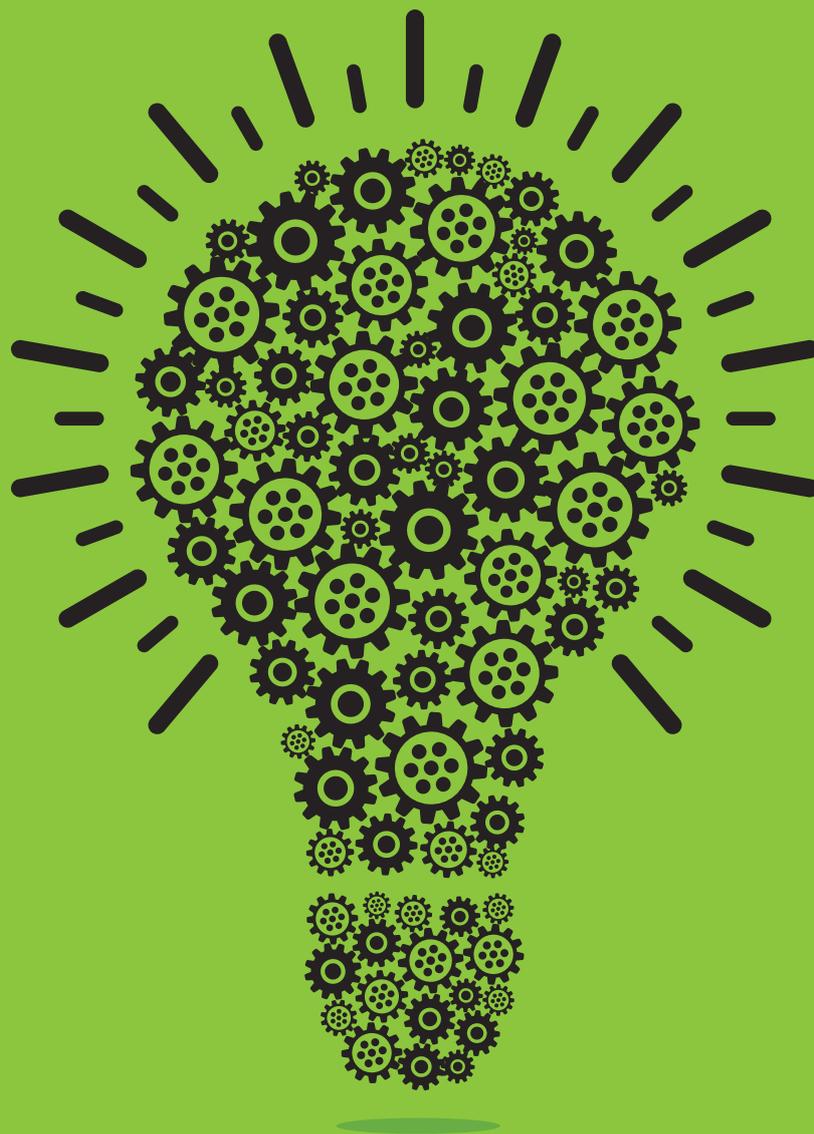




# ATTITUDES, MOTIVATIONS AND ENTREPRENEURSHIP IN DENMARK

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## → ABSTRACT

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Do entrepreneurs and wage earners in Denmark differ significantly in their attitudes and motivations in working life? Is there scope for affecting these aspects of entrepreneurial culture through policy in the short term or is culture embedded in institutions whose values only change over the long term, such as the family? Using survey data, we measure attitudes and motivations in working life for a representative group of 862 self-employed individuals and 1008 wage-earners and a subgroup of 681 parents to these two groups. We focus on the difference between the responses of self-employed and wage earners and the extent to which the answers of the parent-child pairs in our survey are correlated. We use standard economic analysis to rule out that these differences in culture are driven by other factors such as parents' wealth and level of education. Our main results are as follows. First, we find that there are strong cultural differences between the self-employed and wage earners. In particular, the self-employed describe themselves as being more ambitious and competitive, and they consider independence an important feature of working life to a much higher degree than wage earners. On the contrary, wage earners are motivated to a higher degree by jobs that allow them to have a high level of consumption, a fixed income, recognition, and job security. Second, our results point to some influence from parents on children attitudes and motivations, although generally not on the dimensions that distinguish the self-employed from the wage earners. This indicates that sources other than values transmitted by the family are important determinants of entrepreneurial culture and opens the possibility for policy intervention.



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# → INTRODUCTION

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In the Entrepreneurship Index last published by the Danish Business Authority in 2012, Denmark ranks 10th among OECD countries in terms of the framework conditions for entrepreneurship. Seen in more detail, Denmark's score is above average in four out of the five indicators that make up this index, namely: regulation, access to finance, market conditions, and creation and diffusion of knowledge. But when it comes to entrepreneurial culture, the 5th dimension of the index, Denmark lags behind all top 10 countries with the best combined score as number 21. This fact has spurred the interest in entrepreneurial culture behind this report, which looks into two specific aspects of culture, namely attitudes and motivations in working life and seeks to answer the following two questions: Do entrepreneurs and wage earners in Denmark differ significantly in their attitudes and motivations in working life? Is there scope for affecting these aspects of entrepreneurial culture through policy in the short term or is culture embedded in institutions such as the family whose values only change over the long term?

From a policy perspective these are important questions as a higher level of entrepreneurship can lead to higher levels of competition, innovation and productivity growth (van Praag and Versloot, 2007). Therefore, identifying the specific attitudes and motivations that distinguish entrepreneurs from wage earners and its sources, as well as the role that these cultural attributes play in the decision to become self-employed compared to other factors such as economic rewards, can inform entrepreneurship policy at different levels.

For instance: Is promoting entrepreneurial culture a reasonable policy goal, or should one rather concentrate on improving economic incentives for entrepreneurship?; Can entrepreneurial culture be promoted outside the household to create entrepreneurs or should policy concentrate on identifying

those individuals that already have entrepreneurial characteristics?; If there is scope for promoting entrepreneurial culture at, for instance, the school level, which attitudes and values should the “entrepreneurial curriculum” focus on?

The results of this report build on a previous study for Denmark which analyzed the reasons for which the children of self-employed parents are more likely to become self-employed and found that this pattern is best explained by a parental role-model effect which is strongest along same-gender lines, and not by financial or human capital effects, nor by the existence of family firms (Hoffman, et al. 2012). Our results also build on another study based on Danish data by Dahl et al. (2009), which found that personality traits matter for the decision to become self-employed. In particular, it found that risk attitudes, locus of control, and optimism are important differences between self-employed and wage-earners.

Our study is based on a survey in which individuals were asked about their attitudes and motivations in working life along 14 different dimensions. We focus on the difference between the responses of self-employed and wage earners in 2013 and the extent to which the answers of interviewed parent-child pairs are correlated. Given the way our survey was designed we effectively compare successful self-employed individuals with wage earners<sup>1</sup>. We use standard economic analysis to rule out that these differences in culture are driven by other factors such as parents' wealth and level of education. Second, we approach the possibility that these cultural differences are determined after the choice of employment has taken place (reverse causality) or driven by measurement error by using parents' self-reported attitudes and motivations as instruments for children self-reported attitudes.

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<sup>1</sup> In our sample, the self-employed started their business in the period 2009-2011 with a turnover of at least ½ mill DKK in the second year.

Our main results are as follows. First, we find that there are strong cultural differences between the self-employed and wage earners in our survey. In particular, the self-employed describe themselves as being more ambitious and competitive, and they consider independence an important feature of working life to a much higher degree than wage earners. On the contrary, wage earners are motivated to a higher degree by jobs that allow them to have a high level of consumption, a fixed income, recognition, and job security.

Second, our results point to some influence from parents on children attitudes and motivations, but they also indicate that other sources are important determinants of entrepreneurial culture. The correlation between parents' and children answers to the survey is positive and statistically significant for the questions measuring risk attitudes, and the extent to which an individual is motivated by earning a lot of money, a high level of consumption, a challenging job, a meaningful job, high job flexibility, fulfilling parents' expectations and high job security. On the contrary we find no significant correlation in the questions that measure how ambitious and competitive individuals are, nor those that measure the extent to which survey respondents are motivated by fixed income, independence, prestige and recognition.

Third, in the model where we use parents self-reported risk attitudes as instruments, we find that more positive attitudes towards are associated with self-employment, which points to the possibility of downward bias in the coefficient to risk attitudes in our original model.

In terms of policy implications, these results provide an indication that there is scope for affecting entrepreneurial culture through policy interventions. First and foremost, the finding that attitudes and motivations that distinguish entrepreneurs are far from being determined by parental influence opens possibilities for instilling attitudes of ambition and competitiveness in realms other than the household. Second, the previous finding that parents'

have a very significant influence in the decision to become an entrepreneur because they are role-models and not so much because of the attitudes they transmit, also means that increasing exposure to entrepreneurial role models for children that would normally not be exposed to them could have a positive payoff in terms of future startup rates. However, our findings do not say anything about the relative costs and benefits of pursuing policy initiatives to foster entrepreneurial culture relative to other kind initiatives that would, for instance, increase the economic incentives for entrepreneurship.

Our study contributes to the existing literature on culture and entrepreneurship by adding another country case to the studies of the effect of attitudes and motivations on the decision to become self-employed. Second, we try to address some of the problems arising when measuring culture by filtering the survey results for some individual characteristics and by using parents' attitudes as an instrument for children's attitudes. In this way, our study also contributes to a rather small literature that looks at the intergenerational transfer of occupation, and values and motivations.

The rest of the report is structured as follows: In section two we discuss the methodology, section 3 looks at the data and descriptive statistics. In section four we present estimation results of the basic model with all attitudes and motivations in working life in the model. In section five we present the instrumental variable approach. Section six discusses our findings.

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## → METHODOLOGY

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Within the academic field of economics, the decision between self employment and wage employment is understood as a decision driven by economic rationality. Individuals compare the expected returns to self-employment to those of wage-employment. Pecuniary and non-pecuniary returns play a role in the type of employment an individual chooses. Since individuals differ in risk attitudes, values and preferences, and jobs are heterogeneous in terms of their risk profile and other job characteristics such as the level of independence and flexibility that they afford, the combination of individual attitudes, values and preferences matters for the decision to become self-employed. Therefore, startup rates or the share of self-employment in a given country depends on the distribution of income, risk profiles, abilities, values and attitudes in the population.

For many years economists assumed that cultural variables such as values, attitudes and preferences were exogenously determined and time invariant<sup>1</sup>. This was an important and convenient assumption, as time-invariant preferences made it possible to identify a behavioral model by observing individuals' decisions subject to a budget constraint over time. In empirical work culture has also played a minor role, mainly as a nuisance parameter, and researchers have tried to control for it by adding gender, age, country of origin, religion etc. as proxies for culture to their models.<sup>2</sup>

Progressively and linked to the development of behavioral economics, economists have also come to

<sup>1</sup> Despite its convenience, assuming exogeneity of culture can be problematic, as values, attitudes and preferences can change in the course of a person's life and be partly determined by previous employment choices. We touch upon this issue later in the report.

<sup>2</sup> In contrast to economics, the fields of sociology and psychology have historically considered values and attitudes a central element in the decision to become entrepreneur, both in theoretical and empirical work. Just one example of such a study is Baker et al. (2005), a field study of entrepreneurial behavior in 29 resource-constrained firms, which shows how the concept of "bricolage" or making something out of nothing, is a central aspect of entrepreneurship.

focus on the role of culture as a central determinant of economic outcomes. Given that culture is such a broad construct, different studies have focused on specific elements of it. For instance, in Evans et al. (1989), an individual's locus of control, measured by a psychological test known as the Rotter scale is used as an explanatory variable for self-employment. Sapienza et al. 2006 show how economists have used inherited aspects of culture (such as family history, religion and ethnic background) as instruments for individual levels of trust to explain differences in economic outcomes, such as the decision to become an entrepreneur. Caliendo et al. (2009) focus on risk attitudes of entrepreneurs using an experimentally validated survey and find that the self-employed are less risk averse than wage-earners.

In our approach, as in Dahl et al. (2009), we rely on self-reported answers to questions regarding attitudes and motivations in working life. We use register data to control for parent's self-employment history and investigate whether attitudes and motivations are correlated across generations. Parents are a potential channel that for explaining culture because they transmit values to their children. Parents can also play a role in the decision to become entrepreneur, for instance in the case of family firms. Other channels that influence entrepreneurial culture could be investigated. The advantage of focusing on parents is that we know that with high probability they child spent some time with them and from a more technical point of view the other advantage is that we can get parents' information from the registers in Statistics Denmark.

Using our sample of wage-earners and self-employed individuals in Denmark, we follow the literature and estimate a probit model with a binary dependent variable, which is equal to one if the individual was self-employed at the time of the survey and 0 if the individual was employed. The responses to

survey questions about risk preferences, personality traits and preferences regarding specific job characteristics are the explanatory variables of interest. In addition, we control for a long list of explanatory variables that can be divided into the following categories:

- a. Observable individual characteristics that have previously been shown to be significant in explaining self-employment, including: gender, age, origin, level of education, civil status (dummy for single), and number of children
- b. Employment variables including: industry of employment, region of employment and a dummy that equals one if the individual was unemployed in 2008<sup>3</sup>
- c. Parental variables which have also shown to affect an individual's propensity to become self-employed, most importantly parental self employment history and wealth.

There are significant challenges in establishing causality from our explanatory variables of interest to the choice of employment status. There are two particular reasons why we could suspect our explanatory variables to be endogenous. The first challenge arises because we measure differences in attitudes and preferences after the choice of employment has occurred and this means that any correlation we find between our variables of interest and the dependent variable can be driven by reverse causality. It is not far-fetched to assume that the type of employment can impact an individual's preferences. The second challenge is related to is-

<sup>3</sup> An individual's choice of employment status can be constrained by the availability of jobs, so that individuals who face high levels of unemployment are more likely to become self employed out of need. However, this relationship between initial unemployment and self-employment can be dampened by the existence of (generous) unemployment insurance schemes. Furthermore, the "push" effect from unemployment towards self-employment may not be present for individuals that are already employed; on the contrary, the likelihood of switching from employment to self-employment may be negatively correlated with the unemployment level associated with an individual's reference area/industry/skills group: for an individual considering self-employment, the higher the risk of becoming unemployed in the event his firm fails, the lower the inclination to become self-employed and vice versa. (Taylor, 1996)

sues of measurement error, which would arise due to cognitive problems, social desirability or non-attitudes (Bertrand et al., 2001).

We attempt to solve the issue of endogeneity by making use of the parent-child pairs in our data. We instrument the children's responses to two survey questions with the answers given by the interviewed parent to the same two questions. We have chosen to use the following two survey questions:

- a. Do you agree or disagree with the following statement regarding your working life? I am willing to run risks. (Response scale= Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree)
- b. If you were to have a new job now, how important would the following condition be? To fulfill the expectations your parents have or had for you. (Response scale=Very important, important, not important, not important at all)

An additional consideration regarding our choice of instrument is that there might be a great deal of noise arising from systematic differences in the survey responses related to age, gender and method of interview (web or telephone based). It has been shown that women are more likely to be risk averse than men, and that risk-aversion patterns change with age. Previous research has also found that survey format can strongly influence responses. Therefore the correlation between children's and parents' survey responses can be dampened by the fact that for each child-parent pair we only have the response from one parent, that there is significant age variation within both the parent and children groups and that the survey method can be different within each parent-child pair. To minimize the noise, we use these variables to filter the survey responses for both parents and children. We run two regressions with the dependent variables being respectively the answers to the two questions of interest and the independent variables being gender, age, age2, age3 and survey method. We then

find the correlation between parents' and children's residuals. We use these residuals to estimate (a) the original probit without instruments, (b) the probit in which we use parent's residuals as instrumental variables for child's residuals.

Our choice of instruments is theoretically grounded in three strands of the literature: intergenerational transmission of attitudes, culture and economic outcomes and parental role models and entrepreneurship. There is a great deal of evidence for parental influence on the probability of becoming an entrepreneur through the transmission of specific attitudes and preferences. Dohmen, et al. (2011) find positive evidence for the transmission of risk attitudes from parents to children. Hoffman et al. (2012) find that in Denmark, having a parent with self-employment experience generally increases the probability of self employment.

In the following section, we present the data and go through some descriptive statistics.



# DATA AND DESCRIPTIVE STATISTICS

## SAMPLE SELECTION AND SAMPLE SIZE

The survey was administered on three different groups, with some of the questions varying across groups. The first group was firm owner-administrators or self-employed. The second was a control group. The third part was a subsample of parents to the two former groups. We will now discuss each of these groups in turn.

For the first group, we selected firms which started up in 2009-2011 and with a turnover (sales) of at least ½ million DKK the year after startup. We did this for two reasons. First, we wanted to avoid hobby related self-employment and second, we wanted to focus on self-employed with some success. For sole proprietorship firms and partnerships the register<sup>1</sup> provided us with information about owners. For these we decided to focus on self-employed between 18 and 50 years of age. We also included limited liability firms. In this case we did not have information on the owners and the contact to the owner was established by calling the firm and asking to speak to the owner of the firm. We have 1009 responses from sole proprietorship and partnership firms and 635 responses from owners of limited liability firms. In the survey, which took place in June 2013, we removed self-employed that were either not longer owners or were inactive in daily operation of the firm as of June 2013. This means that all the firms in our sample survived at least until mid-2013. From the way we sampled, it becomes evident that our group of self-employed individuals is not at all a random selection of self-employed Danes, but more accurately of entrepreneurs whose firm has survived for at least 2 years. When making

<sup>1</sup> In the design of the survey we made heavy use of Danish register data. All Danes have a social security number, which is used in transactions with banks, tax authorities, firms, and the government, and provide a host of information on social benefits, family relations, health, labor market status and much more. These transactions are collected in Statistics Denmark to generate official statistics about the Danish economy and society at large. But the data can also be accessed by researchers for research purposes. The access is administered through Statistics Denmark and ensures that all individuals remain anonymous.

comparisons between the group of self-employed and wage-earners, it should be taken into consideration that we are comparing a sample of successful entrepreneurs (defining success in terms of survival and a minimum threshold of turnover) to a control group that most likely includes both individuals who have never been self-employed and individuals who have been self-employed at some point but had returned to employment by the time the survey took place.

We selected the control group to match the self-employed in several dimensions, which are known to be important for decision to become self-employed. We did this to reduce variance in further analysis. We do not have register data on owners of limited liability firms and for this reason the control group is matched only to the sole proprietorship and partnerships group. We matched on level of education, age, gender and origin. The total number of responses for the control group was 1388. In the analysis we remove individuals that are self-employed in 2008 and in 2013 from the control group (around 10 per cent), and we also remove unemployed and students (around 10 per cent) in 2008 to focus on the determinants of self-employment relative to salaried employment.

For the group of parents we used information on family relations in the register where the link between (adopted and biological) child and parent is considered of high quality.<sup>2</sup> Since the relationship is established in the registers we can only survey parents for owners of sole proprietorship and partnership firms. We have 340 responses from parents of the control group and 443 responses from parents of owners of sole proprietorship and partners-

<sup>2</sup> Using information from the registers we can bypass children to contact their parents. However, the family connection that we observe in the registers does not always exist in real life. For example we have 7 parents that have replied that they do not have children. We think that the error arising from this kind of situations is small and therefore it makes sense to bypass the children when contacting their parents.

hip firms. For each individual, we contacted only one of the parents. In some cases only one parent had survived to 2013, which made the decision on who to contact a straightforward one. But if both parents survived to 2013, we selected the parent in two different ways. First we selected the most influential parent, which was reported by some of the children in their survey, and for the remaining (the bulk of children) we chose the parent randomly.

Throughout the analysis we are conditioning on information in the registers from 1980-2008. Most of the variables we use the most recent year (2008) prior to the period of startups, but for some variables we construct labor market history (experience as self-employed, ever self employed, experience as employee from 1980 to 2008). The sample size in the analysis will vary to the extent that we can find register information on the respondents. We drop only a small fraction of the data by conditioning on register data for each group of respondents (less than 1 per cent). Moreover, we restrict the control group to wage-earners and this reduces the sample from 1364 observations to 1008 observations.

## DESCRIPTIVE STATISTICS

We begin by briefly discussing the similarities and differences between the self-employed and wage-earners in our sample, who can be consulted in more depth in Table A. Except for the variables of interest, all statistics presented in this table correspond to the lagged values of the variables for the year 2008. As expected by our sampling method, both groups are very similar in terms of age, gender, origin and years of education. Average age for the whole sample is 34 years old and average years of education is 14. Because females and individuals with a non-Danish ethnic origin were harder to get survey responses from, these two groups are slightly over-represented in the wage-earners group. 32 per cent of wage-earners are female and 15 per cent are immigrants (first and second generation), while only 26 and 11 per cent are respectively female and immigrants in the self-employed group. Geographically, we cannot observe a significant

difference between the self-employed and wage earners. The self-employed were slightly overrepresented in the capital region and northern Jutland. More significant differences between wage-earners and self-employed arise when looking at industry of employment in 2008. Trade and transport was the most important industry in our sample with almost 26 per cent of the self-employed and 22 per cent of wage-earners being employed in it. Almost 10 per cent of the self-employed were working in agriculture, compared to 1 per cent of wage-earners. The second and third main sectors of employment for wage-earners were the public sector and industry accounting respectively for 24 and 21 of this group, compared to only 6 and 9 per cent of self-employed. After trade and transport the most important industries of employment for the self-employed were construction and business services, accounting for 15 and 11 per cent of this group compared to 10 and 9 per cent of wage earners.

Civil status, number of children and unemployment status in 2008 are three other variables in which our group of self-employed and wage-earners are different from each other. The self-employed in our sample are less likely to be single and on average have slightly more children than wage earners. Our dummy for unemployment in 2008 shows that 2.1 per cent of the self-employed were in this situation compared to 1.2 per cent of wage earners.

## PARENTAL CHARACTERISTICS

We now turn to the characteristics of the parents of the individuals in our sample, which are included in Table A1. The fathers in our sample are between 36 and 95 years old and the mothers between 37 and 90, with very slight difference in average age between groups. In terms of years of education, the parents of the self-employed and wage-earners also look slightly different, 21 per cent of both mothers and fathers of wage earners have 15 years of education or more, compared to 24 and 18 per cent of the mothers and fathers of the self-employed. That is, the self-employed have mothers with longer education and fathers with shorter education than wage earners.

**TABLE A**

variable	Employees			Self-employed			Total		
	N	mean	se(mean)	N	mean	se(mean)	N	mean	se(mean)
Age	1008	33.98	0.23	862	33.62	0.25	1870	33.81	0.17
Age squared	1008	1207.19	15.05	862	1184.35	16.36	1870	1196.66	11.08
Female	1008	0.32	0.01	862	0.26	0.02	1870	0.29	0.01
Non danish	1008	0.15	0.01	862	0.11	0.01	1870	0.13	0.01
Dummy for single	1008	0.27	0.01	862	0.23	0.01	1870	0.25	0.01
Number of children	1008	1.23	0.04	862	1.30	0.04	1870	1.26	0.03
Dummy for ever self employed	1008	0.07	0.01	862	0.25	0.01	1870	0.15	0.01
Dummy for unemployed in 2008	1008	0.01	0.00	862	0.02	0.00	1870	0.02	0.00
Years of Education	1008	13.62	0.07	862	13.55	0.08	1870	13.59	0.05
Nordjylland	1008	0.09	0.01	862	0.11	0.01	1870	0.10	0.01
Midtjylland	1008	0.25	0.01	862	0.24	0.01	1870	0.25	0.01
Syddanmark	1008	0.22	0.01	862	0.21	0.01	1870	0.21	0.01
Hovedstaden	1008	0.30	0.01	862	0.31	0.02	1870	0.31	0.01
Sjælland	1008	0.14	0.01	862	0.13	0.01	1870	0.14	0.01
Agriculture	1008	0.01	0.00	862	0.10	0.01	1870	0.05	0.01
Industry	1008	0.21	0.01	862	0.09	0.01	1870	0.15	0.01
Construction	1008	0.10	0.01	862	0.15	0.01	1870	0.12	0.01
Trade	1008	0.22	0.01	862	0.26	0.01	1870	0.24	0.01
Information	1008	0.06	0.01	862	0.08	0.01	1870	0.07	0.01
Financing	1008	0.05	0.01	862	0.01	0.00	1870	0.03	0.00
Real estate	1008	0.01	0.00	862	0.03	0.01	1870	0.02	0.00
Business services	1008	0.09	0.01	862	0.11	0.01	1870	0.10	0.01
Public administration	1008	0.24	0.01	862	0.06	0.01	1870	0.15	0.01
Culture	1008	0.02	0.00	862	0.04	0.01	1870	0.03	0.00

Source: Own calculations

The rate of previous self employment experience of the mother and father is measured with a dummy variable that is equal to 1 if the parent has been registered as self employed at least once since the year 1980, which is the first year we have information. This is not a perfect measure as we lack information for a large part of the older parents working life. With this caveat in mind, we find that the rates of self-employment are much larger for the group of self-employed. For this group, 26 and 53 per cent of the mothers and fathers respectively have been

self-employed at least once since 1980 compared to only 22 and 38 per cent of the mothers and fathers of wage earners. The remarkably higher rate of self employment for fathers of the self-employed can very well be related to the abovementioned finding that fathers of self-employed have less years of education than the fathers of wage-earners.

We have also included the dummy variable *rich\_kid* to control for whether the parents are wealthy. This dummy is equal to one if the added wealth of

the parents in 2008 is in the top 5 per cent of the distribution, for our sample this means that the added wealth of the parents is larger or equal than 7.4 million Danish kroner.

## SURVEY DATA: ATTITUDES AND MOTIVATIONS IN WORKING LIFE

We now focus on our explanatory variables of interest, i.e. the answers to the survey questions about attitudes and motivations in working life, the group of self-employed looks significantly different from the group of wage-earners. See table A2

The variables with the names “ambitious”, “competitive” and “risk-taker” were evaluated on a scale from 1 to 5, where the number 1 corresponded to the statement “strongly disagree” and the number 5 corresponded to the statement “strongly agree”. The group of self-employed considered on average that they were more ambitious, competitive and willing to take risks than the group of wage-earners.

The rest of the variables in table A2 were evaluated on a scale from 1 to 4, where the number 1 corre-

sponded to the statement “Not important at all” and the number 4 corresponded to the statement “very important”. Looking only at the means for each of the variables, it appears that the self-employed are more likely to consider independence as an important characteristic in their working life, while wage earners are more likely to answer that a fixed income, recognition and job security are important for them.

A modified version of this question was added to the web survey, were in addition to answering how important each of the 11 job characteristics were for them, respondents had to choose which of the motivations would be the most important if they should have a new job. The answers to this question are more revealing of the differences between wage-earners and self-employed and we present them in Table A3, but they have not been used in our estimation because our sample size would be restricted to a very high degree to 721 observations.

**TABLE A1**

variable	Employees			Self-employed			Total		
	N	mean	se(mean)	N	mean	se(mean)	N	mean	se(mean)
Dummy for rich kid	913	0.03	0.01	806	0.08	0.01	1719	0.05	0.01
Dummy for mother with higher ed.	892	0.21	0.01	786	0.24	0.02	1678	0.23	0.01
Dummy for father with higher ed.	866	0.21	0.01	746	0.18	0.01	1612	0.20	0.01
Dummy for mother ever self employed	1008	0.22	0.01	862	0.26	0.01	1870	0.24	0.01
Dummy for mother ever self employed* female	1008	0.08	0.01	862	0.08	0.01	1870	0.08	0.01
Dummy for father ever self employed	1008	0.38	0.02	862	0.53	0.02	1870	0.45	0.01
Dummy for father ever self employed * female	1008	0.12	0.01	862	0.13	0.01	1870	0.13	0.01
Dummy for first born	252	0.46	0.03	401	0.49	0.02	653	0.48	0.02
Age of mother	912	60.47	0.30	802	59.81	0.30	1714	60.16	0.21
Age of father	892	63.51	0.32	777	62.76	0.33	1669	63.16	0.23
Dummy for mother surveyed	265	0.52	0.03	422	0.48	0.02	687	0.50	0.02
Dummy for father surveyed	265	0.48	0.03	422	0.52	0.02	687	0.50	0.02

The two groups are similar in that almost one in four individuals answered that “having a meaningful job” would be the single most important consideration when choosing a new job, making it the most important job characteristic for the sample as a whole. Also, “becoming prestigious” and “getting recognition” was seldom chosen by individuals in both groups.

However, the group of wage-earners was much more likely to answer that job characteristics related to stability are important to them, 35 per cent of them chose “to have a fixed income” as the single most important job characteristic and an additional 10 per cent chose job security. This is in stark contrast to the answers given by the self employed: only 10 per cent answered that having a fixed income was the most important job characteristic, and not a single one of them chose job security as the most important characteristic. The self-employed group stands out for choosing “having a challenging job” (24 per cent), “having flexibility” (18 per cent), and “having independence” (11 per cent) at much higher rates than wage earners (15, 8 and 2 per cent respectively). It is also noteworthy

that the group of entrepreneurs was more likely to name “earning a lot of money” as the most important motivation in choosing a new job. All in all, these answers make it very clear that while the self-employed are driven by wishes of independence and flexibility, wage earners are driven by wishes of stability and security.

Turning to the averages of the parents’ responses to the same survey questions, we find no significant differences between the answers of the parents of the self-employed and those of wage earners. (Table A4) Comparing the answers given by the group of parents to those given by the group of children, we find that if we rank the 11 items related to job characteristics according to the mean answer the order of the items is very similar for parents and children. For both groups, the four least important considerations in choosing a new job were “having a high level of consumption”, “fulfilling parents expectations”, “earning a lot of money” and “becoming prestigious”, in ascending order of importance. We also find that both groups rank “having flexibility” and “having a meaningful job” among the top 3 considerations.

**TABLE A2: Children’s attitudes**

variable	Employees			Self-employed			Total		
	N	mean	se(mean)	N	mean	se(mean)	N	mean	se(mean)
Ambitious	1008	4.12	0.02	862	4.40	0.02	1870	4.25	0.02
Competitive	1008	3.09	0.03	862	3.69	0.03	1870	3.36	0.02
Risk taker	1008	3.52	0.03	862	3.89	0.03	1870	3.69	0.02
Money	1008	2.61	0.02	862	2.66	0.03	1870	2.64	0.02
Consumption	1008	1.99	0.02	862	1.93	0.02	1870	1.96	0.02
Fixed income	1008	3.47	0.02	862	3.02	0.03	1870	3.26	0.02
Challenging job	1008	3.34	0.02	862	3.40	0.02	1870	3.37	0.01
Flexibility	1008	3.40	0.02	862	3.48	0.02	1870	3.44	0.01
Meaningful job	1008	3.48	0.02	862	3.52	0.02	1870	3.49	0.01
Independence	1008	2.92	0.02	862	3.20	0.02	1870	3.05	0.02
Prestige	1008	2.23	0.02	862	2.31	0.03	1870	2.26	0.02
Recognition	1008	3.01	0.02	862	2.86	0.03	1870	2.94	0.02
Parents' expectations	1008	1.84	0.03	862	1.81	0.03	1870	1.83	0.02
Job security	1008	3.13	0.02	862	2.64	0.03	1870	2.90	0.02

## CORRELATION BETWEEN PARENT AND CHILD ATTITUDES AND MOTIVATIONS IN WORKING LIFE

Our next step is to look into the correlation between the parent and children attitudes and motivations in working life. The first column of Table A5 reports the raw correlation between the parent and child answers for each of the 14 survey questions. We do not find a significant correlation in the first three items, which relate to how ambitious, competitive and willing to take risk the respondents consider themselves to be. For the next 11 items, which relate to the importance of different job characteristics, we find a positive and significant correlation in three cases. These very raw correlations hint at the possibility that children are tend to answer as their parents when it comes to the importance of earning a lot of money, becoming prestigious and fulfilling parents' characteristics.

In column 2 of table A5 we report the correlations between parent and child survey answers after filtering these responses for age, gender and method of response. We find that controlling for these factors significantly increases the size and/or significance of the correlations for a number of items: child risk attitudes appear to be positively and significantly correlated with parents risk attitudes, and children

tend to answer as their parents when it in 7 out of the 11 items related to job characteristics.

In columns 3 and 4 we report the correlation of the filtered responses for father-son and mother-daughter pairs respectively. This is to test for the possibility that values might be transmitted more strongly along gender lines. For father-son pairs, the size and significance of the correlation for three survey items increases significantly pointing at the possibility that sons have similar risk attitudes to their fathers, and that they tend to think similarly about the importance of flexibility, meaningfulness and security in working life. For mother-daughter pairs, we only find a significant correlation for the question about the importance of fulfilling parents' expectations. Note that the sample size for these correlations is down to 104 observations.

We perform a similar exercise in Columns 5 and 6 of Table A5, namely we report the separately correlations for first born children and their parents on one hand and non-first born children and their parents. Once again, this is to test for the possibility that the values "inherited" by first-born and non-first-born children are different. The data supports this hypothesis. For parent-first born pairs, the correlation for 2 items is positive and significant. First-borns look

**TABLE A3**

Which of the following job characteristics is most important?	Percentage of employees	Percentage of self-employed	Percentage of total
Meaningful job	24	24	24
Challenging job	15	24	19
Flexibility	8	18	12
Independence	2	11	6
Fixed income	35	10	24
Money	5	10	7
Recognition	1	2	2
Consumption	0	1	0
Prestige	0	1	0
Job security	9	0	5
Parents' expectations	0	0	0

like their parents in terms of risk attitudes, and tend to think like them about the importance of having a flexible job. Non-first-borns tend to think like their parents about the importance of having a job in

which they can earn a lot of money, is meaningful and challenging and in which they can fulfill their parents' expectations.

**TABLE A4: Parents' attitudes**

variable	Employees			Self-employed			Total		
	N	mean	se(mean)	N	mean	se(mean)	N	mean	se(mean)
Ambitious	262	4.41	0.04	419	4.33	0.04	681	4.36	0.03
Competitive	261	3.59	0.07	413	3.64	0.06	674	3.62	0.04
Risk taker	261	3.68	0.07	417	3.89	0.05	678	3.81	0.04
Money	264	2.45	0.04	420	2.54	0.04	684	2.51	0.03
Consumption	263	2.19	0.05	420	2.26	0.04	683	2.23	0.03
Fixed income	263	2.99	0.05	418	2.98	0.04	681	2.98	0.03
Challenging job	260	2.82	0.05	417	2.85	0.04	677	2.84	0.03
Flexibility	263	2.84	0.05	418	2.90	0.04	681	2.87	0.03
Meaningful job	264	3.06	0.05	420	3.05	0.04	684	3.05	0.03
Independence	261	2.66	0.05	412	2.75	0.04	673	2.71	0.03
Prestige	263	2.40	0.05	418	2.43	0.04	681	2.42	0.03
Recognition	263	2.35	0.05	415	2.44	0.04	678	2.40	0.03
Parents' expectations	261	2.83	0.05	416	2.85	0.04	677	2.84	0.03
Job security	263	2.86	0.04	418	2.87	0.04	681	2.87	0.03

**TABLE A5: CHILD-PARENT ATTITUDES CORRELATION**

Dimension	Raw correlation	Residuals				
		Residuals	Male	Female	First born	Not first born
Ambitious	-0.04	-0.04	-0.02	-0.01	0.04	-0.10
Competitive	-0.01	0.02	0.02	-0.08	-0.03	0.05
Risk taker	0.04	0.10*	0.23*	0.17	0.15*	0.07
Money	0.09*	0.11*	0.10	0.12	0.07	0.12*
Consumption	0.06	0.09*	0.11	0.14	0.11	0.04
Fixed income	-0.01	0.01	0.04	0.08	0.04	-0.02
Challenging job	0.06	0.11*	0.11	0.10	0.10	0.11*
Flexibility	0.01	0.08*	0.14*	0.00	0.16*	0.05
Meaningful job	0.06	0.09*	0.13*	0.07	0.02	0.17*
Independence	0.01	0.04	0.05	0.04	-0.02	0.07
Prestige	0.10*	0.06	0.06	0.13	0.10	0.06
Recognition	0.03	0.03	-0.01	-0.17	0.10	-0.01
Parents' expectations	0.22*	0.15*	0.12	0.21*	0.10	0.16*
Job security	0.01	0.08*	0.15*	0.08	0.09	0.06

\*Significant at the 5% level

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## → ESTIMATION RESULTS

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We now present the results of our model, starting with the general probit model that does not take into account the endogeneity issues presented previously and then moving on to the probit that uses parents' survey answers as instruments for children's own answers.

In table B1 we report the results for the general probit, estimated first without parents registry information to maximize our sample size (Column 1) and with parents registry information conditioning on both parents having registry data for the year 2008 (Column 2). As explained in the previous section of the report, we have filtered our explanatory variables to account for systematic survey response differences related to gender, age and survey method. We use the filtered version of the explanatory variables in all our estimations.

Our main result is that the self-employed are significantly different than wage earners when it comes to attitudes and motivations in working life, even after we control for other things such as age, gender, origin, family characteristics, educational level, industry of employment, region, and a dummy for unemployment in 2008. Although we cannot establish causality with this estimation, we confirm that there is a strong and positive correlation between being ambitious and competitive and being self-employed. On the other hand, we find no significant correlation between risk attitudes and self-employment.

We also find that individuals that consider it very important to have a job that allows them a high level of consumption, gives them a fixed income and job security and in which they get recognition are less likely to be entrepreneurs. In contrast to this, individuals for which having independence in their working life is an important aspect of the job are more likely to be self-employed.

We do not find that being motivated by earning a lot of money, having a flexible job, having a meaningful and challenging job, gaining prestige or wanting to fulfill parents' expectations distinguishes the self-employed from wage earners.

The coefficients and significance of our variables of interest remain mostly unchanged when we add control variables for parents' wealth and previous self-employment.

Moving onto our control variables, we find that there is significant correlation between industry of employment in 2008 and self-employment in 2013, with individuals working in agriculture being the most likely to be self-employed, followed by those in real estate and cultural services. Individuals who were working in the public, financial and industrial sectors in 2008 were especially less likely to be entrepreneurs in 2013. No additional variables were significant in our first specification.

In our second specification, it appears that being single in 2008 significant reduces the likelihood of being self-employed in 2013. Father's experience in self employment from 1980 is also significant in explaining own self employment, as well as mother's self employment experience for females.

**TABLE B1**

Dep var: entrepreneur	Column 1	Column 2
ambitious	0.163**	0.194**
competitive	0.247***	0.261***
risk_taker	0.047	0.016
money	0.068	0.049
consumption	-0.150**	-0.226**
fixed_inc	-0.372***	-0.345***
challenging	-0.068	-0.042
flexibility	0.052	0.067
meaningful	0.017	0.002
independence	0.224***	0.240***
prestige	0.059	0.068
recognition	-0.228***	-0.256***
fulfill_expectations	0.065	0.106
job_security	-0.300***	-0.339***
Dummy_single	-0.145	-0.225*
Dummy_unemployed_2008	0.459	0.164
Industry	-1.742***	-1.900***
Construction	-0.919***	-1.101***
Trade	-1.092***	-1.296***
Information	-1.263***	-1.423***
Financing	-2.172***	-2.334***
Real_estate	-0.773*	-0.864*
Business_service	-1.209***	-1.282***
Public_admin	2.012***	2.105***
Culture	-0.724**	-0.735*
Unknown_branch	0.424	0.089
Dummy_rich_kid		0.323
Dummy_mother_ever_self_employed		-0.191
Dummy_mother_ever_self_employed_female		0.768**
Dummy_father_ever_self_employed		0.466***
Dummy_mother_ever_self_employed_female		-0.142
constant	0.054	0.082
N	1871	1284
Pseudo-R2	0.2835	0.3158
log-likelihood	-925.08	-608.66
chi2	732	562
p>chi2	0.0000	0.0000

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Additional controls: age, age squared, gender, origin, number of children years of education, region

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## → REGRESSION

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Since we are interested in the causal effect of culture on self-employment, the next step in our analysis is to use parents' survey answers as an instrument for children's survey answers. To limit the discussion we have decided to focus on two survey questions: the one related to risk attitudes and the one related to the motivation to fulfill parents' expectations. Our first choice of instrument allows us to compare our results to those of other studies, as the transmission of risk attitudes from parents to children and its impact on children's economic behavior has been researched previously. Most recently, Dohmen et al. (2011) find strong empirical evidence for the positive correlation between parent and child risk attitudes and for a non-trivial effect of this transmission on observed behaviors. Our second choice of instrument has the benefit of presenting the highest correlation between child and parent answers, which a priori means that this instrument will be more valid relative to other choices.

Note that both our instruments relate to attitudes that have not been shown to have a significant correlation with being self-employed in our sample. Therefore, assuming that they are valid instruments, finding a significant correlation between these attitudes and our dependent variable in the IV regression will imply our original estimators were biased towards zero due to measurement error or endogeneity. In what follows we first present the auxiliary regressions and then the probit where we have instrumented children's attitudes with parents' attitudes.

We have run two different versions of our auxiliary regression, using slightly different sets of instruments<sup>1</sup>. In the first version, our only instrument is the parent's answer to the corresponding survey

question. In the second version, we add: (a) a same sex dummy to capture that daughters learn more from mothers and sons from fathers; (b) a dummy for the education level of the parent to reflect that high educated parents (particularly fathers) spend more time with their kids; (c) a dummy that is 1 if the child is younger than 30 years old to account for the possibility that the strength of attitude transmission decreases the longer the time the child has lived away from his/her parents; (d) a dummy that equals 1 if the interviewed parent is also the one singled out by the child as being the most influential; and (e) a dummy for being the first born child account for differences in the transfer of attitudes and motivations depending on birth order. We do not expect that any of these new variables are potential explanations of the decision to choose self-employment.

In addition to the corresponding set of instruments, the auxiliary regression is estimated using the full set of explanatory variables from the probit model. Table C1 summarizes the results from the auxiliary regression; Columns 1 and 3 correspond to the results using the first (simple) set of instruments and Columns 2 and 4 to the second set of instruments.

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<sup>1</sup> The auxiliary regression consists of two equations, one for each endogenous variable. We estimate the two equations simultaneously using the seemingly unrelated regression method.

**TABLE C1**

risk_taker	Column 1	Column 2	fulfill_expectations	Column 3	Column 4
risk_taker_parent	0.094**	-0.088	fulfill_expectations_parent	0.117***	0.135
risk_taker_parent_young		0.038	fulfill_expectations_parent_young		0.029
risk_taker_parent_higher_ed		0.133	fulfill_expectations_parent_higher_ed		0.035
risk_taker_parent_same_sex		0.205**	fulfill_expectations_parent_same_sex		-0.011
risk_taker_parent_important		0.028	fulfill_expectations_parent_important		-0.017
risk_taker_parent_first_born		0.072	fulfill_expectations_parent_first_born		-0.096
mor_higher_ed		.308**	mor_higher_ed		0.023
far_higher_ed		-0.037	far_higher_ed		-0.074
same_sex		-0.037	same_sex		0.044
parent_important		0.076	parent_important		0.364***
Dummy_first_born		0.126	Dummy_first_born		-0.084
Age	0.034	-0.003	Age	-0.018	0.000
Age2	-0.001	0.000	Age2	0.000	0.000
female	0.184	0.240*	female	0.098	0.12
non_danish	-0.548*	-0.26	non_danish	0.453*	0.391
Dsingle	0.223*	0.177	Dummy_single	-0.052	-0.141
Number_of_children	0.010	-0.005	Number_of_children	-0.02	-0.039
Dummy_unemployed_2008	0.113	0.224	Dummy_unemployed_2008	0.477*	0.403
Dummy_rich_kid	-0.139	-0.160	Dummy_rich_kid	0.136	0.151
Dummy_mother_ever_self_employed	0.009	0.037	Dummy_mother_ever_self_employed	0.1000	0.050
Dummy_mother_ever_self_employed_female	0.168	0.145	Dummy_mother_ever_self_employed_female	-0.388*	-0.381*
Dummy_father_ever_self_employed	0.007	-0.044	Dummy_father_ever_self_employed	0.138	0.059
Dummy_mother_ever_self_employed_female	0.065	-0.073	Dummy_mother_ever_self_employed_female	-0.141	-0.119
N	638	597	N	638	597
R2	0.0954	0.1383	R2	0.0954	0.1383
chi2	67	96	chi2	67	96
p>chi2	0.0003	0	p>chi2	0.0003	0

Additional controls: years of education, branch, region

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

Using the simple set of instruments we find that parents attitudes are correlated with children's attitudes and statistically significant at the 5 pct. level in both equations. Hence, parents' attitudes are potentially useful as instruments. Most of the exogenous variables are insignificant. In the equation for risk attitudes, however, we find that having an university degree (18 years of education), being employed in agriculture and real estate in 2008 and being single is related to significantly higher (more positive) risk attitudes, while living in central Jutland is related to lower risk attitudes. In the equation for parents expectation we find that living in Zealand, and being unemployed in 2008 is related to a higher motivation to fulfill parents' expectations.

Moving to Columns 2 and 4 of table C1, we find that our more complex sets of instruments are jointly significant at the 1 per cent level both in the case of risk attitudes and the motivation to fulfill parent's expectations. Furthermore, we find that risk attitude transmission is stronger between same gender parent-child pairs, and that individuals with mothers that have a higher education have more positive attitudes towards risk. The results related to industry of employment and risk attitudes remain the same. In the equation for the motivation to fulfill parent's expectations, we find that if the parent interviewed was singled out as being the most important, the child is more likely to think that fulfilling parents' expectations is important. We also find that for females, having a mother with self employment experience is negatively correlated with the motivation to fulfill parents' expectations.

The next step is to estimate the probit through instrumental variables. We exclude all the other attitudes and motivations in working life from the probit to keep focus on the two endogenous variables of interest. We present the results of this reduced form equation estimated in three different ways in table C2. In the first column we estimate the reduced form model without instruments, in the second model we estimate the model using the simple set of instruments and in the third column we use the full set of instruments as explained above.

From the model without instruments, we find that the motivation to fulfill parents expectations does not distinguish self-employed from wage-earners and that more positive attitudes towards risk are positively correlated to being self-employed. However, we must take into account that this coefficient is most likely capturing the effect of other attitudes and motivations that were shown to be significant in the original probit. Using our first set of instruments, we find that although the coefficients for both risk attitudes and the motivation to fulfill parents' expectations rise sharply, neither of them is statistically significant different from zero, given the corresponding rise in the standard errors.

Our second set of instruments does yield a positive and significant correlation between risk attitudes and self employment. Compared to the probit without instruments, the coefficient for risk attitude in this specification is larger, which indicates that the coefficient for risk attitudes in the specification without instruments could be biased downwards. Once again we find that differences in the importance attributed to fulfilling parents' expectations are not significant in explaining entrepreneurship.

In terms of the rest of the explanatory variables, there are no significant differences between the three specifications, and the results confirm the findings from the first two probit estimations presented in table B1.

**TABLE C2**

Dep var: entrepreneur	Column 1	Column 2	Column 3
risk_taker	0.177**		
fulfill_expectations	-0.079		
risk_taker_hat1		0.593	
expectations_hat1		0.713	
risk_taker_hat2			0.504*
expectations_hat2			-0.024
Industry	-1.505***	-1.371***	-1.354***
Construction	-1.012**	-0.768	-0.855*
Trade	-0.832**	-0.766*	-0.727*
Information	-0.698	-0.453	-0.481
Financing	-1.674***	-1.567**	-1.530***
Real_estate	-0.500	-0.681	-0.507
Business_service	-0.902**	-0.824*	-0.809*
Public_admin	-1.562***	-1.417**	-1.368***
Culture	-0.705	-0.670	-0.564
Unknown_branch	-0.032	0.156	-0.011
Dummy_rich_kid	0.123	0.110	0.171
Dummy_mother_ever_self_employed	0.185	0.092	0.167
Dummy_mother_ever_self_employed_female	-0.198	0.027	-0.231
Dummy_father_ever_self_employed	0.402**	0.273	0.407**
Dummy_mother_ever_self_employed_female	0.157	0.290	0.148
constant	0.586	0.940	0.466
N	597	638	597
Pseudo-R2	0.1507	0.1495	0.1442
log-likelihood	-338.36	-360.57	-340.96
chi2	120	127	115
p>chi2	0.0000	0.0000	0.0000

Additional controls: age, age squared, gender, origin  
number of children, lagged unemployment, years of education, region

\* p<0.05, \*\* p<0.01, \*\*\* p<0.001

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## → DISCUSSION

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In this report we have investigated cultural differences between a sample of relatively successful self-employed individuals and a group of wage-earners. More importantly, we have attempted to answer the question of whether there can be a causal explanation to this observed correlation between culture and employment type. We have done this by looking for evidence for the transmission of parental attitudes and motivations and then tracing the effect of these on employment status.

Our main result when comparing the culture of the self-employed and wage-earners is that there are substantial differences between the two groups. Using self-reported data, we find that the self-employed are more likely to define themselves as being ambitious and competitive and that there is no significant difference in self-reported risk attitudes. Furthermore, the two groups are also different in what they consider to be important aspects of a job. Individuals that consider it very important to have a job that allows them a high level of consumption, gives them a fixed income and job security and in which they get recognition are less likely to be entrepreneurs. In contrast to this, individuals for which having independence in their working life is important are more likely to be self-employed.

In terms of the intergenerational transmission of attitudes and motivations, we find positive evidence for the transmission of risk attitudes from parents to children as well as for the transmission of motivations in 7 out of the 11 dimensions surveyed. However we cannot reject the hypothesis that being ambitious and competitive are not characteristics passed on from parents to children, and this is also the case for some of the motivations that distinguish self-employed from wage-earners in our analysis

In the final step of our analysis, where we instrument children attitudes with parent attitudes, we

find some evidence of a positive correlation between risk attitudes and (successful) self-employment. This could mean that the estimated coefficient for risk attitudes in our first model is biased towards 0, and that in fact risk attitudes transmitted from parents to children have an effect on employment type.

All in all, our analysis points towards the following conclusion: there is positive evidence both for (a) the existence of important cultural differences between successful self-employed individuals and wage-earners and (b) for the transmission of certain attitudes and motivations from parents to children, however an individual's set of attitudes and motivations is shaped by factors other than his or her parents.<sup>1</sup> We have not investigated influences from other role models, but grandparents, friends, teachers, etc. are also likely to be role models.

These results suggest that there could be a role for policy to promote entrepreneurial culture. For instance, increasing the share of young people that is exposed to entrepreneurial role models could have positive payoffs in terms of future startup rates. We have not been able to investigate whether attitudes and values change in the course of a person's life, and if so, which are more malleable. This could be an interesting extension of our analysis and a valuable insight for policy design.

However, the scope for changing entrepreneurial culture through policy and thereby increasing startup rates in Denmark should not be overstated. Job and wage security, a key characteristic of the Danish welfare state, seem to drive a large part of wage earners into wage-employment. Therefore, it seems reasonable to assume that the payoff of any effort to affect entrepreneurial culture will be constrained by the existing institutional environment

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<sup>1</sup> This statement requires that the values and attitudes are not the result of rebellious children.

and the incentives embodied in it. A recent cross-country study by Bjørnskov et al. (2007) finds that size of government is very negatively correlated to entrepreneurship. Presumably, the reasons behind this relationship are that (a) the existence of generous public transfers limits the extent to which individuals engage in necessity driven entrepreneurship and (b) high levels of taxation stifle individual wealth formation and therefore dampen the incentives to engage in opportunity driven entrepreneurship as well as the financing possibilities for potential entrepreneurs.

Some important topics for discussion arising from our analysis in terms of methodology are (a) the extent to which measurement error induced by the use of self-reported data may impact our results, (b) the implications of the type of sampling used for the survey, (c) the choice of filtering variables, and (d) the choice of instrumented endogenous variables.

In terms of the impact that measurement error from self reported data can have on our results, the greatest danger is that there exists systematic differences between the survey response styles of the self-employed and wage earners. In principle, we cannot rule out that some of our results might be driven by these systematic differences, for example if one of the two groups has a tendency to answer consistently positively, negatively or in the extremes regardless of the content of the question.

In terms of the sampling design of our survey and its implications for subsequent analysis, we have already touched upon the fact that our group of self-employed individuals is in fact a selection of successful entrepreneurs, given that their firms have survived for at least 2 years and had a minimum of half a million DKK in turnover in their second year of operation. For this reason, the cultural differences found between our self-employed and employed group should be interpreted as differences between relatively successful entrepreneurs and wage earners who might or might not have been self-employed in the period between 2009 and 2013. A possibility for exploiting the structure of our data for

the analysis of entrepreneurial culture in the future would be to focus on the self-employed group exclusively, and then try to establish which characteristics distinguish those individuals whose firms have survived for a longer period of time by establishing whether the longest surviving cohort is more homogeneous in terms of attitudes and motivations compared to the younger cohorts.

A separate issue related to the sampling design of our survey which can potentially explain the weak correlation between parents' and children's characteristics is the fact that for each individual, only one parent has been interviewed. Although it is not currently a possibility to expand the survey to include the missing parents, one should keep in mind that it is very possible that our measured correlations between parent and child attitudes are biased downwards.

Moving on to the next topic of discussion, we would like to clarify why we have chosen to filter the self-reported measures of attitudes and motivations using age, gender and survey method and not other variables which could potentially induce systematic differences in response patterns, such as level of education or wealth. The main point here is that age, gender and survey method are given for each individual, they cannot be endogenously with the individuals' own attitudes and motivations. This is not the case for other variables such as level of education, which could very well be at least partly determined by attitudes and motivations.

A further area for discussion would be the choice of instruments. As explained in the report we chose to instrument children's risk attitudes with parent's risk attitudes because there is significant evidence in the literature for the transmission of risk attitudes from parents to children. We also chose to instrument the motivation question for which we found the highest correlation between parents and children. However, given our findings in the first probit, precisely this two characteristics (risk attitudes and being motivated to fulfill parents' expectations) did not significantly distinguish successful

entrepreneurs for wage earners. A possibility in the future would be to instrument those attitudes and motivations that are more significant in distinguishing the two groups and for which we find positive and significant correlation between parents and children.

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## → LITERATURE

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Baker, Ted and Reed E. Nelson (2005): "Creating Something from Nothing: Resource Construction through Entrepreneurial Bricolage", *Administrative Science Quarterly* 2005, no. 50, pp. 329-366

Bertrand, Marianne and Sendhil Mullainathan (2001): "Do people mean what they say? Implications for subjective survey data", *American Economic Association, papers and proceedings* 2001, vol. 91, No. 2, pp. 67-72

Bjørnskov, C., & Foss, N. J. (2008). Economic freedom and entrepreneurial activity: Some cross-country evidence. *Public Choice*, 134(3-4), 307-328.

Caliendo, Marco; Frank M. Fossen and Alexander S. Kritikos (2009): "Risk attitudes of nascent entrepreneurs-new evidence from an experimentally validated survey", *Small Business Economics* (2009), Vol. 32, pp. 153-167

Dahl, Michael S.; Kristian Nielsen; og Pernille G. Jensen (2009): "Jagten på fremtidens nye virksomheder", DJØFs forlag

Dohmen, Thomas; Armin Falk; David B. Huffman; Uwe Sunde; Jürgen Schupp; and Gert G. Wagner (2011): "Individual Risk Attitudes: Evidence from a large, representative, experimentally validated survey", *Journal of the European Economic Association*, 2011, 9(3), pp. 522-550

ERST (2012): "Iværksætterindekset 2012", Erhvervsstyrelsen 2012

Evans, David and Linda Leighton (1989): "Some empirical aspects of self-employment", *American Economic Review*, Vol. 79, pp. 519-535

Hoffmann, A., Junge, M., & Malchow-Møller, N. (2012) *Running in the Family: Parental Role Models in Entrepreneurship*. Unpublished.

Manski, Charles (1990) "The Use of Intentions data to Predict Behavior: A Best Case Analysis", *Journal of the American Statistical Association*

Sapienza, P., Zingales, L., & Guiso, L. (2006). Does culture affect economic outcomes? (No. w11999). National Bureau of Economic Research Working Paper Series. NBER.

Taylor, M. P. (1996). Earnings, independence or unemployment: Why become self-employed? *Oxford Bulletin of Economics and Statistics*, 58(2), 253-266.

Van Praag, C. M., & Versloot, P. H. (2007). What is the value of entrepreneurship? A review of recent research. *Small Business Economics*, 29(4), 351-382.

Van Vaerenbergh, Y., & Thomas, T. D. (2013). Response styles in survey research: A literature review of antecedents, consequences, and remedies. *International Journal of Public Opinion Research*, 25(2), 195-217.

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## VÆKST GENNEM VIDEN

DEA er en politisk uafhængig tænketank, der arbejder for, at Danmark øger sin værdiskabelse og vækst samt tiltrækker internationale virksomheder gennem viden om uddannelse, forskning og innovation.

Tænketanken DEA kæmper grundlæggende for, at flere unge får en uddannelse, der efterspørges, at forskning bliver omsat til innovation i private og offentlige virksomheder, og at Danmark er et attraktivt land for videnbaserede virksomheder.

DEA vil nå sine mål gennem:

- Analyser og undersøgelser, der styrker DEAs dagsorden
  - Involvering af virksomheder, uddannelsesinstitutioner og organisationer via partnerskaber og projekter
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