Non-Working Workers.
The Spanish Labour Market under Covid-19[*]

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Abstract

We propose in this paper a way of analyzing the evolution of unemployment that considers, besides conventional unemployment rates, unemployment duration, discouraged workers and workers with suspended jobs. Those variables are combined into a synthetic index of non-employment that can be expressed as the product of two components, incidence and severity. We apply this methodology to analyse the evolution of the Spanish labour market during one year with Covid-19. The data show that the behaviour of the job market has been very asymmetric by regions and types of workers. We find that not only incidence and severity are quite heterogeneous across regions and worker types, but also that the evolution between 2019 and 2020 has been different from that corresponding to the financial crisis, with high unemployment regions and older workers suffering less, in terms of incidence and severity.

Keywords: Unemployment duration, Severity, Incidence, Covid-19.

JEL Classification: J01, J21.

1. Introduction

The Covid-19 has had vast implications on many aspects of the community's life, from health to social behaviour, and has hit severely the economies when we were regaining mo-

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mentum after the financial crash of 2007. By March 2020 most of the countries had recovered pre-crisis activity levels and GDP figures. The labour market followed a similar path and the menacing unemployment rates of 2013 had returned to the more familiar pre-crisis values. Analysing the impact of those types of economic shocks makes it clear that conventional unemployment rates are too crude indicators of the state of the labour market, especially after the explosion of the pandemics. The reduction on unemployment rates to pre-crisis values does not guarantee that the former structure of employment has been recovered. And this is so even if unemployment rates are disaggregated by regions and types of workers within countries, to grasp the asymmetries of the labour market dynamics.

There is an open discussion on how to measure the impact of the business cycle on the labour force, in particular on how the statistics should compute those workers who would like to work and yet are not actively seeking a job, and those that work part-time because they could not find full time jobs. The first group consists of the discouraged, people that implicitly estimate that the search costs exceed the expected earnings. Conventional unemployment measures consider those individuals as inactive, rather than as unemployed, which may hide the true impact of economic shocks that involve changes in the labour force, due to changes in expectations and attitudes. Furthermore, workers with undesired part-time jobs are computed as employed, which implies underestimating unemployment rates.[1]

Nowadays the US Bureau of Labour Statistics provides up to six different measures of unemployment, from less to more inclusive. The U3 measure corresponds to the conventional unemployment rate. U4 adds those discouraged and U5 includes, additionally, those "persons marginally attached to the labour force". The difference between U3 and U5 measures may be quite large and here again we find asymmetries in that gap between regions and types of workers within a society. U6 adds those with undesired part-time jobs. Along this line, the European Union has introduced the notion of *labour market slack*. This term refers to the unmet demand for labour and includes unemployed, forced part-time workers, discouraged, and people looking for a job but not ready to work. Eurostat data show that the labour market slack is much larger than the conventional unemployment rate.[2]

The economic impact of Covid-19 introduced a new category of workers who are employed but do not work: the workers with *suspended jobs*. That is, workers whose activity has temporarily ceased (or been substantially reduced in terms of hours) even though they keep their contracts and receive meanwhile some public funding.[3] This new type of labour relationship, which already existed in some countries, has been extensively used to buffering the impact of the pandemic over the labour market. They are part of the active population, do have a job, but are not working.

The type of head-count approach to unemployment is not the only issue about the evaluation of unemployment. One of the most relevant aspects that determine the social cost of unemployment is unemployment duration. There is evidence that important reductions of unemployment rates may go together with an increase of unemployment duration (e. g. Sanz de Galdeano and Terskaya, 2020). This entails the progressive marginalization of part of the labour force (Bentolila *et al.*, 2017). Long-term unemployment implies the accumulation of

periods of low income, affects social integration and people's self-respect, exhausts unemployment benefits, and reduces the probability of getting a new job. The idea that duration should be included systematically in the measurement of unemployment has already been proposed years ago. Sengupta (2009) and Shorrocks (2009 a,b) provide formal models that apply the approach of poverty measurement to this problem; Goerlich and Miñano (2018) use this methodology to analyse the Spanish labour market; Gorjón *et al.* (2020, 2022) extend those ideas to incorporate income losses and transition probabilities from a social welfare perspective; see also Gradín *et al.* (2015). The implications of long periods of unemployment for the future are also being analysed under the suggestive name of *the scar* of unemployment (e. g. Gangi, 2006, García-Pérez and Vall-Castelló, 2015, de Fraja *et al.*, 2017, von Wachter, 2020).

The purpose of this paper is twofold. First, we propose a way of looking at unemployment that considers, besides conventional unemployment rates, unemployment duration, discouraged workers and workers with suspended jobs. We call *non-working workers* (NWW) the union of those unemployed, discouraged, and workers with suspended jobs. Then, we apply this approach to analyse the evolution of unemployment in Spain during the first year of the pandemics, by comparing the situation in Spain in the third quarter of 2020 relative to the third quarter of 2019. We discuss the differences observed among the regions, on the one hand, and among the types of workers, according to gender, age and education, on the other hand.

The analysis requires suitable data and evaluation protocols. Regarding the data we rely on the standard Labour Force Survey (Encuesta de Población Activa), which provides quarterly all the info required. As for the evaluation protocol for the non-working workers, we recur to a familiar indicator that consists of the product of *incidence* and *severity*. Incidence refers to the share of the NWW in the extended labour force (i.e. including discouraged workers). Severity is an index that tells us how bad the situation of the NWW is. This synthetic indicator, that we call *Non-Working Index*, may be regarded as a sort of poverty index, as it measures the social negative impact of the lack of employment over a part of the population.

Between the third quarter of 2019 and that of 2020 the incidence of the non-working workers in Spain has increased by more than 42% whereas severity has decreased by some 28%, due to the alleviating effect of suspended jobs among non-working workers.[4] As a result, the Non-Working index exhibits a modest increase of 2.7% during this period. Those average values, though, correspond to very different situations when we consider the impact of the crisis over the regions or between different types of workers. Two examples illustrate those diverse dynamics. Regarding regions, we observe that incidence grew by 178% in Baleares and only 17% in Extremadura. As for the type of workers, the data show that the Non-Working index grew more than 25% for the youngest workers, whereas it barely changed for the oldest.

The paper is organized as follows. Section 2 presents the evaluation protocol, which is applied to the analysis of the Spanish job market in Sections 3 (generalities), 4 (the regions) and 5 (types of workers by gender, age and education). A few final comments are gathered in Section 6.

2. The evaluation protocol

2.1. The index

Our reference is a population P (e. g., a country) in which we shall eventually distinguish several population subgroups, $g = 1, 2, ..., G$ (e. g., regions or types of workers).

The non-working workers (NWW, for short) are given by the union of three different groups: (a) *Unemployed:* Those without a job and actively looking for one, classified according to unemployment duration. (b) *Discouraged:* Those who are ready to work but do not actively seek for one due to the lack of hope to succeeding, also classified by duration. (c) *Workers with suspended jobs:* Workers whose activity is temporary suspended (totally or partially) but keep the contract with the firm and receive some compensation during the interim period (people in the ERTE, in the Spanish case).

Given a population P, let n denote the number of NWW and let m the size of the corresponding *extended labour force*, by which we mean the sum of the conventional labour force and the discouraged workers.[5] The NWW can be classified into C categories, $j = 1, 2, ..., C$, depending on unemployment duration and other circumstances (discouraged workers and workers with suspended jobs, in our case). For the sake of convenience, we assume that those categories are ordered from best to worst and denote by n_j, $j = 1, 2, ..., C$, the number of non-working workers in category j, with $\sum_{j=1}^{C} n_j = n$. The *score* of non-working workers in category j is given by $n_j \beta_j$, that is, the number of NWW in that category times a coefficient β_j that ponders the relevance of that category. Note that $0 < \beta_1 < \beta_2 < \cdots < \beta_C$, as the categories of NWW are ordered from best to worst. We now define the Non-Working index of a population P, $NW(P)$, as the overall score of all those categories of NWW, relative to the extended labour force. Namely,

$$NW(P) = \frac{1}{m} \sum_{j=1}^{C} n_j \beta_j \tag{1}$$

This is a per capita measure of the impact of unemployment that corresponds to a homogeneous function, monotone in the number of non-working workers and such that shifting individuals from one category to the next, increases its value. The Non-working rate, $\frac{n}{m}$, is the equivalent to the unemployment rate in this extended scenario.

Note that equation (1) can trivially be rewritten as:

$$NW(P) = \underbrace{\frac{n}{m}}_{Incidence} \times \underbrace{\mu^{NW}(P)}_{Severity} \tag{2}$$

This is a standard way of approaching the impact of a given phenomenon on a population subgroup, as in the case of poverty measurement (e. g. Chakarvarty 2009, Villar 2017). The first term corresponds to the non-working rate, a standard head-count ratio. The second term is the *average non-working score*, $\mu^{NW}(P) = \frac{1}{n} \sum_{j=1}^{C} n_j \beta_j$. This index moves between 0 (when $n = 0$) and β_C (when $n_C = n = m$, $n_j = 0$, $\forall j \neq C$).

Note that severity is an average of the non-working scores, with no reference to their distribution. Yet, severity can be trivially decomposed into the product of a measure of intensity and a measure of inequality, mimicking Shorrocks (2009 b). To do so let $Med(P)$ stand for the median of the non-working scores, which is an index of non-working intensity. We can write:

$$NW(P) = \underbrace{\frac{n}{m}}_{Incidence} \times \underbrace{Med(P)}_{Intensity} \times \underbrace{I(P)}_{Inequality} \tag{3}$$

Where $I(P)$ is an elementary index of asymmetry given by the ratio between the average and the median:

$$I(P) = \frac{\mu^{NW}(P)}{Med(P)}$$

$I(P)$ computes how far away the mean and the median are (more precisely, how many times the mean is contained in the median). The evolution of the wedge between the mean and de median tells us about the dynamics of the differences between those NWW with better and worse conditions.

Given two societies with the same severity, that with a smaller median will exhibit a larger inequality. This simple observation is important to properly interpret the inequality index. That is, in terms of our formulation, the reduction in the intensity will often be linked to an increase in the asymmetry between the NWW, because reductions in the median are linked to larger shares of NWW within the better categories.

Consider now the evaluation of a population that is made of G different population subgroups, $g = 1, 2, ..., G$. We would have:

$$NW(P) = \frac{1}{m} \sum_{j=1}^{C} \sum_{g=1}^{G} n_{jg}\beta_j$$

Letting m^g, n^g denote the extended active population and the number of non-working workers in population subgroup g, respectively, the former expression can be rewritten as:

$$NW(P) = \sum_{g=1}^{G} \frac{m^g}{m} \times \frac{n^g}{m^g} \sum_{j=1}^{C} \frac{n_{jg}}{n^g}\beta_j$$

That is, the index is fully decomposable by population subgroups, as:

$$NW(g) = \frac{n^g}{m^g} \times \sum_{j=1}^{C} \frac{n_{jg}}{n^g}\beta_j$$

is the Non-Working Index for population subgroup g.

2.2. Categories and weights

Let us consider first the case in which there are neither discouraged workers nor workers with suspended jobs, to help understanding this evaluation protocol. We can approach the

analysis of unemployment, taking duration into account, as follows. Let categories corre-spond to unemployment duration (e. g. in months) and let the weights correspond precisely to the number of unemployment periods that defines the corresponding category. That is, we set $\beta_j = j, \forall j$. In this case, $\sum_{j=1}^{C} n_i \beta_j = N(P)$ is simply the total number of months of unemploy-ment accumulated at a given point in time. Hence,

$$NW(P) = \frac{n}{m} \times \mu^{UD}(P)$$

That is, the index gives us the product of the conventional unemployment rate and the average unemployment duration, $\mu^{UD}(P)$.

This index coincides, therefore, with that in Shorrocks (2009 b) equation (5), for $\alpha = 1$. Yet this formulation is more flexible as each category is weighted individually. This may be relevant when information on duration appears in periods of different length (e. g., one month, between 1 and 3 months, between 3 and 6 months, etc.). It also offers the possibility of making differential evaluations when there are thresholds that change the nature of the situation. A case in point may be that in which we may be willing to increase the coefficient for unemployment spells over the length that gives right to unemployment benefits. In the opposite direction, we might be willing to weigh less than proportionally those periods that go beyond some threshold, in the understanding that, beyond some time length, unemployed people approach functionally inactive people.

Consider now the case we are interested in, that is, the case in which we also compute discouraged workers and workers with suspended jobs. The treatment of those unemployed, according to the conventional definition, may be the same as above. The problem is how to in-corporate those two new categories. We propose here a reasonable, though *ad hoc*, treatment of this case (see Section 3). It consists of combining the following three ideas. (1) Consider-ing discouraged workers as unemployed and thus common duration categories for both types of workers; (2) Setting a unified category for those unemployed for more than 48 months; (3) Adding two extra categories for those with suspended jobs, depending on whether this suspension is full or partial.

3. The non-working workers in Spain under Covid-19 (2019-2020): An Overview

3.1. The data

We devote this and the next sections to analyze the situation of the population of non-working workers in Spain between 2019 and 2020. The data come from the Labour Force Survey ("Encuesta de Población Activa", EPA), that is elaborated quarterly by the Spanish National Statistical Institute ("Instituto Nacional de Estadística", INE), and is the main source of labour market data in Spain. We compare two points in time, the third quar-

ters of 2019 and 2020. The first point is a reference on the situation a few months before the first confinement measures were implemented to fight the spread of the Covid-19. The third quarter of 2020 corresponds to the period in which the so called "new normality" started.[6]

The analysis we shall develop refers to different groups of non-working workers. We shall first consider the case of the Spanish regions, which show quite a diversity of situations and different dynamics. Next, we shall deal with the study of different types of workers defined by gender, age, and educational levels.

In order to construct the categories that allow building the NWW Index, we use information on the labour market status jointly with some additional variables that help us identify those employees who worked fewer hours than usual due to temporary collective redundancy scheme (ERTE) or partial unemployment. These workers have their contracts suspended due to a technical stop in the firm's activity, or their working hours reduced upon approval of the ERTE by the employment authority but will continue being considered as employed in the Labour Force Survey. Finally, we also use information on the search activity, availability, and willingness to work in order to identify discouraged workers, that is, those who have stopped looking for a job because they believe that no work is available for them, and also those who "would like" and are able to work but have not looked for work recently. For the chosen periods of analysis there is information about the duration of their situation, for most of those NWW. Duration is computed as the time elapsed since the last time they worked. We do not have duration data for discouraged workers without a previous work experience (about 20% of the sample of discouraged workers). Those discouraged workers without duration data will be excluded from our calculations, which emphasizes the lower bound nature of our measure.

Based on this information, we classify non-working workers into 10 different categories that are built as follows. We include in the same category unemployed and discouraged workers with the same duration. The time intervals we consider are the following: 1 month or less, between 1 and 3 months, between 3 and 6 months, between 6 and 12 months (here is where long-term unemployment starts), between 12 and 18 months, between 18 and 24 months (24 months is the upper limit for standard unemployment benefits), between 24 and 48 months, and more than 48 months. Additionally, we consider two categories corresponding to the NWW with suspended jobs, either full or partial. Table 1 provides the list of categories to classify non-working workers, and the proposed coefficients β_j, which are adjusted to the mid-point of the duration intervals and some ad-hoc reasonable values for the extreme categories.

Table 1
CLASSIFICATION OF NWW FROM BEST TO WORST

Categories	Suspended		Unemployed plus discouraged							
	Part	Full	< 1	1-3	3-6	6-12	12-18	18-24	24-48	> 48
β_j	0.5	0.75	1	1.5	4.5	9	15	21	36	60

The value $\beta_j = 60$ corresponds to application of the same criterion of duration neglecting those unemployed or discouraged for more than 72 months. As for the coefficients of the

workers with suspended jobs, we select ½ and ¾ of the shortest unemployment spell, for those with partial and full suspension, respectively.

3.2. What to expect

As we are going to compare two points in time one year apart, it is worth thinking of what to expect from this way of measuring unemployment. If the economic activity decelerates during this period, there will be an increase in the NW index made of two forces. On the one hand, there will be an increase in the incidence due to the increment of unemployment and the discouraged. On the other hand, there will be initially a reduction in severity, as the number of short term unemployed will increase, reducing the average duration of those unemployed, $\mu^{NW}(P)$. The impact on severity of a given amount of additional unemployed will depend on the time pattern. If most of them get unemployed at the beginning of the period, that will reduce $\mu^{NW}(P)$ quickly, but this improvement will be progressively cancelled out as duration expands and makes that average increase. Hence, the positive composition effect will gradually disappear if the recession persists, as workers will be unemployed for longer periods. This change will evolve at a rate that depends on the time distribution of new unemployed (e.g. whether they are unemployed at the beginning or at the end of the period). Consequently, severity will eventually grow for long enough periods of crisis. Recoveries will typically produce the reverse effect. The NW Index will decrease and yet severity may rise, if the workers who get a job are mainly those with lower unemployment duration. It is important to keep in mind those dynamics to properly understand the results presented below.

3.3. Overview

Figure 1 provides a first picture of the evolution of the different components of the NWW in Spain between 2008 and 2020. We observe that the evolution of unemployed, according to the standard definition, and that of Non-Working Workers reflects the inclusion of the discouraged until 2019, when the number of workers with suspended jobs becomes relevant. The Figure also illustrates that the share of discouraged workers tends to grow during recession periods and to decrease when the economy recovers.

Table 2 shows that, between the third quarter of 2019 and that of 2020, Spain lost 1.6 million employments. About half a million of that figure corresponds to fully suspended jobs, 350,000 correspond to partial job reductions, half a million of new unemployed and some 370,000 discouraged. Unemployment figures exhibit a peculiar pattern: The half a million increase of unemployed is made of an increase of 570,000 short term unemployed and a reduction of some 70,000 long-term unemployed. This reduction corresponds basically to people unemployed for more than 48 months, who joined the group of discouraged workers. The pandemics has, therefore, induced a crowding out effect on the long-term unemployed, by worsening their expectations and inducing some of them to leave the conventional labour force. These figures make also clear that computing or not the discouraged workers changes substantially our perception of unemployment.

Figure 1
UNEMPLOYED, UNEMPLOYED PLUS DISCOURAGED, AND
NON-WORKING WORKERS (Spain 2008-2020)
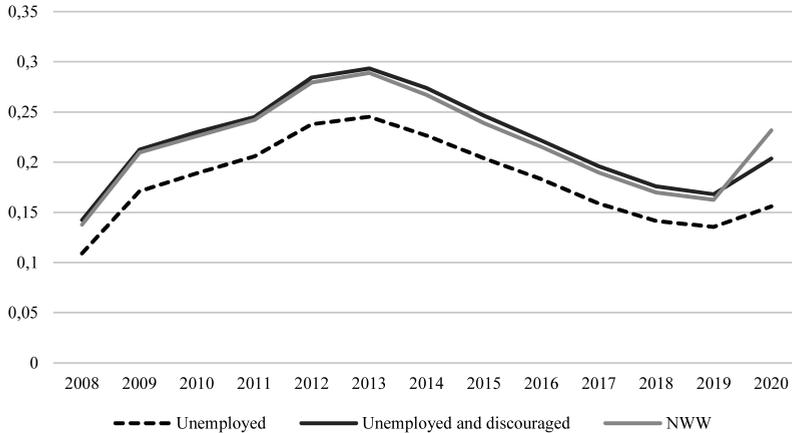
Source: INE, *Encuesta de Población Activa.*

Table 2
CHANGES IN THE LABOUR MARKET IN SPAIN BETWEEN 2019 AND 2020

	Inactive		Unemployed		With a Job			
	Other	**Discouraged**	**Shor-term**	**Long-term**	**Full Suspension**	**Partial Suspension**	**Employed**	**Total**
Q3 2019	6,832,501	763,781	1,751,820	1,451,727	12,151	14,327	19,627,184	30,453,491
Q3 2020	6,839,283	1,134,809	2,323,862	1,384,137	508,514	367,318	18,050,576	30,608,499
Variation	0,10%	48,58%	32,65%	-4,66%	4085%	2464%	-8,03%	0,51%
Variation (abs)	6.782	371.027	572.043	-67.590	496.363	352.991	-1.576.608	155.008

Source: INE, *Encuesta de Población Activa.*

It is worth noting that the change in the inactive population (about 5% increase) has been largely due to the change in discouraged workers, who shifted from 10% of the total inactive in 2019 to 14,2% in 2020. The dynamics of discouraged workers varies among the regions and the types of workers, as we shall see later.

These data anticipate that incidence is going to increase substantially whereas severity will experience an important reduction, due to the sharper increment in the share of the NWW in the best categories (suspended jobs, either partially or in full, and short-term unemployed) relative to the worst one (very long term unemployed). This is indeed the case. As shown in Table 3, the incidence of the NWW has increased by 42.5% whereas the severity has declined by some 28%. As a result, the Non-Working Index for Spain is in the third quarter of 2020 is a modest 2,7% higher than that in the previous year. Regarding the decomposition of severity into its two components, according to equation (3), we can say that the 28% reduction in severity results from a reduction of 45.5% in the intensity and an increase of 32.3% in the

inequality. That is, the improvement of severity derives from the increment of the NWW in the better categories, and not from the reduction of those in the worse ones.

Table 3
THE NW INDEX AND ITS COMPONENTS IN SPAIN BETWEEN 2019 AND 2020

	NWW Index	Incidence	Severity
Q3 2019	3.503	0.163	21.539
Q3 2020	3.598	0.232	15.526
Variation	2,70%	42,48%	-27,92%

It is interesting to consider at this point how those values in Table 3 would change if we consider as "employed" those workers with suspended jobs or, alternatively, if we consider them as unemployed with a conservative 3-month duration. We shall denote by NWW*, NWW** (with one or two asterisks) to the non-working workers in those two opposite cases. The corresponding data are gathered in Table 4. We observe a smaller value of the NW* index, as one would expect, which derives from a much smaller increase of incidence and also a smaller improvement of severity. Regarding the NWW**, there is an increase of the index, also as should be expected. This value mostly derives, when compared with the data in Table 3, from a smaller improvement of severity. The difference between the NW* and the NW** indices shows that the increment in the incidence more than offsets the larger improvement in severity.

Table 4
THE NW* AND NW INDICES AND ITS COMPONENTS IN SPAIN**

	NW* Index	Incidence*	Severity*	NW** Index	Incidence**	Severity**
Q3 2019	3,502	0,163	21,685	3,506	0,163	21,556
Q3 2020	3,574	0,195	18,340	3,654	0,231	15,839
Variation	2,04%	20,65%	-15,42%	4,23%	41,7%	-26,52%

It is also interesting to compare the change experienced in the labour market between Q3 2019 and Q3 2020, with that in the same quarters of 2008 and 2009. In 2008-2009 incidence grew more and severity evolved quite differently, increasing by 8%. Consequently, the NW Index grew by more than 60%. The differences in the data regarding both periods partly reflect the buffering effect of suspended jobs, but mostly the time pattern of unemployment generation (people remaining jobless for most of the period, thus increasing duration). Note though that the absolute values were much smaller in 2008 and 2009.

Table 5
THE NW INDEX AND ITS COMPONENTS IN SPAIN BETWEEN 2008 AND 2009

	NW Index	Incidence	Severity
Q3 2008	1,760	0,144	12,187
Q3 2009	2,869	0,218	13,180
Variation	63,01%	50,73%	8,15%

Those global results are not very informative because there are large differences in the observed behaviour, when we consider the outcomes by regions and types of workers, as we shall see next.

4. The autonomous regions

We now discuss the situation of the NWW in the Spanish autonomous regions in the third quarter of 2019 and that of 2020.[7] Table 6 provides the summary data.

There are several relevant features that derive from the observation of Table 5. First of all, note the variety of situations of the Spanish regions and the different evolution during the pandemics. In 2019 the incidence varies between more than 25% in Andalucía and less than 10% in Baleares, with a large coefficient of variation (0.312). Severity is more evenly distributed, ranging from 27 in Asturias to less than 16 in Navarra. In 2020 all regions exhibit both higher values of incidence and lower values of severity (these are due, as already mentioned, to the composition effect of NWW with suspended jobs that more than offset the increase in unemployed and discouraged). Incidence in 2020 moves between 38% in Canarias and 15% in Navarra, yet with an overall smaller variability. Severity shows the opposite path, that is, in all regions this variable decrease with an increase in the overall variability (the variable moves now between 19 in Extremadura and 8 in Baleares).

Table 6
THE NW INDEX AND ITS COMPONENTS IN SPAIN AND ITS AUTONOMOUS REGIONS

	2019, 3rd. Quarter			2020, 3rd. Quarter			Variation		
	Index	Incidence	Severity	Index	Incidence	Severity	Index	Incidence	Severity
Andalucia	5,466	0,251	21,759	5,410	0,306	17,677	-1,02%	21,83%	-18,76%
Aragon	2,478	0,110	22,499	2,703	0,180	15,034	9,04%	63,19%	-33,18%
Asturias	4,555	0,167	27,319	3,819	0,206	18,507	-16,17%	23,74%	-32,25%
Baleares	1,630	0,096	16,923	2,171	0,268	8,096	33,18%	178,37%	-52,16%
Canarias	5,203	0,229	22,704	5,500	0,367	14,969	5,70%	60,32%	-34,07%
Cantabria	2,369	0,119	19,879	2,302	0,176	13,114	-2,82%	47,30%	-34,03%
Cast. Leon	3,062	0,134	22,891	3,215	0,182	17,631	5,01%	36,34%	-22,98%
Cast. Mancha	4,455	0,188	23,651	4,574	0,236	19,412	2,65%	25,08%	-17,93%
Catalunya	1,986	0,121	16,470	2,395	0,200	12,001	20,61%	65,52%	-27,13%
Valencia	3,712	0,165	22,481	3,881	0,237	16,404	4,55%	43,28%	-27,03%
Extremadura	5,845	0,237	24,694	5,338	0,278	19,200	-8,68%	17,45%	-22,25%
Galicia	3,252	0,138	23,630	3,111	0,178	17,450	-4,33%	29,55%	-26,15%
Madrid	2,654	0,122	21,712	2,691	0,200	13,433	1,37%	63,85%	-38,13%
Murcia	3,374	0,169	19,996	3,219	0,222	14,530	-4,60%	31,30%	-27,34%
Navarra	1,611	0,103	15,641	1,873	0,149	12,599	16,24%	44,31%	-19,45%
País Vasco	2,702	0,121	22,309	2,734	0,167	16,375	1,19%	37,86%	-26,60%
Rioja	2,044	0,114	18,006	2,343	0,176	13,290	14,62%	55,29%	-26,19%
Spain	3,503	0,163	21,539	3,598	0,232	15,526	2,70%	42,48%	-27,92%
CV	0,395	0,312	0,142	0,343	0,254	0,190			

The consequence of those opposite changes in incidence and severity is that the NW Index experiences an increment of 2.7% in Spain as a whole, as mentioned above. Incidence has increased extraordinarily in those regions in which tourism and restauration represent a relevant part of the regional GDP, and those hit harder by the pandemics (Baleares, Canarias, Cataluña, Madrid). The smaller increments correspond to Extremadura and Andalucía, two of the regions with higher incidence in 2019. Some of the regions that exhibit higher increments in incidence also present larger reductions in severity, which is what one would expect of the suspended jobs mechanism, yet with different magnitudes. As a consequence of those values, Baleares and Cataluña are the regions in which the NW Index experiences a higher rise, well above the rest, whereas Asturias, Extremadura and Andalucía improve their situation.

Table 7
DECOMPOSITION OF SEVERITY INTO INTENSITY AND ASYMMETRY

	2019, 3rd. Quarter		2020, 3rd. Quarter		Variation	
	Intensity	Asymmetry	Intensity	Asymmetry	Intensity	Asymmetry
Andalucia	10,05	2,16	7,45	2,37	-25,90%	9,63%
Aragon	12,15	1,85	5,94	2,53	-51,09%	36,62%
Asturias	18,73	1,46	8,52	2,17	-54,50%	48,89%
Baleares	7,39	2,29	2,06	3,94	-72,19%	72,02%
Canarias	11,36	2,00	5,58	2,68	-50,89%	34,26%
Cantabria	9,02	2,20	4,89	2,68	-45,79%	21,70%
Cast. Leon	12,79	1,79	8,10	2,18	-36,66%	21,59%
Cast. Mancha	13,81	1,71	9,59	2,02	-30,52%	18,13%
Catalunya	7,99	2,06	4,57	2,63	-42,87%	27,55%
Valencia	11,03	2,04	6,39	2,57	-42,10%	26,01%
Extremadura	14,38	1,72	9,35	2,05	-34,99%	19,60%
Galicia	12,70	1,86	7,34	2,38	-42,18%	27,72%
Madrid	12,09	1,80	4,99	2,69	-58,71%	49,82%
Murcia	8,92	2,24	6,29	2,31	-29,43%	2,96%
Navarra	5,53	2,83	4,17	3,02	-24,52%	6,71%
País Vasco	10,99	2,03	5,86	2,80	-46,70%	37,72%
Rioja	5,87	3,07	4,76	2,79	-18,87%	-9,02%
Spain	10,77	2,00	5,87	2,65	-45,49%	32,23%

Table 7 provides the decomposition of severity into intensity and asymmetry according to equation (3). As explained in Section 2, intensity is captured by the median of duration in NWW distribution and asymmetry is captured by the ratio of the mean and the median in that distribution, that is, it computes how far away the mean and the median are. We observe in Table 6 that the fall in severity already shown in Table 5 can be decomposed into a strong reduction of the intensity, which has been halved between 2019 and 2020, and an increase in inequality by more than 30% for the whole sample. This is so because the new non-working workers in 2020 are those with better conditions, namely, workers with suspended jobs and short term unemployed. Hence, median duration reduces on average by 45.5% (from 10.8 to

5.9) whereas the distribution becomes more asymmetric with the mean being twice larger than the median in 2019, increasing this ratio to almost 2.7 in 2020. We also find that the regions with smaller increments in severity, according to Table 5, are also those with smaller increments in inequality. Furthermore, those regions in which the primary sector is more important (Murcia, Navarra, the two Castillas, Andalucía and Extremadura), are those where the inequality of the distribution increases the least. This must have to do with those industries and sectors being by far less affected by the suspended jobs mechanism.

Finally, Table 8 provides the data regarding the conventional unemployment rate in Q3 2019 and Q3 2020, for the sake of comparison with those of incidence in Table 5. Those data illustrate well the different pictures we obtain with those measurements. Incidence, as expected, exhibits much higher values than unemployment rates for all regions, with a similar degree of variability. The overall incidence value in Spain grew by some 42% whereas the unemployment rate increased by 17%. Incidence, as already mentioned, shows an extraordinary peak in Baleares and values substantially above the mean in Catalunya, Madrid, Aragón, Canarias, and Rioja. The regions with better outcomes regarding the evolution of incidence were Asturias, Extremadura, and Andalucía, regions with a relatively smaller impact of the Covid-19 in that period (and also with higher initial values of incidence in the last two cases). Regarding the evolution of unemployment rates, Baleares, Madrid, Rioja, Asturias, and Catalunya show the larger increments whereas Galicia, Andalucía and País Vasco were the regions with the smaller increments.

Table 8
UNEMPLOYMENT RATE IN THE SPANISH REGIONS

	Q3 2019	Q3 2020	Variation
Andalucía	0,219	0,240	9,59%
Aragón	0,098	0,120	22,45%
Asturias	0,146	0,143	-2,05%
Baleares	0,082	0,134	63,41%
Canarias	0,213	0,253	18,78%
Cantabria	0,088	0,121	37,50%
Cast. Leon	0,113	0,126	11,50%
Cast. Mancha	0,161	0,185	14,91%
Catalunya	0,109	0,133	22,02%
Valencia	0,140	0,174	24,29%
Extremadura	0,198	0,210	6,06%
Galicia	0,116	0,119	2,59%
Madrid	0,104	0,133	27,88%
Murcia	0,143	0,174	21,68%
Navarra	0,083	0,100	20,48%
Pais Vasco	0,093	0,104	11,83%
Rioja	0,091	0,116	27,47%
Spain	0,140	0,164	17,14%

5.   Types of workers

We devote this section to the study of the differences between types of workers according to three different aspects: gender (two subgroups), age (five subgroups) and level of education (five subgroups). We focus here on the incidence, severity and Non-Working indices, leaving aside conventional unemployment rates and the decomposition of severity into intensity and inequality, to avoid being repetitive.

5.1. Gender

Gender differences in NWW present a familiar pattern when analysing unemployment when GDP shrinks, as shown in Table 9. On the one hand, we observe that women are worse off than men both regarding severity and incidence in the two periods considered. On the other hand, the increase of the incidence is larger for men than for women (with a rather similar change in severity). Consequently, the NW Index has experienced a much smaller increase for women.

Table 9
NW INDEX AND ITS COMPONENTS BY GENDER

	Q3 2019			Q3 2020			Difference		
	NW Index	Incidence	Severity	NW Index	Incidence	Severity	NW Index	Incidence	Severity
Males	2,68	0,14	19,36	2,81	0,20	13,91	5,11%	46,26%	-28,13%
Females	4,43	0,19	23,31	4,47	0,26	16,89	0,90%	39,24%	-27,54%
Spain	3,50	0,16	21,54	3,60	0,23	15,53	2,70%	42,48%	-27,92%

5.2. Age groups

Let us study the evolution of the labour market, conditional on age. We consider five age groups that gather the labour force in ten-year intervals.

Table 10
NW INDEX AND ITS COMPONENTS BY AGE GROUPS

Age	Q3 2019			Q3 2020			Variation		
	NW Index	Incidence	Severity	NW Index	Incidence	Severity	NW Index	Incidence	Severity
16-25	2,883	0,318	9,063	3,617	0,428	8,450	25,47%	34,56%	-6,76%
26-35	2,934	0,178	16,475	3,240	0,270	11,985	10,42%	51,77%	-27,25%
36-45	2,718	0,129	21,111	2,703	0,198	13,652	-0,57%	53,75%	-35,33%
46-55	3,606	0,136	26,546	3,464	0,195	17,739	-3,94%	43,75%	-33,17%
56-65	5,583	0,168	33,329	5,547	0,214	25,882	-0,65%	27,94%	-22,34%
Spain	3,503	0,162	21,689	3,598	0,232	15,526	2,70%	43,47%	-28,41%

Table 10 presents the data on the NW Index and its components in the two quarters, as well as their rates of change. The most striking feature is the sharp contrast of the dynamics

experienced by the youngest and the oldest workers. The NW Index exhibits an increment for the two younger groups and a reduction for the rest, as a result from the different dynamics of incidence and severity. Incidence decreases with age up to the older workers (the value of the incidence variable for the youngest cohort is twice that of the oldest one, both in 2019 and 2020). Severity, on the contrary, exhibits a monotonously increasing pattern (the value of the severity variable for the youngest cohort is 27% of that of the oldest one in 2019, and 32% in 2020). This reflects a well-known feature of the Spanish labour market: the younger suffer high levels of unemployment of a short duration, whereas the older workers show lower unemployment rates but much higher unemployment duration.

Table 11 provides the data on the evolution of the key variables that help understanding the values of the indicators presented above. Occupation among the youngest NWW has decreased by 22% (a reduction of 8% for the whole population), whereas the number of older workers occupied has increased slightly. The average increase of discouraged workers is around 49% whereas for the youngest arrives at 75% (and only at 30% for the oldest). Besides, the "other inactive" group has increased by 4,5% for the youngest (0.1% for whole population) and has decreased by 4% for the oldest. Note that suspended jobs have increased twice for the youngest than for the average, which means that those indicators point out that the situation of this age group is much more fragile than that the rest.

Table 11
EVOLUTION OF THE MAIN VARIABLES IN THE JOB MARKET BY AGE GROUPS
(Spain, Q3 2020 relative to Q3 2019)

	Other inactive	Discouraged	Long-term unemp.	Short-term unemp.	Suspended	Occupied	Total
16-25	4.47%	74.69%	0.22%	24.37%	6413%	-22.34%	2.33%
26-35	-0.90%	54.76%	-0.09%	44.91%	2892%	-11.68%	-0.46%
36-45	-1.45%	51.65%	-6.09%	28.74%	4479%	-10.20%	-2.41%
46-55	0.50%	42.27%	-10.97%	35.10%	2600%	-5.53%	1.15%
56-65	-4.08%	30.35%	-1.04%	23.22%	2861%	0.60%	2.78%
Total	0.10%	48.58%	-4.66%	32.65%	3208%	-8.03%	0.51%

5.3. Education

There is no surprise when comparing the situation of the NWW by education levels and the changes experienced during the last year, as described in Table 12. Here again we find that the variability of severity is much smaller than that of incidence, and both move in opposite directions.

The NWW with lower educational levels are well above the mean in severity and incidence in both periods. Severity was 20% higher than the mean in 2019 and jumped up to more than 38% in 2020. Incidence was twice the mean in 2019 and 1.7 times in 2020. The NWW with compulsory education show a similar pattern, with smaller deviations from the mean.

The values of severity for those NWW with secondary education are around the mean in both periods (better those with a general orientation, relative to those with a professional profile, in both periods). Incidence is also close to the mean even though those with a general profile have experienced a larger increase.

The NWW with tertiary education present much better data than the average in both periods and for the two variables (severity and incidence). Severity has decreased more than the average and moved from 87% of the mean in 2019 to 84% in 2020. Incidence, on the contrary, has increased more than the average so that it changed from 64% of the mean in 2019 to 73% in 2020.

Table 12
NW INDEX, INCIDENCE, AND SEVERITY BY EDUCATION (Spain, Q3 2019 and Q3 2020)

	2019			2020			Variation		
	NW Index	Incidence	Severity	NW Index	Incidence	Severity	NW Index	Incidence	Severity
Primary or less	8,169	0,317	25,781	8,340	0,387	21,534	2,10%	22,24%	-16,47%
Compulsory	4,861	0,211	23,019	4,956	0,286	17,340	1,96%	35,36%	-24,67%
Secondary G	3,154	0,162	19,501	3,306	0,256	12,932	4,82%	58,07%	-33,69%
Secondary P	3,453	0,166	20,830	3,443	0,225	15,328	-0,29%	35,50%	-26,41%
Tertiary	1,953	0,104	18,783	2,199	0,169	13,039	12,61%	62,22%	-30,58%
Total	3,503	0,163	21,539	3,598	0,232	15,526	2,70%	42,48%	-27,92%

6. Concluding Remarks

We have provided an overview of the evolution of the Spanish labour market under the pressure of Covid-19, by comparing the situation in two points in time, the third quarter of 2019 and the corresponding one of 2020.

Our analysis is based on a protocol to measure non-employment situations that combines incidence and severity, in an elementary way. The methodological novelty is twofold. On the one hand, we use an extended notion of people that are not working (the non-working workers), that computes unemployed, discouraged and those workers with their jobs suspended. This changes the usual measure of incidence. On the other hand, we go beyond head-counting measures by also considering non-employment duration, which allows to provide a measure of severity. Between the third quarter of 2019 and that of 2020 1.6 million works have been lost due to unemployment (about 500,000), discouraged workers (371,000) and suspended jobs (some 850,000). Those data reflect that incidence among the non-working workers has increased by more than 40% whereas the severity has decreased by 24% during this period, due to the effect of suspended jobs. This results in an increase of the Non-Working index of about 2,7%.

Integrating duration with the different categories of NWW requires making compromises and recurring to some arguable decisions regarding the relative weights of those catego-

ries. Yet the key message is that to assess the impact of the crisis on the labour market we must find a way of integrating all those aspects and perhaps some others. Indeed, it would be important to include in the measurement of unemployment elements such as unvoluntary part-time workers and workers with permanent discontinuous jobs, to get a richer picture on how the economic cycle affects the labour market.

The results show that unemployment has evolved quite asymmetrically by regions and types of workers. The larger increments in the regions have occurred among those with lower initial values, so that the variability is now smaller. As for the types of workers we observe that men have suffered more than women, and that differences by age and education are much larger than those by gender. The youngest and the less educated are those hit harder by unemployment. This is little news, but the relevance of this phenomenon should not be underestimated. The youngest is the smallest among the age groups considered (about four million people) and are not very visible, as they lack social organisation. Is true that their unemployment spells are relatively short, and that they might have the support of their families. Yet, there is increasing evidence that the first steps in the labour market may have long term consequences. The recent survey by von Wachter (2020) on this topic shows that adverse conditions in early stages of the job might be "disruptive beyond strictly economic outcomes... Adverse labour market entry has effects on health and other outcomes like marriage, divorce, and women's fertility and can affect socio-economic outcomes, health, and mortality in middle age" (Ibid. p. 169). There exists already some evidence that this is indeed the case for Spain (García Pérez and Vall Castelló, 2015; García Pérez *et al*., 2019; Gorjón *et al*., 2021) which is usually viewed as a result of the extremely dual nature of the employment protection legislation that epitomizes its labour market since early eighties in the last century.

Notes

1. A similar case is that of "contratos fijos-discontinuos" (permanent discontinuous jobs) in Spain, which are becoming more important since the 2022 labour reform and play a similar role to that of the temporary contracts.

2. See the Eurostat explanation at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Labour_market_slack_-_unmet_need_for_employment_-_quarterly_statistics&oldid=578035#Concept_and_EU_overview.

3. In Spain we talk about ERTE, acronym of "Expediente de Regulación Temporal de Empleo".

4. Note that "suspended jobs" is the best category among the non-working workers and that it was basically empty in 2019 whereas it gathers a substantial share of the NWW in 2020. As severity is obtained from the comparison of the composition of the NWW, this shift in the distribution across categories induces a reduction of this variable.

5. Note that workers with suspended jobs are part of the conventional labour force, together with those employed and unemployed, but discouraged workers are not, as they are classified as inactive.

6. We deliberately skip the second quarter of 2020 as there are doubts about the nature of those data. The type of question that defines someone as unemployed or outside the labour force is hardly suitable in a situation in which people are confined at home. This inadequacy results in about one million people exiting and re-entering the labour force in a very short period.

7. We do not include the cities of Ceuta and Melilla because they are not regarded as autonomous regions, represent a tiny part of the total population, and because their idiosyncratic nature makes comparisons hard to interpret.

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Resumen

En este trabajo se plantea una forma de analizar la evolución del desempleo que considera, además de las tasas de paro convencionales, la duración del desempleo, los trabajadores desanimados y los traba-

jadores con empleos suspendidos. Esas variables se combinan en un índice sintético que puede expresarse como el producto de dos componentes: incidencia y severidad. Aplicamos esta metodología para analizar la evolución del mercado laboral español durante un año con la Covid-19. Los datos muestran que el comportamiento del mercado laboral ha sido muy asimétrico por regiones y por tipos de trabajadores. La comparación con la incidencia de la crisis financiera muestra que el impacto de la Covid-19 ha sido diferente, observándose que las regiones con mayor desempleo y los trabajadores de más edad han sufrido menos, en términos de incidencia y severidad.

Palabras clave: duración del desempleo, severidad, incidencia, Covid-19.

Clasificación JEL: J01, J21