

A CHANGING LABOR MARKET?

THE IMPORTANCE OF

WAGEWORKERS WITH SELF-

EMPLOYMENT ACTIVITIES

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A changing labor market? The importance of wageworkers with self-employment activities

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Abstract

Over the past decade, it has been argued that the standard employer-employee model of formal, full-time and permanent wage employment is becoming increasingly less common. In this paper, we examine whether the Danish labor market is shifting towards an arrangement in which individuals receive part of their income from both wage work and self-employment activities. We use data from the entire population of sole proprietorships in Denmark linked to register-based information on firm sales and on owners' employment status and income. We find a shift in the number of sole proprietorships towards firms with limited activity. However, fewer than 45 percent of wageworkers who own a sole proprietorship actually receive income from self-employment activities, and only 60 percent of the sole proprietorships with limited activity have any sales. Our results suggest that "false self-employment" is not prevalent in the Danish labor market.

1. Introduction

Denmark is the country in the EU with the lowest share of self-employed individuals and the highest share of formal employees (Statistics Denmark, 2018). However, over the past decade it has been argued that the formal model of full-time, indefinite wage employment with a clear and defined relationship between employees and employers is becoming less the standard model on the labor market. New types of flexible arrangements are emerging such as temporary employment, fixed-term employment, multi-party employment, freelance work, contract employment and gig work blurring the boundaries between formal employment and self-employment. The introduction of these new forms of employment raises concerns regarding bad working conditions employment rights and benefits (sickness, holidays, unemployment), and economic insecurity. In this paper, we ask whether self-employment activities vis-a-vis regular employment are playing a larger role in the

Danish labor market today than they did in 2001, as this would indicate a significant shift in the Danish labor market.

There are several reasons why we would expect such a change to have taken place. On the supply side, it might be a personal choice. It is sometimes argued that individuals seek a more independent work life that brings autonomy over the work performed and seek the perceived benefits of being “one’s own boss” (Hamilton 2000, van Praag and Versloot 2007). Self-employment may also offer individuals normally marginalized in the labor market as wage employees an alternative means of employment. On the demand side, it is sometimes argued that firms’ adaptability to change and flexibility levels are enhanced by an ability to hire and fire easier. In this regard, it is sometimes argued that individuals enter the Danish labor market by way of “false self-employment” – sometimes also called “bogus self-employment” or “dependent self-employment” (Böhheim & Muehlberger, 2006; Kautonen et al., 2010; Eurofound, 2013). There is no clear definition for this form of employment according to ILO (2017). It is, however, a group of individuals who are formally self-employed without the normal self-employment activities such as tendering for contracts or negotiation of prices. Instead, their working conditions are very similar to those of regular employees, but without the same employment rights and benefits. Eurofound (2010) have measured the extent of dependent self-employed individuals (self-employed that rely on one single client) in the European Working Conditions Survey (EWCS) ranging from 5 percent of all dependent workers¹ in Greece to less than 1 percent in Denmark.

This form of employment is often found in the construction sector (Harvey & Behling, 2008) where it may be used to lower salary costs and may lead to social dumping. Employment in the construction sector in Europe typically consists of a large number of self-employed individuals reflecting the seasonality of the work performed and the cyclical economic demands that require some flexibility in hiring and firing, making it a natural sector for “false self-employment” activities.² In the British construction sector, unions estimate that approximately 1 million self-employed individuals in reality work in a standard employer-employee model, while the British government estimates this number at roughly 300,000 individuals (HM Treasury, 2009). Similar patterns are observed in Italy, Spain, Switzerland, Belgium and the Netherlands.³ These numbers show that it can be difficult to estimate the true magnitude of “false self-employment” in the economy. With this paper we contribute to this discussion by taking an in depth look at individuals working as both self-employed and as regular wage workers on the Danish labor market and in the Danish construction sector in particular. If “false self-employment” is playing a larger role on the Danish labor market, we would expect to find an increase in the number of individuals on the border between regular employment and self-employment working periods as a regular employee and periods as self-employed perhaps for the same client.⁴

¹ Employees and dependent self-employed individuals.

² <https://www.theguardian.com/business/2018/feb/07/gig-economy-workers-angry-at-lack-of-bogus-self-employment-curbs>.

³ <https://fagbladet3f.dk/nyheder/fagligt/6e22785e13f04119afde8e81a99a2941-20071206-europaeisk-kamp-mod-arme-ben-firmaer>.

⁴ It should be noted that we do not observe clients in the sales statistics.

The purpose of this paper is to explore whether employment combining wage work and self-employment activities has become more prevalent in recent years. Specifically, we investigate if ordinary employees, i.e., individuals whose primary source of income comes from wage employment, increasingly also earn income from self-employment activities. If this is the case, it may indicate a change in the labor market away from standard full-time, indefinite wage working activities and towards a setting based on activities of both wage work and self-employment, which may suggest that “false self-employment” is also present in some extent on the Danish labor market. We are unaware of studies that have examined the importance and development of employees/self-employed individuals.

In our analysis, we limit our attention to sole proprietorships, i.e., we do not examine corporations, e.g., limited liability corporations. An important focus of the analysis is sole proprietorships with limited activities, which are small sole proprietorships that do not have activities of a level that can support the owner’s full-time employment. For a firm to be considered “active,” it must have sales exceeding those of what may be termed hobby activities or equivalent to what would be generated by at least 0.5 full-time employees. Roughly half of all 600,000 registered firms in Denmark are by these definitions considered to engage in limited activities. In this study, we apply sole proprietorships with limited activities as an important unit of measurement. The paper draws on a unique register-based dataset comprising the total population of sole proprietorships in Denmark and their owners. This allows us to study in detail the trends and characteristics of even those businesses with very limited activities, which, to the best of our knowledge, has not been done before.

We are able to track individuals who earn salaries as wage workers and in the same year earn income from sole proprietorships (of limited activity). These worker-firm relations do not represent “entrepreneurs,” nor do they represent “other business” owners. Rather, they represent (part or full-time) wageworkers who in addition to their wages earn an income from self-employment activities.⁵ It is, however, unclear whether a setup based on a combination of activities as a regular employee and as self-employed serves as an indication of a more independent working life or whether it reflects employees being pushed towards jobs with fewer rights. Whether it is flexibility, social dumping or something else that is the driver, it is interesting to study the development of this type of activity in the Danish labor market to assess whether the labor market is changing. Thus, our paper contributes to a small but growing body of literature on the negative forms and consequences of self-employment (Harvey & Behling, 2008; Böhmeim & Muehlberger, 2006; Kautonen et al., 2010; Eurofound, 2013).

⁵ Levine and Rubinstein (2017) disaggregate organic start-ups into incorporated limited liability firms and unincorporated sole proprietorships to distinguish between “entrepreneurs” and “other business” owners. They write: “This is a natural disaggregation given the costs and benefits associated with incorporation. Although incorporated business owners face additional fees and regulations, they benefit from the corporation’s key legal features—limited liability and a separate legal identity—that limit the financial and legal risk of the owners. These legal features are especially valuable to business owners seeking to undertake large, risky investments. In contrast, people will tend to choose the unincorporated legal form when these features are less important.”

The hypothesis that we set out to investigate in this paper concerns whether combined wageworker-self-employer activities became more important in the Danish economy from 2001 to 2015. To investigate this hypothesis, our analytical approach deployed here focuses on positive trends or upward trend-breaks over time in a range of descriptive analyses to identify the importance of combined wageworker-self-employed activities. We focus both on the Danish economy as a whole and, in particular, on the Danish construction sector – the sector where “false self-employment” has become a dominant feature in other countries. To do this, we carry out several detailed descriptive analyses to answer the following two research questions.

First, if sole proprietorships are primarily established as a means to hire "self-employed" individuals rather than regular employees (i.e., false self-employment), we would expect to see an increase in very small sole proprietorships with no employees and with relatively few activities where these businesses cannot be regarded as being active in reality.⁶ We label these businesses “limited activity” businesses.

Second, we analyze whether regular employees, i.e., those with primary income from wages, are also increasingly working as self-employed individuals and obtain a share of their income from sole proprietorships. This is of interest because it would indicate a labor market that is undergoing a shift from a focus on full wage earner income to one based on a combination of income generated from salary work and self-employed activities. We refer to these workers as on the border between employment and self-employment.

Our main finding is that self-employed activities in addition to regular employment activities have *not* played a larger role in the Danish larger market in recent years. By contrast, the total number of sole proprietorships has decreased over time. However, we do find that the number of limited active sole proprietorships has increased surpassing the number of active sole proprietorships in 2014, but a large share of these businesses are actually inactive, meaning that they have no sales at all or do not generate any income for the owner. Less than 45 percent of wageworkers who own a solo proprietorship have income from self-employment activities, and only 60 percent of limited active sole proprietorships generate any sales. In total, only 50-60,000 limited active sole proprietorships generate income for the owner.

In the construction sector, a sector where we would expect the problem of “false self-employment” to be particularly dominant, we find that the number of active sole proprietorships has fallen from 2008 and onwards, while the number of limited active sole proprietorships has remained constant. There are only 6-7,000 limited active sole proprietorships. Our results therefore suggest that the issue of “false self-employment” is not very prevalent on the Danish labor market.

The paper proceeds as follows. Section 2 provides a description of the data used. Section 3 provides general statistics on one-person businesses in Denmark focusing specifically on businesses with small activity. Section 4 explores more in detail the characteristics of owners that receive income

⁶ This may, however, not be the only reason we see an increase in limited active businesses. It should be noted that our paper does not seek to establish causality, but merely provides some descriptive evidence that may point in the direction that false self-employment is increasing in the labor market.

from both salaried work and self-employed activities. Section 5 looks specifically at the construction sector, and section 6 concludes.

2. Data

There are two main types of firms in Denmark: unincorporated firms such as sole proprietorships and incorporated firms such as limited liability corporations and stock-based corporations. The former type constitutes the majority of Danish firms.

Since the majority of small firms are sole proprietorships, and because incorporated firms are established with a different objective than to obtain side income or an income that supplements a wage salary, we use sole proprietorship as unit of measurement in our analysis. For the sole proprietorship, the legal unit is the individual who owns the firm. Because of this, the owner has only one firm ID for administrative purposes. This implies that an entrepreneur with a sole proprietorship will always have his/her firm registered under the same firm ID and will report sales VAT to the tax authorities under this firm ID.

Recently, Statistics Denmark made firm accounting data available for both “active” sole proprietorships and sole proprietorships with “limited activities” according Statistics Denmark definition. Prior to this change, Statistics Denmark provided information only on active sole proprietorships in their firm-level register data. Sole proprietorships labeled as being “active” are defined as sole proprietorships that have wage hours for employees of at least 0.5 full-time equivalent employees during the year or that have sales above a specified threshold. The threshold sales vary across industries. In industries such as wholesale trade, threshold annual sales are equal to approximately 300,000 DKK whereas for manufacturing sole proprietorships sales are in the range of DKK 150,000 to DKK 200,000. In this sense, sole proprietorships are considered to be “active” above these thresholds and as supporting “limited activities” below the thresholds.

A few things should be mentioned with respect to incorporated firms. For this firm type, the legal unit is the firm. Therefore, the owner must have a salary or dividend to secure payments. Moreover, owners have limited liability for the debt of the firm and are only liable for their deposits in the firm. As an example, the limited liability firm (LLC) had a required minimum deposit of roughly DKK 50,000 in 2014. In contrast, sole proprietorships do not have to tie up financial capital in the firm. The administrative burdens of LLCs are also more substantial than those for sole proprietorships with requirements for accounting, auditing, and disclosure among others. Sole proprietorships do not face such requirements. In the following, it is assumed that a sole proprietorship is the relevant firm for studying firms with limited activities or workers on the border between employment and self-employment. Therefore, we disregard LLCs and other incorporated firms in the following analysis.

Our main source of data for this study is a unique dataset delivered by Statistics Denmark that includes linkage of firm IDs for the total population of sole proprietorships in Denmark with person IDs for their owners over the period of 2001 to 2015. We use this key to merge firm and owner characteristics. Specifically, we extract sales data from the sales tax that VAT-registered businesses report on the VAT form for Danish tax authorities in the register *Purchase and Sales of Danish Firms*. Firms report VAT on a monthly, quarterly or biannual basis dependent on sales size, and large firms

are required to report at a higher frequency. We aggregate all sales data to annually measured sales. The sales data cover the period from years 2001 to 2015.

It should be noted that some activities are exempt from VAT, so sales data are only available for VAT-registered firms, thereby excluding activities that are not liable to VAT such as dentistry, the transport of persons, banking, etc. Hence, we do not have information on firms that are not liable to VAT.⁷

Finally, we use the *General Enterprise Statistics* to obtain basic information about firm characteristics such as main sectors. To obtain information on employment status and annual income (net profits from self-employment activities and wages) of the owners, we merge our data with the *Integrated Database for Labor Market Statistics (IDA)* and the *Income Statistics Register*.

A final comment should be made on firm types. In 2014, two new firm types were introduced into the Danish economy. These are “personally owned smaller firms” (the so-called MPV) and entrepreneurship corporations (IVSs). The MPV firm type was introduced to assign very small firms with yearly sales of below 50,000 DKK and not liable for VAT firm IDs, as a firm requires a firm ID to be able to communicate with authorities in Denmark, and other firms often also use public firm IDs when doing business with small firms. Prior to 2014, small firms with sales of below DKK 50,000 faced the challenge of being registered for VAT when they registered as sole proprietorships. Hence, even though it was not liable for VAT payments, it had to pay VAT when it registered for a firm ID.

The IVS firm type was introduced to encourage entrepreneurship. Such a firm is an incorporated firm with similar requirements as an LLC. The LLC and IVS differ in that the LLC has a required minimum deposit of DKK 50,000 in 2014 while the IVS only has a minimum deposit of DKK 1 and must save from surpluses until it meets the required deposit of DKK 50,000.

Before we turn our attention to the main results, we present some descriptive statistics on our sample for the years 2001 to 2015. The results are presented in Table 1 below.

Table 1: Sample statistics

	Mean	Std. dev.
Time in sample (years)	6.76	4.92
Time as active (years)	3.66	4.74
Time as limited active (years)	3.10	3.64
Share of time as limited active (%)	55.46	43.73
Share of always limited active businesses (%)	38.78	48.72
Share of always active businesses (%)	26.25	44.00
Share of switching businesses (%)	34.97	47.69
N	572,183	

Notes: Statistics Denmark and own calculations.

⁷ Private sector service firms are excluded because they are not liable to VAT. This includes the following service sectors: child daycare activities, primary education, general secondary education, higher education, nursing homes, activities of household employers, other service activities, general medical practice activities including dentistry, hospital activities, real estate agencies, and mortgage credit institutions.

Our sample contains approximately 570,000 sole proprietorships that existed at some point in the 15-year period under investigation. The average firm is included in our sample for 6.76 years. The sample that we use is of course affected by right censoring of the spells: some sole proprietorships were still in business at the end of the dataset period (2015) and especially for those established late in the period under investigation. Note first that all studies using panel datasets to follow spells (such as the spell during which our sole proprietorships were in operation) are subject to censoring bias, as all panel datasets must end. For our sample, 244,978 sole proprietorships still existed in 2015 - the last year in our analysis, and thus have censored spells.

It is also observed that the average firm is active for 3.66 years during the period under investigation while sole proprietorships are active on a limited basis for on average 3.11 years. A firm spends roughly 55 percent of the time in “limited activity” in our sample. These descriptive statistics may reflect that businesses cross the threshold activity level from below or above depending on whether activities are increased, reduced or discontinued. This may of course also denote that some sole proprietorships always engage in limited activities. For these two possibilities, Table 1 shows that almost 40 percent of the sole proprietorships included in our sample engage in limited activities across the whole period that they are observed, whereas slightly greater than a third switch between periods of limited activity and periods of exceeding the activity threshold. Only roughly, one fourth of all sole proprietorships included in our sample are always above the activity threshold throughout the period that they are observed.⁸

3. Limited Active Sole Proprietorships

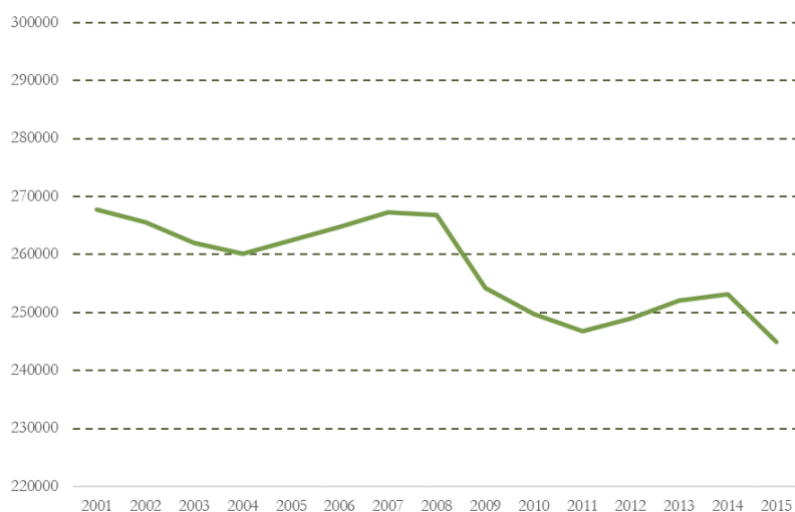
In this section, we present some general statistics on sole proprietorships in Denmark for the years 2001-2015 focusing in particular on those businesses with limited activity. i.e., sole proprietorships with modest sales and numbers of employees.

The development in the total number of sole proprietorships over time is presented in Figure 1 below. As described in the Section 1, our analytical approach focuses on positive trends or upward trend-breaks in the scale of self-employment when more individuals establish sole proprietorships and especially for the group of sole proprietorships with limited activity, which we discuss below.

As shown in Figure 1, the total number of sole proprietorships in Denmark generally *decreased* from 267,749 in 2001 to 244,978 in 2015, corresponding to a 9 percent reduction over the 15-year period. The number of sole proprietorships seem to fluctuate around a downward trend with peaks occurring in the year of the financial crisis of 2008 and again in 2014. There is no indication of a positive trend or an upward trend-shift in the total number of sole proprietorships in Denmark over the 15-year period under investigation.

⁸ The sole proprietorships that were always active from 2001-2015 may have starting dates occurring (much) earlier than 2001. Therefore, the status of being active may have taken place prior to 2001.

Figure 1. Total number of sole proprietorships, 2001-2015



Notes: Statistics Denmark and our own calculations.

As is described in the data section above, two new firm types – “personally owned smaller firms” (MPVs) and entrepreneurship corporations (IVSs) – were introduced in 2014. We expect the introduction of these firm types to have influenced the number of sole proprietorships in 2014 and 2015. The possibility of MPV formation thus takes over the creation of very small firms with limited sales of below DKK 50,000. Because of this, we include this firm type in the total number of “sole proprietorships” in Figure 1 and in the figures and tables shown below. Moreover, we expect potential sole proprietorships with some activity – especially those supporting more than “limited activities” – to open as IVSs rather than as sole proprietorships from 2014 onward. As a consequence, the observed number of sole proprietorships (and MPVs) may well fall over time. It is of course difficult to determine whether this is attributable to the introduction of a new firm type, though this is a possibility.

An alternative means to investigate whether sole proprietorships have played a more important role over time involves investigating if the gross-creation of this particular firm type has increased. In Figure 2, we present the gross-creation and the exits of sole proprietorships.⁹ It is shown that the number of newly established sole proprietorships has not increased over time. Instead, the number of newly established sole proprietorships fluctuates around a relatively constant level of 25,000 new businesses per year. In 2015, the number of newly established sole proprietorships decreases, which we attribute to the introduction of the IVS firm type. Similarly, business closures also fluctuate at roughly 25,000 sole proprietorships.

⁹ We apply the closing date of the firm ID. In principle, we do not know whether a firm has truly closed or whether there has been an administrative change. Especially when a firm is incorporated, the firm ID is changed. As we only wish to illustrate the development in exits, we do not investigate this issue further. Because our main focus is on sole proprietorships with limited activity, we do not consider this to be an important limitation.

Figure 2. Number of newly established businesses and business closures, 2001-2015



Notes: Statistics Denmark and our own calculations.

In summary, we find no indication that self-employment activities as measured by the total number of sole proprietorships have become more important over time in an absolute sense. Rather, the opposite is the case. Next, we turn to the development of sole proprietorships focusing specifically at those businesses with “limited activity.”

Specifically, we ask whether the number of sole proprietorships with limited activity is increasing. The results are presented in Figure 3 below. It is apparent that the reduction in the total number of sole proprietorships is driven by a steady reduction in the number of “active” sole proprietorships over the period. By contrast, the number of limited active sole proprietorships has actually *increased* over time from roughly 113,000 in 2001 to almost 130,000 in 2015, surpassing the number active sole proprietorships operating in 2014. From 2011 to 2015, the number of limited active sole proprietorships increased by almost 13 percent. These trends are heavily influenced by the financial crisis, as the number of sole proprietorships declines from 2008 to 2011. If one disregards the crisis years, the number of sole proprietorships has been on the rise since 2005. The question is whether this indicates that more wage workers collect income from limited self-employment activities or whether these sole proprietorships are simply inactive.

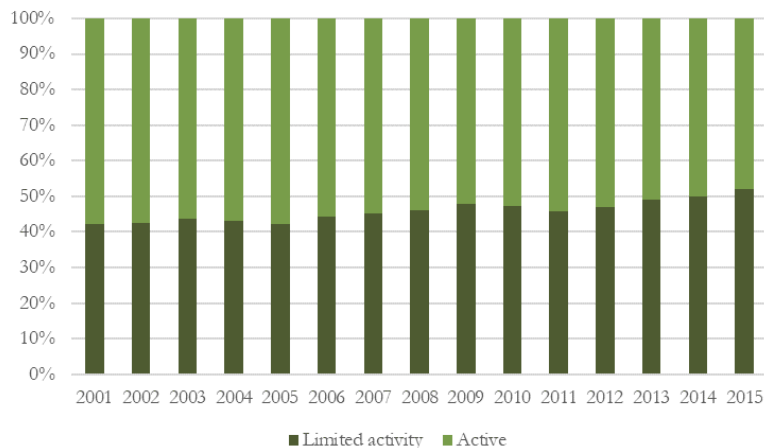
Figure 3. Number of active and limited activity sole proprietorships, 2001-2015



Notes: Statistics Denmark and our own calculations.

In 2001, 58 percent of all sole proprietorships were labelled as being active while in 2015; this number fell to less than half of all sole proprietorships (48 percent). There has, thus, been a steady shift in the activity levels of sole proprietorships over the last 15 years towards businesses with lower activity levels. This development is presented in Figure 4 below.

Figure 4. Distribution of sole proprietorships by activity level, 2001-2015



Notes: Statistics Denmark and our own calculations.

Together, these figures provide some indications that a combination of wage employment and self-employment may have become more important in the Danish economy over the last 15 years. Something that we investigate more closely in the next section.

4. Combination of regular employment and self-employment

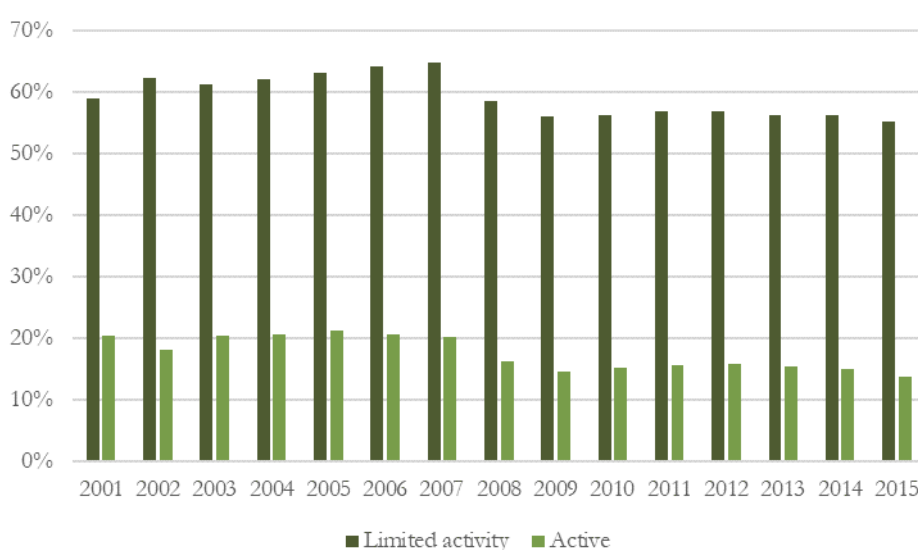
In the above section, we show that the number of sole proprietorships with limited activity actually increased from 2001 to 2015 and that the increase was relatively substantial from 2011 to 2015. This development took place even as the total number of sole proprietorships decreased driven by a decrease in active businesses.

In this section, we wish to better understand the economic role of sole proprietorships with limited activity and their owners. First, we address the question of whether owners of these businesses are also employed as wageworkers or whether these businesses represent a separate group of individuals without jobs and who are unsuccessful as “other business” owners. Then, we move on to examine the sales and income generated by businesses with limited activity to better understand the role that they play for their owners’ financial situation.

4.1 Main employment status

We first focus on individuals who receive income from both wage work and self-employment. To do so, we link information on owners’ main employment status from the *Integrated Database for Labor Market Statistics (IDA)* with information on sole proprietorships. Figure 5 below presents the share of owners who receive their main income from regular employment activities (referred to as wageworkers). It is apparent that more than half of all owners of sole proprietorships with limited activity were wageworkers (by Statistics Denmark’s definitions) after the onset of the financial crisis in 2008. By contrast, only approximately 15 percent of owners of businesses above the threshold activity level were receiving their main income from regular employment. This means that more than half of the owners of limited active sole proprietorships receive their main income through wage employment.

Figure 5. Share of owners in regular employment, 2001-2015



Notes: Statistics Denmark and our own calculations.

4.2 Income from self-employment activities

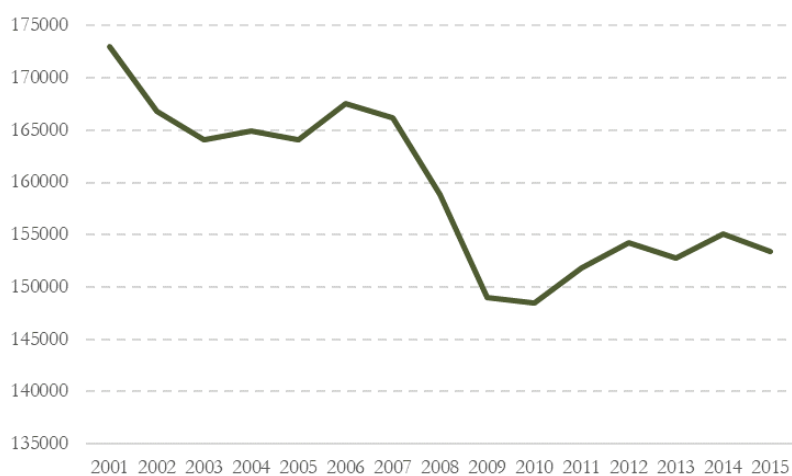
Next, we turn our attention to the income generated from self-employed activities. Owners of sole proprietorships must report their income to the tax authorities when they take money out from their firms for private purposes. Specifically, this part of private income is labeled “net profits from self-employment.” In this section, we focus on this measure to evaluate its importance for sole proprietorships with limited activity. This information is extracted from the *Income Statistics Register*.

As an advantage of this measure, it is directly comparable to wage income such that the importance of self-employment can be expressed as the share of total income. As a disadvantage of self-employment income, it need not reflect the activity level of a firm in a given year. Owners may save net profits generated from a sole proprietorship and take out this money as income in later years. For this reason, we also study the activity levels of sole proprietorships measured as sales in the next subsection.

In this section, we ask the following question: Is the number of owners who generate a net profit from self-employed activities increasing? If so, how large a share does the net profit generated from self-employed activities constitute of total income and how has the development of this share progressed over time? We will investigate this in the following figures.

In Figure 6, the number of owners with net profits from self-employed activities is presented. The total number is equal to approximately around 172,500 sole proprietorships in 2001 and this number falls sharply to approximately 150,000 one year into the financial crisis in 2009. From 2009 to 2015, the number increases to approximately 155,000. Relative to Figure 1, roughly 60-65 percent of owners of sole proprietorships receive income from self-employment activities. This means that 35-40 percent of the owners do not take any income out from their businesses.

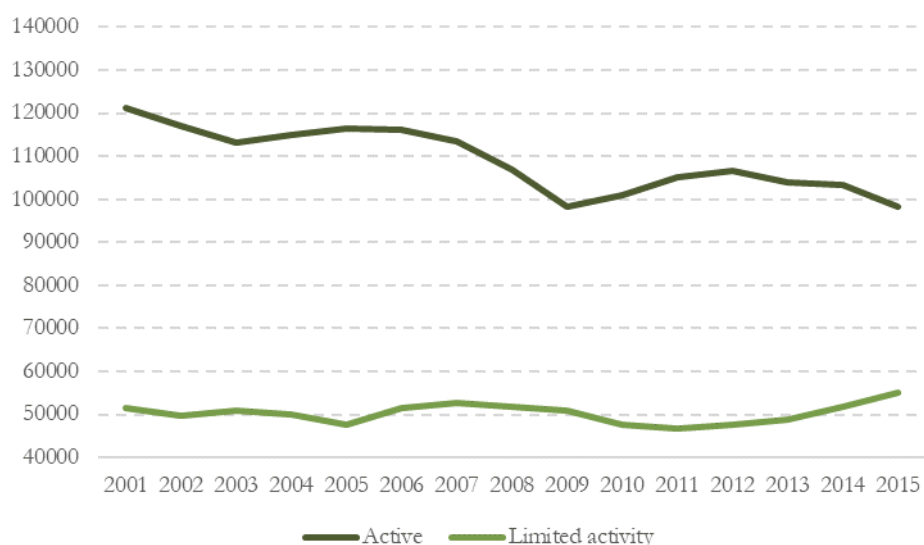
Figure 6. Number of owners with net profits from self-employment activities, 2001-2015



Notes: Statistics Denmark and our own calculations.

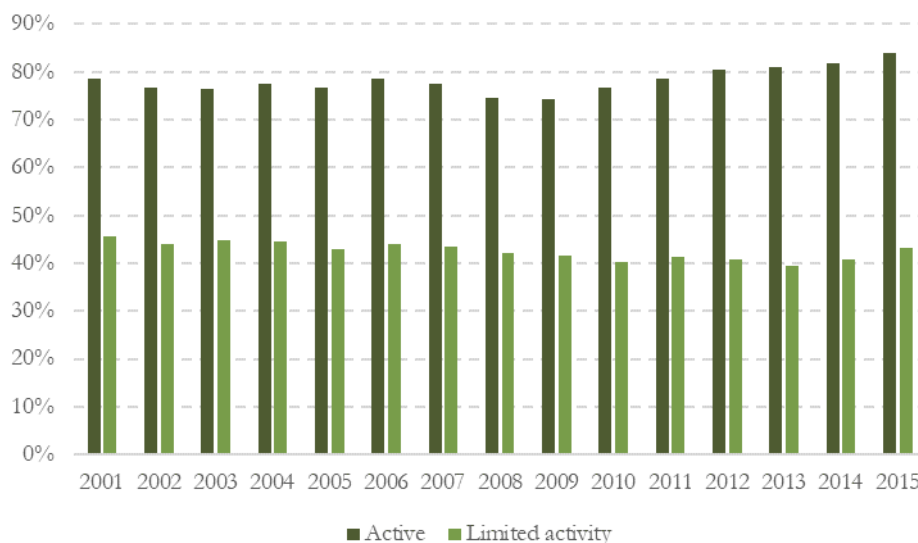
In Figure 7, we split the number of businesses with income from self-employment activities into active sole proprietorships and sole proprietorships with limited activity. We find approximately 100,000 to 120,000 active sole proprietorships and approximately 50,000 limited active sole proprietorships with net profits on the Danish labor market. In relative terms, approximately 80 percent of owners of active businesses have positive income from self-employment activities while less than 45 percent of owners of active sole proprietorships have positive income from self-employment activities (see Figure 8).

Figure 7. Number of owners with net profits from self-employed activities by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

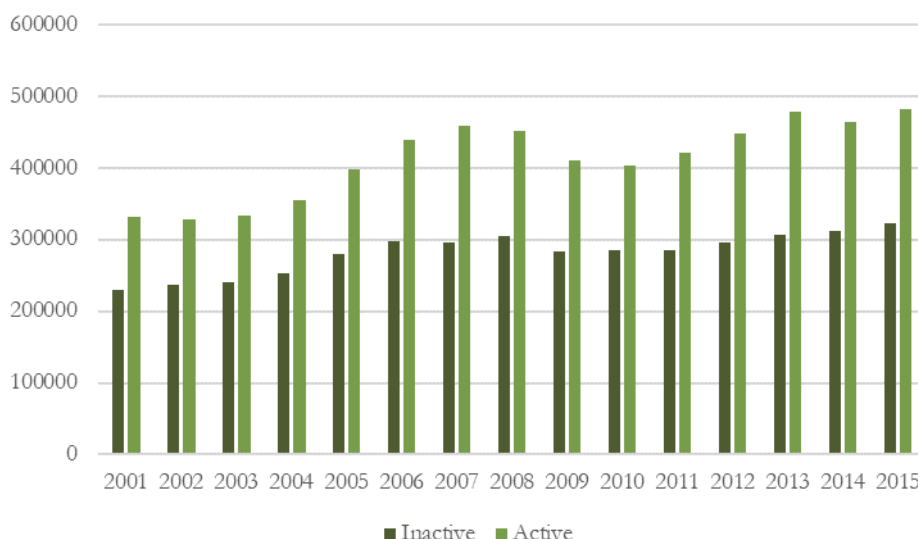
Figure 8. Share of sole proprietorships with net profits from self-employed activities by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

In Figure 9 below, we present the total annual income of owners of the two types of sole proprietorships each year 2001-2015. This includes both income from wages and income from self-employment (net profits). The numbers are conditional on generating positive income from self-employment activities. Perhaps not surprisingly, we find that owners of sole proprietorships with limited activity have much less income than owners of active sole proprietorships.

Figure 9. Total annual income of owners, 2001-2015

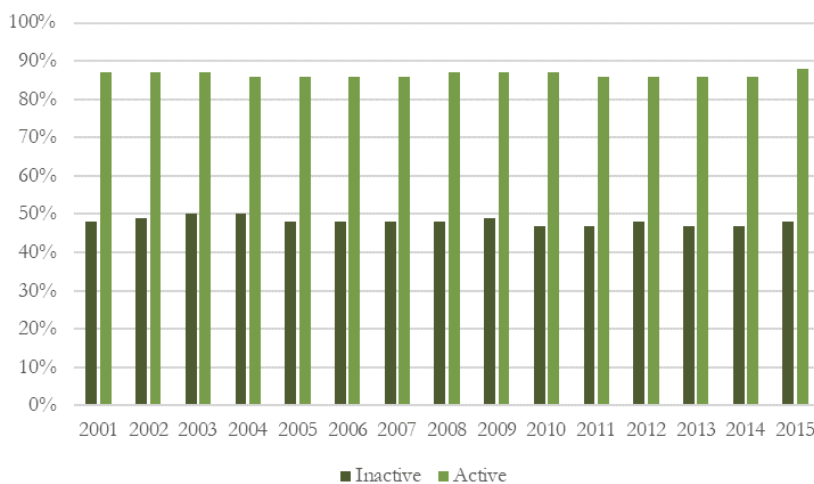


Notes: The figure is conditional on having a surplus. Statistics Denmark and our own calculations.

Finally, we present the share of income generated from self-employment activities for the two types of sole proprietorship in Figure 10 again conditional on owners generated positive income from self-

employment activities. We find that owners of sole proprietorships with limited activity receive approximately half of their income from self-employment activities, on average, and the rest from wages.

Figure 10. Share of net profits of total annual income, 2001-2015

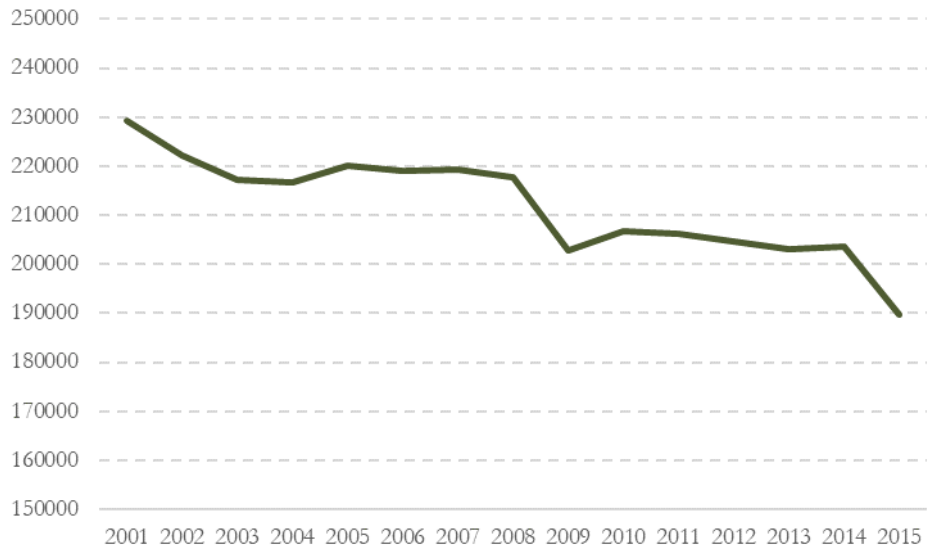


Notes: The figure is conditional on having a surplus. Statistics Denmark and our own calculations.

4.3 Sales

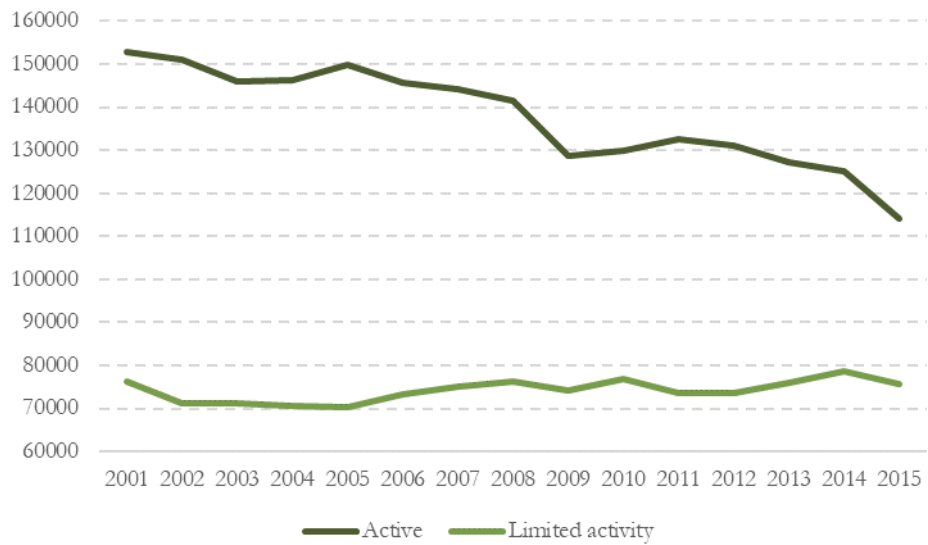
In this subsection, we investigate the number of sole proprietorship with positive sales each year 2001-2015. According to Figure 11 below, 230,000 sole proprietorships have positive sales in 2001, which decreases to less than 200,000 in 2015. The data are split to pertain to the two types of sole proprietorships in Figures 12 and 13. Here, approximately 70,000 sole proprietorships with limited activities have positive sales increasing to 80,000 towards the end of the period. Only 60 percent of sole proprietorships with limited activities have positive sales. Finally, while the number of sole proprietorships with positive sales decreased among above-threshold active sole proprietorships over the 15-year period, and it remained fairly constant among sole proprietorships with limited activity.

Figure 11. Number of sole proprietorships with positive sales, 2001-2015



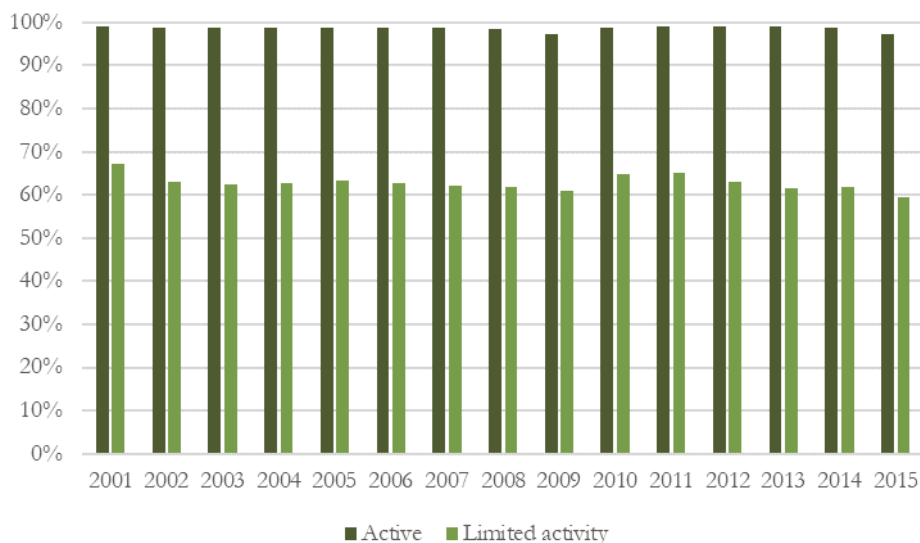
Notes: Statistics Denmark and our own calculations.

Figure 12. Number of sole proprietorships with positive sales by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

Figure 13. Share of sole proprietorships with positive sales by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

5. Sectors

In this section, we set out by examining the sector compositions of sole proprietorships with limited activity. In Table 2 below, we break down the number of sole proprietorships with limited activity by main sector to identify the sectors where this type of firm is particularly prevalent.

Table 2. Number of sole proprietorships with limited activity by sector, 2001 to 2015

Sector	2001	% Change 2001-2015
Construction	6,136	16%
Real estate	6,033	6%
Other business services	22,477	36%
- Consulting	10,315	18%
- Advertisement	6,180	15%
- Travel agencies	5,686	58%
Finance and insurance	120	59%
Trade and transport	27,846	-12%
Manufacturing	5,593	14%
Information and communication	9,540	29%
Arts, entertainment and other services	5,313	76%
Agriculture, forestry and fishing	25,259	-11%
Public administration	3,038	172%
Activity not stated	1,990	-100%
Total	113,345	13%

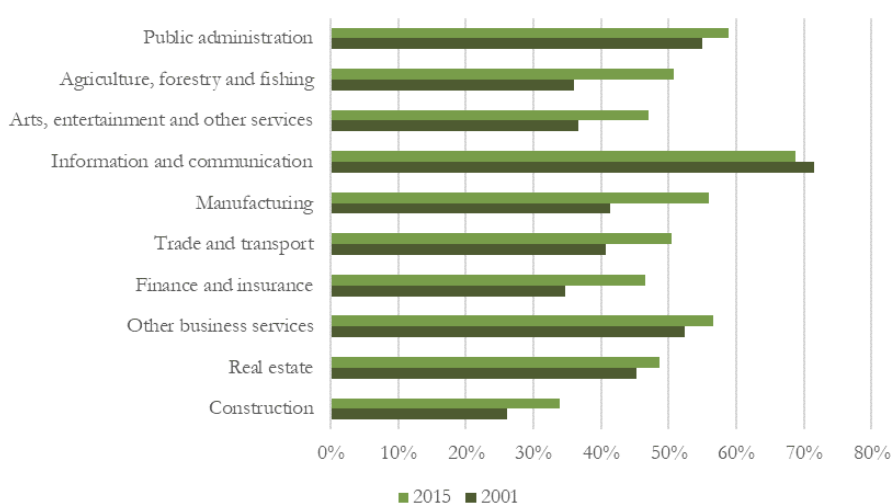
Notes: Statistics Denmark and our own calculations.

As an important observation from Table 2, only approximately 6,000 sole proprietorships with limited activity operate in the construction sector in 2001, which slightly increases to approximately 7,000 in 2015. Instead, we find that most sole proprietorships with limited activity operate in agriculture, forestry and fishing, trade and transport and in other business services (consultancies, research and development and advertising).

From 2001 to 2015, there was a 36 percent increase in the number of sole proprietorships with limited activity in the other business service sector, making it the largest sector in 2015 and responsible for most of the growth in sole proprietorships with limited activity observed over the period. Over the same period, the number of sole proprietorships with limited activity decreased in the trade and transport as well as the agriculture, forestry and fishing sectors. Other sectors that also experienced a noticeable increase in the same period include the information and communications sector, public administration, finance and insurance, and the arts and entertainment sector. Within the public administration sector, the number of sole proprietorships with limited activity almost doubled over the period.

Regarding the share of sole proprietorships with limited activity, Figure 14 shows that more than half of all sole proprietorships in public administration, information and communication, and other business sectors engaged in limited activity in 2001. The construction sector and the finance and insurance sector presented the lowest shares of sole proprietorships with limited activity in 2001. Over time, the share of sole proprietorships with limited activity increased in most of the sectors and especially in agriculture, forestry and fishing, manufacturing, finance and insurance, and trade and transport sectors. In 2015, more than half of all sole proprietorships in the manufacturing sector had limited activity. The only sector that has experienced a decrease in the share of sole proprietorships with limited activity is the information and communication sector. In this sense, sole proprietorships with limited activity have become relatively more important in most sectors.

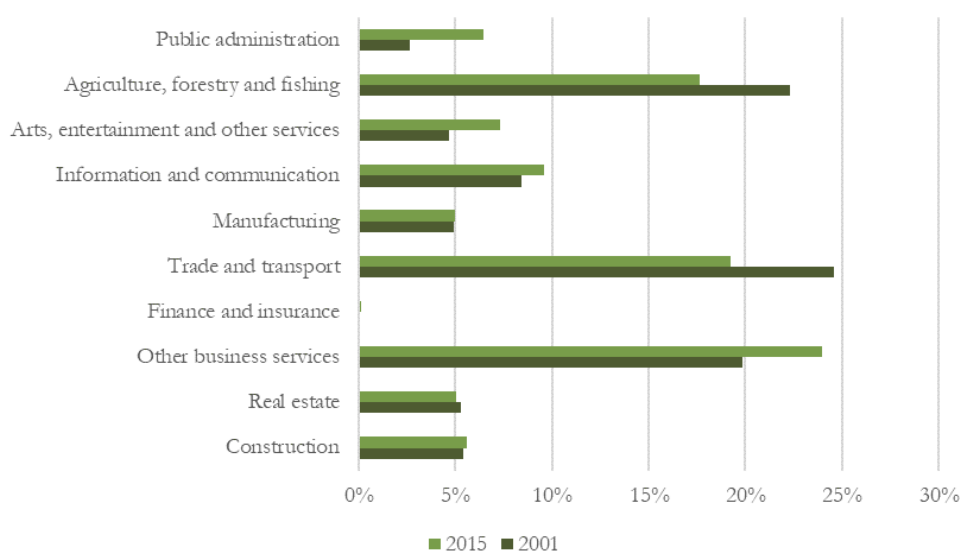
Figure 14. Share of sole proprietorships with limited activity within sectors, 2001 and 2015



Notes: Statistics Denmark and our own calculations.

In terms of the distribution of sole proprietorships with limited activity across sectors, Figure 15 below shows that the trade and transport sector made up the largest relative share in 2001 followed by agriculture, forestry and fishing and other business services. By contrast, construction and manufacturing make up roughly 5 percent each of the businesses with limited activity. In 2015, other business services constituted the largest sector of sole proprietorships with limited activity, surpassing the agriculture, forestry and fishing and trade and transport sectors. Next, we take a closer look at the construction sector.

Figure 15. Distribution of sole proprietorships with limited activity across sectors, 2001 and 2015



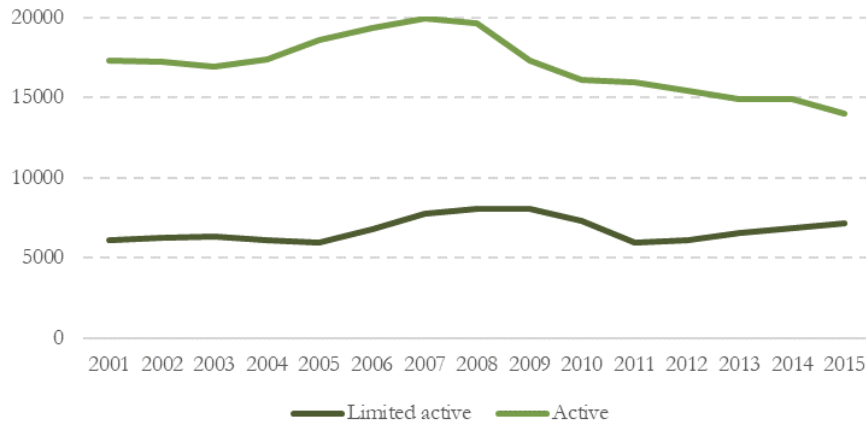
Notes: Statistics Denmark and our own calculations.

5.1 The Construction Sector

While the number of sole proprietorships with limited activities is rather limited in the construction sector, we examine this particular sector more closely in this subsection. If “false self-employment” constitutes an important facet of the labor market, then we would expect to find it in this sector due to the seasonality of the work performed and the cyclical economic demands for construction services.

In Figure 16 below, we show the number of sole proprietorships operating in the construction sector over time. We find that most of the sole proprietorships are labelled as being active. The number of sole proprietorships with limited activity increases slightly from 2011 onward.

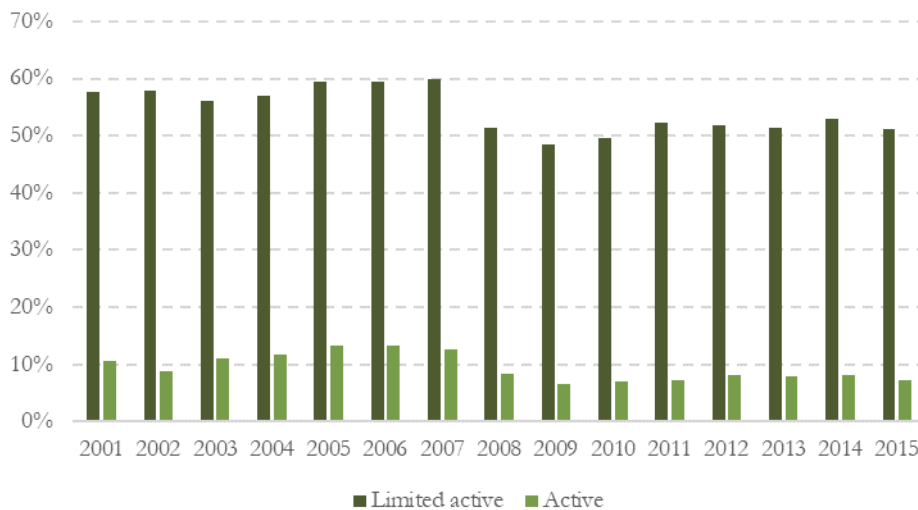
Figure 16. Number of sole proprietorships in the construction sector, 2001-2015



Notes: Statistics Denmark and our own calculations.

Figure 17 below shows the share of owners of sole proprietorships in the construction sector receiving their main income from regular employment. From 2008 to 2015, the share of owners in regular employment was approximately 50 percent, which is slightly lower than the corresponding number on the whole labor market.

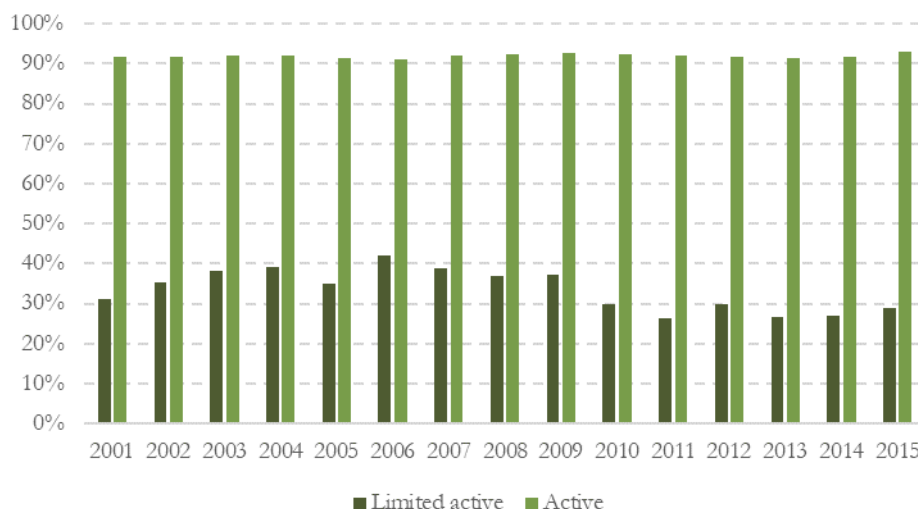
Figure 17. Share of owners in regular employment, 2001-2015



Notes: Statistics Denmark and our own calculations.

Figure 18 below shows that approximately 30 percent of sole proprietorships with limited activity in the construction sector generated a net profit from self-employed activities while this was the case for more than 90 percent of the active sole proprietorships.

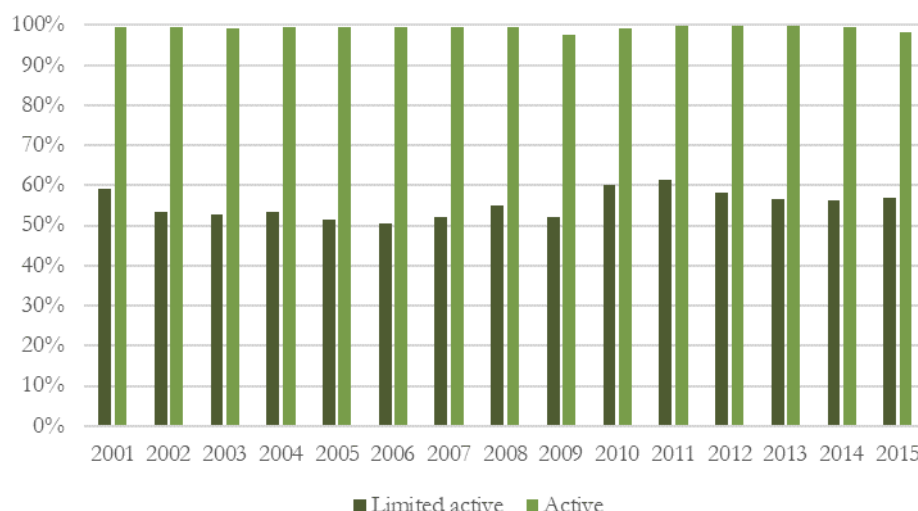
Figure 18. Share of sole proprietorships in the construction sector with net profit from self-employed activities by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

Figure 19 shows the share of sole proprietorships in the construction sector with positive sales. It is apparent that only approximately 50-60 percent of the sole proprietorships with limited activity generated positive sales. This is slightly lower than on the labor market as a whole.

Figure 19. Share of sole proprietorships in the construction sector with positive sales by activity status, 2001-2015



Notes: Statistics Denmark and our own calculations.

Taken together, the figures presented for the constructions sector are very similar to those found for the whole Danish labor market. If anything, we find, against expectations, that limited active sole proprietorships and the workers on the border between regular employment and self-employment

are even less dominant in this particular sector compared to other sectors. The above figures do not give the impression that “false self-employment” is becoming more prevalent in Denmark’s construction sector, or at least that is not the case among sole proprietorships owned by individuals with Danish person ID.

6. Conclusion

The purpose of this paper was to examine whether self-employment activities vis-à-vis regular employment are playing a larger role on the Danish labor market today. To answer this question, we use unique Danish register data on the owners of all sole proprietorships in Denmark for 2001-2015.

We find that self-employed activities have not become more prevalent on the Danish labor market in general. By contrast, the number of active sole proprietorships has actually decreased during our period of observation. However, the number of limited active sole proprietorships has increased but a large share of these are actually inactive, meaning that they have no sales at all and do not generate any income for the owner. Fewer than 45 percent of wage workers engaged in sole proprietorship have income from self-employment activities, and only 60 percent of limited active sole proprietorships have any sales. In total, 50-60,000 limited active sole proprietorships generate income for the owner.

In the construction sector, the number of active sole proprietorships has fallen from 2008 onwards while the number of limited active sole proprietorships has remained constant. There are only around 6-7,000 limited active sole proprietorships in the construction making it one of the sectors with the fewest number of limited active businesses. With these results in mind, the use of “false self-employment” is not very prevalent on the Danish labor market as a whole and in the construction sector in particular. We are, however, not able to directly investigate whether sole proprietorships with limited activity are, in fact, used as “false self-employment” businesses or whether such businesses are simply used by regular employees as an additional source of income. Our analysis is therefore based on the premise that if “false self-employment” is playing a larger role in the Danish labor market, we would expect also to find an increase in the number of limited active sole proprietorships in operation and in the number of individuals receive income from both regular employment and self-employment in a given year.

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