Transition Between Labour Market Statuses – a Comparison Between the LFS and the Labour Market Account (LMA) in Denmark

Purpose and Background

Which labour market statuses are difficult to capture in the Labour Force Survey? This question is highly relevant and can be approached by comparing respondents from the Danish Labour Force Survey to how they appear in the administrative database Labour Market Account (LMA). Both sources attempt to measure the ILO-definition, but where the LFS ensures that the data is entered either by the person themselves or by a household member as proxy, the LMA will always be using a proxy as the data is entered into the administrative registers by an employer or the state or the municipality.

The purpose of this paper is firstly to compare the two separate ways to measure labour market status: using a survey – the LFS, and using administrative data sources – the LMA. By comparing the respondents' statuses in the LFS with their official record in the administrative register, we are able to check the ILO-definition on labour market status as well as the transitions between the three labour market statuses in both sources. This is interesting because it allows us to see how closely the two ways of measuring align and where the differences are to be found - depending on whether you ask the person directly *or* whether an employer or a type of social security benefit determine which category of the ILO-definition to be placed in. Once we learn the scope of where they differ and where they overlap it also forms the basis of analyzing *why* they differ and *why* they overlap and how can we use the two different methods to bolster each other and make an analytical vantage point even stronger. Secondly by introducing flow statistics in a comparison between the labour market statuses, we are able to look further into where the LFS might be challenged in terms of encapsulating labour market status.

Sources and Definitions

The LFS and the LMA use different methods to measure the labour market. The LFS uses a survey on a sample size of the population comprised of approximately 22,000 individuals per quarter. In contrast the LMA pools several different administrative registers into one register that measures the labour market status of the population. Where the LFS measures a person's labour market status for one reference week, the LMA measures the labour market status on a daily basis for the entire population. This means that we are able to check the labour market status in the LFS in the relevant reference week up against the persons' situation in the same week in the LMA. In the following we will expand on how the three categories, *employment, unemployment* and *outside of the labour force* are defined in the LFA versus the LMA and what this means for how we would expect the categories to look when comparing the two sources.

Employment

While the ways to capture employment differ – self-reported in the LFS versus administrative database output in the LMA - the ILO-definition still applies in both the LFS and the LMA which is *that a person must have worked for at least one hour to count as being employed*. One area where we might expect that the LFS and LMA differ on employment is when it comes to people performing unregistered work only. They will appear as either being unemployed or outside of the labour force in the LMA but will be registered as being employed in the LFS if they answer that they have done one or more hours of unregistered work in the reference week. Another area where we would expect variance is with the group of students as some students consider their studying to be the equivalent of being in employment. This would account for some persons appearing as employed in the LFS but as outside the labour force in the LMA.

Unemployment

The LMA and the LFS use different methods to measure unemployment in accordance with the ILO-definition. The LMA measures unemployment by observing whether or not a person receives unemployment benefits or is in a specific form of wage-subsidized position whereas the LFS measures unemployment by looking at a person's self-reported unemployment during the reference week while at the same time being actively searching for employment within the previous four weeks and being able to start working within two weeks. It therefor stands to reason that there will be at least some discrepancy between the two measurements of unemployment. *Students,* for instance, is a group where there is a risk of discrepancies. Students in Denmark receive a state education grant and as such are not eligible for unemployment benefits, therefor students do not appear in the LMA as being unemployed. In the LFS, on the other hand, if a student with no job responds that they have been looking for work within the last four weeks and are ready to start working within two weeks they will be listed in the LFS as being unemployed.

Outside of the labour force

This group is the hardest one to explain in terms of overlap and discrepancy primarily because this group is comprised entirely of the remainders of the other two groups and as such contains a confluence of different groups of persons. One place where we would expect discrepancies is with students, pensioners, early retirement pensioners and others that are eligible for benefits or grants other than unemployment benefits. We expect these to be overrepresented in the LMA statistics for people outside of the labour force when compared to the LFS. Like in the example from above with students this is because persons receiving some other type of state grant or benefit that excludes them from unemployment benefits can by definition not be registered as unemployed in the LMA due to not receiving unemployment benefits. But the same person might answer in the LFS that they have been looking for work and would be able to begin within two weeks. As such these persons would be registered as being outside of the labour force in the LMA but as being unemployed in the LFS. This would lead us to expect the LFS to have a higher percentage of unemployed and the LMA to have a higher percentage of people outside the labour force. That being said this is still the hardest group to predict in terms of over-all overlap/discrepancy.

ILO Statuses in LFS and LMA

When looking at the overall population unweighted in 2015 we see that for the LFS, 65 percent of the population is categorized as being employed with 5 percent categorized as being unemployed and an additional 30 percent categorized as outside of the labour force. For the LMA things look rather similar as 65 percent of the population is categorized as being employed while 3 percent is categorized as being unemployed and 32 percent as being outside of the labour force. In the following section of this paper we will delve into the categories and see to what extent our expectations are met in terms of overlaps and discrepancies.

Table 1: Population distribution in percentages in LFS and LMA 2015
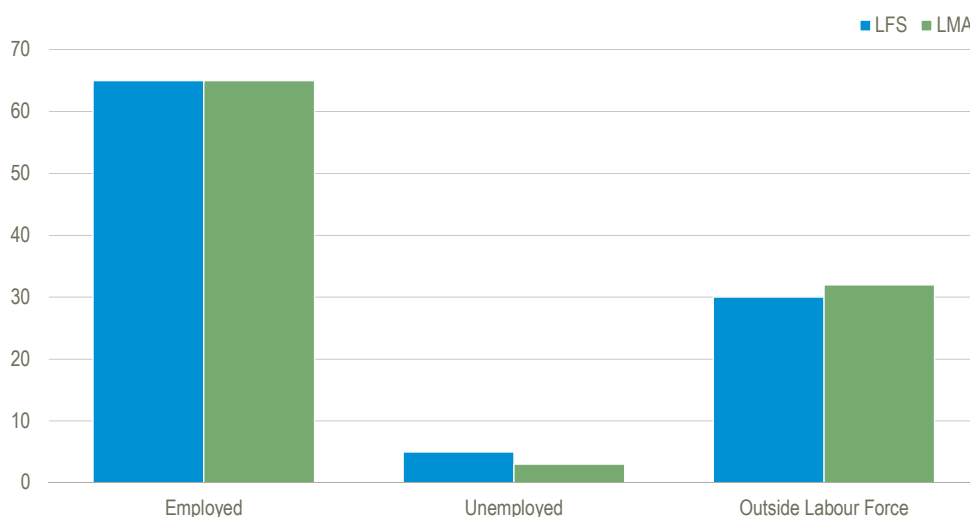
Matches Between Labour Market Statuses

Across the three categories we see a match of 91 percent when juxtaposing data from the LFS with data from the LMA. This is a very high percentage and means that a vast majority of respondents in the LFS reply to our survey in a manner which reflects how they are registered in the administrative data as exemplified by the LMA.

Looking at the 9 percent that do not match, however, we see that this group is primarily filled with people from three subgroups.

- The first subgroup, making up 32 percent, consists of people that are registered as *employed in the LFS* but as being *outside of the labour force in the LMA*.
- The second group, 31 percent, is made up by people that conversely are registered as *being outside of the labour force in the LFS* but registered as being *employed in the LMA*.
- The third group, 24 percent, consists of people that are registered as being *unemployed in the LFS* but as being *outside the labour force in the LMA.*

We will now attempt to analyze these three subgroups and will do so by using different variables such as the main occupation, age and average actual hours worked per week. It is important to note that we cannot explain with certainty the reasons why persons are registered differently but we can use these variables to deduce some causes we find to have a strong explanatory power.
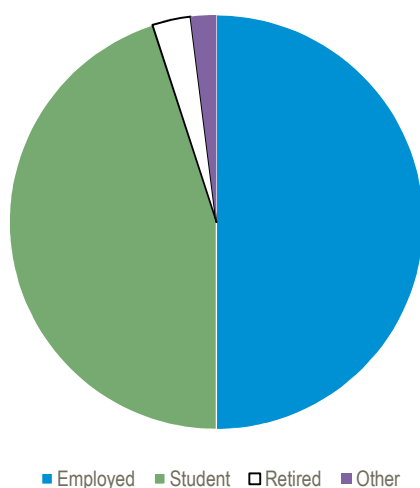
Subgroup One – Employed in LFS but Outside Labour Force in LMA

When looking at the first subgroup we see that the average age is relatively low with 31.6 years of age. We also know that some students consider their studies to be a full time occupation and as such we suspect that some of this group is made up by students that indicated that they were working during the reference week because they were studying and considered this the equivalent of working. This would make them employed in the LFS but their status in the LMA would likely be outside of the labour force. Investigating further we look at how the group answers in the LFS on main occupation. As is apparent from table 2 nearly half of the people in subgroup one have answered that they primarily consider themselves to be students. This lends weight to the notion that students occupy a significant portion of this group.

Another interesting data point is the average number of actual hours worked in this group. This comes to 17 hours with 31 percent of the group having worked 0 hours in their reference week which also supports the suspicion that a large part of this group is students but does not necessarily corroborate the theory of students considering their study as work.

Another way to explain this group is the fact that those that reply that they have performed only unregistered work while not receiving unemployment benefits (this could be students, retired people or some other group) will be registered as employed in the LFS but as outside the labour force in the LMA and as such we might expect to find this group within subgroup one.

Tabel 2: Subgroup one - Main Occupation in Percent

■ Employed ■ Student □ Retired ■ Other

Subgroup Two – Outside Labour Force in LFS but Employed in LMA

When looking at this group we notice that the average age is higher than in the first group with 35.9 years of age. We also see that the three main occupations are students, retired people and unemployed as evidenced by table 3. This leads us to look for the reasons for this group's discrepancies between the LFS and LMA. One reason why a person would be registered as outside the workforce in the LFS but in employment in the LMA is in regards to the date of employment. If a person in the LFS was unemployed during the reference week but began working later that same month then, depending on whether they received pay for that month, they will be registered in the LMA as employed for that entire month including the reference week in regards to which they replied to the LFS that they did not work. Similarly a person who was let go with, for instance, three months' pay, will be registered in the LMA as being employed for those three months where they still receive pay but will likely indicate to the LFS that they are not working. Another group that could potentially be problematic is independent contractors. They might consider themselves unemployed in the reference week in the LFS if their job is seasonally impacted and they did not carry out any actual work in the reference week. But in the LMA they will be registered as employed all year round and would not be exempted from employment status in down-periods. Other groups might include independents that own property or similar things that yield a profit but that they do not consider employment. Depending on the type of ownership or investment and profit they could be registered as employed in the LMA but might not reply as being employed in the LFS.

Table 3: Subgroup Two – Main Occupation

■ Student ■ Retired □ Unnemployed ■ Other
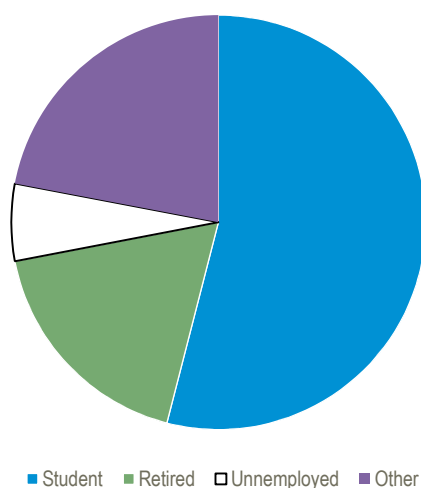
Subgroup Three – Unemployed in LFS but Outside Labour Force in LMA

Looking at this subgroup we notice the highest percentage of students and the lowest average age. The average age is 25.2 years of age and so we expect to find a significant percentage of students in this group. And we do as we see that a massive 59 percent of this group considers their main occupation to be that of a student. A reason for this group not matching could then be because students without work are

categorized as being outside the labour force in the LMA. In Denmark they receive an educational grant and as such cannot receive unemployment benefits. However, if the same students indicate in the LFS that they are *looking* for a job and are able to start within two weeks they will be registered as unemployed in the LFS.

Tabel 4: Subgroup Three – Main Occupation

■ Student ■ Unemployed □ Outside workforce ■ Other
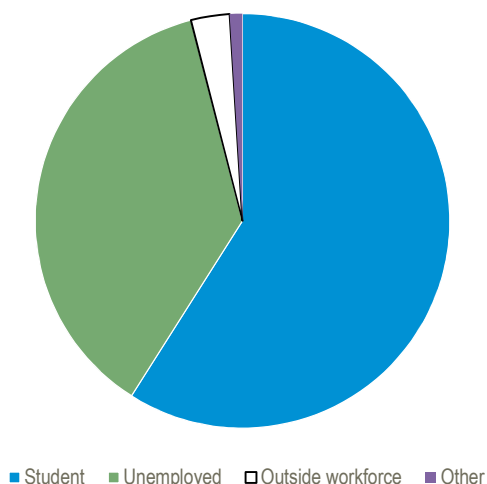
Closing Thoughts on Persons not Matching

It is difficult to pin down the exact reasons for the 9 percent that do not match between the LFS and the LMA but by looking at the above descriptions of the different subgroups among the non-matches we see that students take up a significant portion. This is not surprising to us but rather a confirmation that this is a group that is intrinsically hard to categorize similarly in the administrative data and the LFS due to differences in the interpretation of the ILO-definition that are necessitated by the different data collection methods.

Another point of interest is the group of respondents that have replied by proxy. It is hard to know for certain exactly how this is expressed but we can see that of the 91 percent that matches between the LFS and LMA 6 percent have been answered in the LFS by proxy whereas out of the 9 percent that do not match, 9 percent of those have been answered by proxy. If nothing else this is an indication that proxy replies equals a higher non-match percentage. We can also see that of the three subgroups of non-matches, subgroup two has nearly twice the percentage points of proxies (13 percent) compared to the other two groups (7 percent for group one and 6 percent for group three). Further analysis might shed more light on the reasons for this and what it means for the reliability of the data.

Measuring Change in the Labour Market Statuses

In this section of the paper we will delve into where the LFS might be challenged in terms of encapsulating labour market status precisely and where flow-statistics can offer explanations to these challenges.

Statuses in the LFS and the LMA

Changing statuses over time is a relevant point of entry when comparing with the registers as we suspect that some respondents that are employed in one panel and then unemployed in the next, for instance, might be misrepresented as still being employed in the LFS but would be captured in the LMA as being unemployed. The following section will analyze respondents participating in the LFS in the years of 2014 and 2015 in at least two panels to outline the differences in shift of statuses between the two sources.

The table below covers labour market statuses of respondents in the LFS that have participated in more than one panel (up to 4 panels) and have answered the survey in both 2014 and 2015. In addition the respondents' status in the LMA is covered.

Table 5: Statuses in the LFS and the LMA 2014 and 2015

	2014		2015	
	LFS	LMA	LFS	LMA
Employed	36,000	37,000	36,000	36,000
Unemployed	3,000	1,000	2,000	1,000
Outside the labor force	16,000	17,000	16,000	17,000
In total	55,000	55,000	54,000	54,000

The overall picture for the respondents in this part of the analysis is very similar labour market statuses in the LFS and the LMA during the years of 2014 and 2015. The biggest variance is in the group of unemployed which is in line with the conclusions drawn from the first part of the analysis. If we further investigate the shift in status, analysis show that 15 percent of the respondents have changed labour market status from 2014 to 2015 in the LFS. For the same group of respondents 13 percent have changed their labour market status in the LMA in that period.

Shift in Statuses

The primary shift in status is from employed to outside the labour force and reversed in both the LFS and in the LMA. This preliminary conclusion is in line with the analysis from part one – pointing out that the biggest mismatch between labour market status in the LFS and LMA were to be found in the first subgroup - covering people that are registered as employed in the LFS but as being outside of the labour force in the LMA. As illustrated in table 6 below, in the LFS this accounts for 60 percent of the respondents shifting status, while 24 percent shift from employed to unemployed and reverse, and 16 percent shift from unemployed to outside the labour force and reverse. Looking at the respondents' statuses in the LMA, nearly 80 percent of the respondents shift from employed to outside the labour force and reversed, while 16 percent shift from employed to unemployed and reverse, and only 5 percent shift from unemployed to outside the labour force and reverse.

Table 6: Shift in statuses in the LFS and the LMA from 2014 to 2015

We can see that in the LFS it is more frequent that shifts in statuses takes place from employed to unemployed and reversed than in the LMA. This is also the case for the shift in status from unemployed to outside the labour force and reversed.

For the group of respondents that had a shift in statuses from 2014 to 2015, it is noteworthy – and yet not surprising - when looking at the age distribution that the youngest group of respondents (15-24-year-olds) represent more than half of the respondents that shift status. This age group is characterized by a large mobility in and out of the labour market. In addition the age group from 55-64 is also very well represented in the shift in statuses, which is probably due to retirement.

Table 7: Age distribution of the shift in statuses in the LFS and the LMA 2014 and 2015
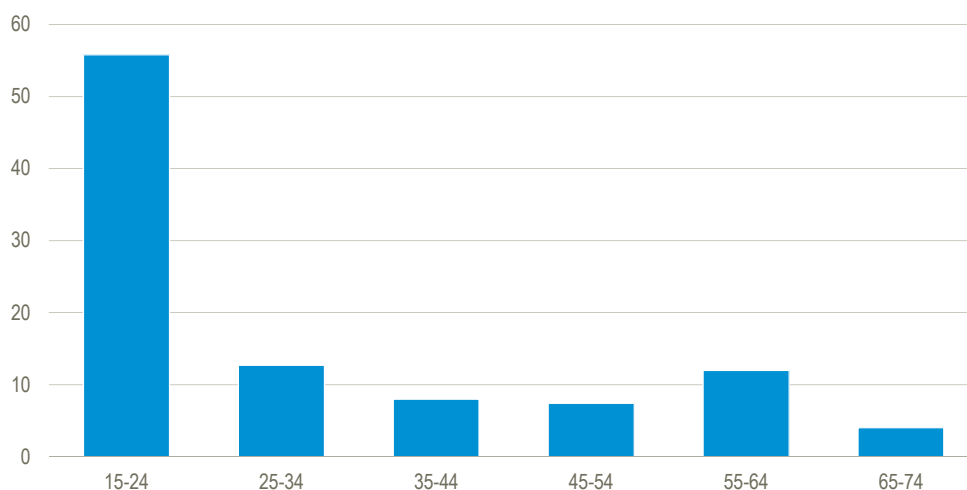
Students count for more than half of the shift in statuses

This findings are in accordance with the analysis in part one of this paper, where we concluded that a majority of the respondents that do not match are students which are more often shifting statuses and are more difficult to capture in the same manner in the LFS and the LMA.

In the analysis of shift in statuses, we see that more than 50 percent of the respondents that change status from 2014 to 2015 are students. This makes sense insofar that one would assume they would go from being students to be employed. This is also the case for a majority of the group of students (47 percent).

Higher Risk of Not Matching Between LFS and LMA when Changing Status over Time

When looking at those 15 percent that shift status from 2014-15 in the LFS we notice that close to a third of those (28 percent) belong in the group of 9 percent out of our sample that do not match between LFS and LMA. Out of the remaining 85 percent - those that do not shift status from 2014-15 - only 4 percent belong in the group of 9 percent that do not match between the LFS and the LMA. This goes some way toward underlining that people that shift status in the LFS over time has a higher risk of being in the non-match group of 9 percent than those that do not shift status. This stark contrast corroborates our speculations over students in particular being overrepresented in the groups that do not match. This is corroborated when looking at table 7 where we see that this group is dominated by young people as well as people close to retirement. It makes sense that these groups will have a higher tendency to shift status as their role on the labour market is more volatile and as such they are more difficult properly pin down and describe.

Conclusion

We have learned that, as two different methods of measuring labour market status, the LMA and LFS overlap to a large extent (91percent). However there are places where the two methods find different results and these discrepancies lend themselves to further analysis.

Currently we have seen that in particular the group of students is frequently differently represented in the LFS and LMA. This is mainly due to the different definitions of unemployment that come into effect. An unemployed person is only unemployed in the LMA if they receive unemployment benefits or have a certain type of wage-subsidized job. In the LFS on the other hand a person is unemployed if they have indicated that they are not currently employed, have been looking for work within the last four weeks and is able to start within the next two weeks. Students in Denmark looking for a job, be that a part time or full time job, fall into this trap of being registered as unemployed in the LFS but being categorized as being outside of the labour force in the LMA.

In the second part of the analysis we have seen that in the LFS respondents more often change status and fluctuate more between the different statuses than is the case for the respondents when looking at their status in the LMA. Especially regarding young people and students there is a discrepancy both due to frequent shifts and furthermore due to the way this group is measured in the different sources. The result from the second part of the analysis implies that the LFS could benefit from comparing labour market statuses in panels two through four with the LMA – not to correct data – but in order to better establish whether or not these changes in status over time have been captured sufficiently or if there are questions in the LFS, with regards to specific groups, that should be adjusted accordingly.

All in all we have found that the two methods of gathering data on labour market status can help supplement each other quite effectively as one can look to the LMA in order to better look at changes to labour market status across panels in the LFS.