	1.009**
	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)	(0.003)	(0.004)	(0.003)
ln ρ	0.606***	0.626***	0.639***	0.577***	0.692***	0.609***	0.664***	0.582***
	(0.018)	(0.022)	(0.021)	(0.021)	(0.032)	(0.017)	(0.024)	(0.017)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	3878	6320	6173	4025	4222	5976	3912	6286

Note: Authors' calculations based on SOEP (1991-2012). *** p<0.01; ** p<0.5; * p<0.1. Robust standard errors in parentheses. Hazard ratios are reported (HR >1 positive effect; HR <1 negative effect). Being younger when entering the sample than the mean age classifies as young. Experiencing a below mean unemployment rate in the state when entering the sample is classified as good economic conditions.