Universidad de Oviedo

TESIS DOCTORAL

MERCADO DE TRABAJO Y BIENESTAR PSICOLÓGICO: EFECTOS DE LA SITUACIÓN LABORAL Y DE LAS CONDICIONES DE TRABAJO

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RESUMEN DEL CONTENIDO DE TESIS DOCTORAL

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RESUMEN (en español)

Aunque el mercado de trabajo español siempre se ha caracterizado por unas tasas de desempleo altas si se comparan con la media de los países de su entorno, la Gran Recesión del año 2008 provocó un aumento de las personas desempleadas nunca visto. Desde el año 2013 el número de personas que buscaba un empleo se ha reducido, pero nunca se ha conseguido volver a cifras anteriores a 2008. Esto ha provocado que una generación entera de personas no haya conocido un mercado de trabajo con cifras de desempleo por debajo del 10%.

Además de estas altas tasas de desempleo, el mercado de trabajo en España se ha caracterizado por una elevada temporalidad que afecta, entre otros grupos, a las mujeres.

Aparte de las consecuencias económicas, la literatura ha señalado con relativa frecuencia cómo el desempleo o la precariedad pueden afectar al bienestar psicológico de las personas que los sufren. A partir de lo anterior, la presente tesis plantea como objetivos generales el análisis de los efectos del desempleo y de la precariedad laboral sobre el bienestar psicológico en España.

Estos objetivos generales cristalizan en seis objetivos específicos. El primero de ellos es el análisis de la relación entre el desempleo y el bienestar. Los resultados obtenidos permiten concluir que el desempleo está causalmente relacionado con un peor bienestar psicológico.

El segundo objetivo consiste en estimar el efecto del desempleo por sexos. El análisis realizado permite obtener evidencia de un efecto negativo del desempleo entre los hombres y entre las mujeres sin hijos. La ausencia de impacto del desempleo entre las mujeres con hijos se interpreta en el sentido de que las peores condiciones laborales que caracterizan el periodo posterior a la maternidad estarían llevando a que el posible efecto del desempleo pase a un segundo plano.

El tercer objetivo es llevar a cabo un análisis que permita diferenciar el efecto que se produce sobre el bienestar psicológico de las personas desempleadas (efecto directo del desempleo) del que se produce sobre la pareja de la persona desempleada (efecto vicario del desempleo). Se encuentra evidencia de la existencia de un efecto vicario del desempleo tanto para hombres como para mujeres, pero su magnitud es superior cuando la persona desempleada es un hombre.

El cuarto objetivo es el análisis de la relación entre distintas transiciones laborales acaecidas durante la pandemia por COVID-19 y el bienestar psicológico. Los resultados obtenidos permiten concluir que las personas desempleadas debido a la pandemia, las personas en ERTE y las que teletrabajaban fueron, en este orden, las que mostraban un peor bienestar psicológico al compararlas con aquellas que continuaron trabajando en sus puestos prepandémicos.

El quinto objetivo específico es analizar cómo la relación entre la precariedad laboral y el bienestar psicológico puede estar dependiendo de la satisfacción de cada persona con su puesto de trabajo. Los resultados muestran que, entre las personas con mayor satisfacción laboral, el contrato permanente y las jornadas laborales más estables se relacionan con un mayor bienestar psicológico. Sin embargo, cuando estas condiciones de satisfacción desaparecen, los anteriores efectos también lo hacen y solo la categoría de funcionario/a parece proteger el bienestar psicológico.

Finalmente, se propone un sexto objetivo, transversal a todos los objetivos anteriores, que consistiría en reducir la potencial bidireccionalidad entre la situación laboral y el bienestar psicológico. En este sentido, hipotetizamos que una situación determinada (como el desempleo) estaría influyendo en el bienestar psicológico, pero también es posible que ese bienestar psicológico influya en esa situación laboral. Los modelos econométricos empleados a lo largo de la tesis permiten el control estadístico de esta endogeneidad potencial. Además, el hecho de haber realizado un muestreo durante el confinamiento de la primavera de 2020 permitió descartar que la transición entre las distintas situaciones laborales se deba a un peor bienestar psicológico.

A modo de conclusión, esta tesis ofrece evidencia empírica sobre la relación entre determinadas situaciones laborales y condiciones de trabajo, por una parte, y el bienestar psicológico, por otra, aplicado al caso español. Los métodos empleados permiten, además, corregir un posible efecto de selección de las personas con un peor bienestar psicológico para el desempleo, es decir, un posible sesgo debido a la causalidad inversa entre la situación laboral y el bienestar psicológico.

RESUMEN (en inglés)

Although the Spanish labour market has always been characterized by high unemployment rates compared to the average of neighbouring countries, the Great Recession of 2008 caused an increase in unemployed people never seen before. Since 2013 the number of people looking for a job has been reduced, but it has never been possible to return to figures prior to 2008. This has meant that an entire generation of people has not known a labour market with unemployment figures below 10%.

In addition to these high unemployment rates, the labour market in Spain has been characterized by high temporary employment that affects, among other groups, women.

Apart from the economic consequences, the literature has relatively frequently pointed out how unemployment or precariousness can affect the psychological well-being of the people who suffer from them. Based on the above, this thesis proposes as general objectives the analysis of the effects of unemployment and precarious work on psychological well-being.

These general objectives translate into six specific objectives. The first of these is the analysis of the relationship between unemployment and well-being. The results obtained allow us to conclude that unemployment is causally related to worse psychological well-being.

The second objective is to estimate the effect of unemployment by gender. The analysis carried out allows us to conclude the existence of a negative effect of unemployment among men and among women without children. The lack of impact of unemployment on women with children is interpreted in the sense that the worse working conditions that may characterize the childbearing period of women would reduce the importance given by them to being unemployed.

The third objective is to carry out an analysis that allows differentiating the effect produced on the psychological well-being of unemployed people (direct effect of unemployment) from that produced on the unemployed person's partner (vicarious effect of unemployment). Evidence is found on a vicarious effect of unemployment for both men and women, but its magnitude is greater when the unemployed person is a man.

The fourth objective is the analysis of the relationship between different job transitions that occurred during the COVID-19 pandemic and psychological well-being. The results obtained allow us to conclude that the people unemployed due to the pandemic, the people in furloughs and those who teleworked were, in this order, those who showed worse psychological well-being when compared to those who continued to work in their pre-pandemic positions.

The fifth specific objective is to analyse how the relationship between precarious work and psychological well-being may depend on each person's satisfaction with their job. The results show that the permanent contract and more regular working hours are related to greater psychological well-being among people with higher job satisfaction. However, when these conditions of satisfaction disappear, the previous effects also disappear and only the civil servant category seems to protect psychological well-being.

Finally, a sixth objective is proposed, transversal to all the previous objectives, which would consist of reducing the potential bidirectionality between the work situation and psychological well-being. In this sense, we hypothesize that a certain situation (such as unemployment) would be influencing psychological well-being, but it is also possible that psychological well-being influences that employment situation. The econometric models used along the research permit the statistical control of this potential endogeneity. In addition, the fact of having carried out a sample during the confinement in the Spring of 2020 has made it possible to rule out that the transitions between the different work situations were due to worse psychological well-being.

In conclusion, this thesis offers empirical evidence establishing a clear relationship between certain work situations and psychological well-being in Spain. The methods used also permit correcting a possible selection effect of people with worse psychological well-being for unemployment, that is, a possible bias due to the inverse causality between the employment situation and psychological well-being.

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AGRADECIMIENTOS

What would you think if I sang out of tune?
Would you stand up and walk out on me?
Lend me your ears and I'll sing you a song
And I'll try not to sing out of key

Mientras trataba de pensar en cómo escribir este texto de agradecimientos, me vino a la memoria un viernes de marzo en el que salí de Oviedo con un montón de papeles, artículos académicos y libros guardados en una caja de cartón. Era el año 2020 y, debido a las circunstancias en las que vivíamos, intuíamos que aquel sería el último día que pisásemos la universidad en una temporada. Según yo la recuerdo, aquella imagen mía parecía sacada, curiosamente, de una de esas películas en las que una persona, al ser despedida de su trabajo, tiene que meter sus cosas en cajas que siempre son de color marrón.

Creo que la pandemia tiene mucho que ver con esta tesis, no solo porque uno de sus capítulos trate de manera directa sobre el tema, sino porque más de la mitad de ella se desarrolló durante este periodo. Los sentimientos de miedo, angustia e incertidumbre de aquellos días de confinamiento se quedarán, nos guste o no, unidos a esta tesis. Ahora creo que aquellos sentimientos, cuando fueron compartidos, se hicieron más pequeños. Y por eso creo que, al redactar estos agradecimientos, recuerdo con especial viveza aquellos días, porque sin el apoyo de las personas que aparecen aquí, el miedo, la angustia y la incertidumbre hubieran sido mucho mayores.

Con esta premisa en mente, comienzo mis agradecimientos acordándome de mis directores de tesis, el doctor Javier Mato Díaz y la doctora Ana Rodríguez Álvarez. A ambos les agradeceré siempre la valentía que tuvieron para embarcarse en la dirección de esta tesis. Sin su inteligencia, magisterio, paciencia, generosidad y sentido del humor nada de lo que hay aquí hubiera existido jamás.

A mis compañeros y compañeras de la Sala Lewis, del Departamento de Economía Aplicada, y de la Sala Adolfo Posada, del Departamento de Sociología; especialmente a

En primer lugar, el trabajo es un proceso entre hombres y naturaleza, un proceso en el que, mediante su acción, el hombre regula y controla su intercambio de materias con la naturaleza. Se enfrenta a la materia de la naturaleza como un poder natural. Pone en movimiento las fuerzas naturales pertenecientes a su corporeidad, brazos y piernas, manos y cabeza, para apropiarse de los materiales de la naturaleza en una forma útil para su vida. Al actuar mediante este movimiento sobre la naturaleza exterior a él y cambiarla, transforma al mismo tiempo su propia naturaleza. Desarrolla las potencias que dormitan en él y somete el juego de sus fuerzas a su propio dominio.

Karl Marx
El Capital

Capítulo 1. Introducción y marco de referencia

1. Introducción

En su artículo en el *Journal of Economic Literature* relativo a la investigación sobre la felicidad, los profesores de la Universidad de Basilea, Bruno Frey y Alois Stutzer (2002) reivindicaban que el bienestar subjetivo y la felicidad son parte central de los intereses de los economistas. Estos autores proponen el uso de medidas de bienestar como forma de evaluar los efectos del gasto público, los efectos de la renta, de la inflación o, incluso, de la calidad democrática. En el mismo sentido, Kahneman y Krueger (2006) defienden el uso de datos de bienestar subjetivo en el estudio de las preferencias del consumidor o del bienestar social y dan cuenta del aumento de la literatura económica académica que utiliza datos sobre satisfacción con la vida o el bienestar en los cinco años anteriores a la publicación de su artículo.[1] Esta *voluntad de integrar aspectos de la investigación psicológica en la ciencia económica* le valió a Kahneman el Premio Nobel de economía en el año 2002.

El interés por la relación entre variables económicas y de bienestar psicológico no es nuevo. Sin embargo, es partir de la Gran Recesión del año 2008 cuando la investigación en esta área ha experimentado aumentos significativos (Dominko & Verbič, 2019). Estos autores establecen tres *clusters* alrededor de los cuales se concentra buena parte de la investigación: el efecto de los ingresos en el bienestar, la relación entre la satisfacción laboral y la satisfacción con la vida y el efecto positivo del bienestar en contextos como la toma de decisiones o la asunción de riesgos por parte de los consumidores. Además, los autores constatan cómo este tema de investigación se está expandiendo hacia otras áreas como la economía ambiental o ecológica.

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[1] Actualmente, el trabajo de Frey y Stutzer tiene 4.857 citas y el de Kahneman y Krueger 4.264, lo cual da una imagen de la relevancia del tema para los y las economistas.

Los economistas Case y Deaton (2017) (este último galardonado con el Premio Nobel de Economía *por su análisis del consumo, la pobreza y el bienestar*) han acuñado el concepto de *muerte por desesperación* (*deaths of despair*) para referirse a aquellas muertes debidas a suicidios, al alcoholismo o a sobredosis de drogas (especialmente de opiáceos) en Estados Unidos entre personas blancas de origen no hispano (*white non-Hispanic Americans*), de mediana edad y de bajo nivel educativo. Los autores proponen que la acumulación de desventajas que ha soportado este grupo social en áreas tales como el matrimonio, la salud o el mercado de trabajo tiene su origen en un empeoramiento de las oportunidades de estas personas en el mercado laboral. Vicente-Fernández y Jimeno (2022) no pudieron concluir una relación entre las tasas de paro y las muertes por sobredosis o por abuso de alcohol para España, pero sí han encontrado un efecto significativo del aumento de las tasas de desempleo sobre las muertes por suicidio entre las personas de mediana edad. A partir de estos resultados, los autores concluyen que el efecto encontrado en España y en Europa no es comparable a la magnitud del fenómeno en Estados Unidos.

A lo largo de los capítulos que componen esta tesis, el estado psicológico se ha aproximado a partir del resultado del Cuestionario de Salud General en su versión de 12 ítems. Este cuestionario se ha usado en una parte importante de la literatura que estudia el efecto psicológico de distintas situaciones laborales. Sin embargo, no se ha unificado un criterio para nombrar lo que estamos midiendo. Así, podemos encontrar los conceptos de *bienestar psicológico* (A. E. Clark, 2003), (buena) *salud mental* (Cygan-Rehm et al., 2017), *bienestar mental* (Farré et al., 2018) o (in)*felicidad* (A. E. Clark & Oswald, 1994).

La Organización Mundial de la Salud (OMS) define la salud mental como "un estado de bienestar en el cual el individuo es consciente de sus propias capacidades, puede afrontar las tensiones normales de la vida, puede trabajar de forma productiva y fructífera y es capaz de hacer una contribución a su comunidad*"*. Esta definición de salud mental se aleja del modelo médico o de enfermedad, esto es, el modelo que define la salud a partir de la presencia o ausencia de un trastorno o enfermedad, y se acerca al modelo de salud mental positiva (SMP) (Jahoda, 1958), esto es, un modelo que define la salud mental a partir de la presencia/ausencia de una serie de factores como las actitudes hacia uno mismo, el grado de conocimiento que la persona tienen acerca de sus potencialidades, la autonomía, o el dominio del entorno en el que se desenvuelve la persona.

Kahneman y Riis (2005, p. 287) parecen integrar de alguna manera estas dos perspectivas en su definición de bienestar subjetivo. Así, distinguen el *bienestar experimentado* del *bienestar evaluado*; el primero de ellos incluye los *estados afectivos momentáneos*, cuya presencia se relacionaría con determinados efectos sobre la salud; y el segundo constituye una evaluación subjetiva global acerca de la vida de cada persona e implicaría la toma de unas decisiones vitales u otras.

El uso de conceptos como *salud*, *bienestar mental*, *felicidad*, o *satisfacción con la vida* son útiles en la medida en la que la particularidad de cada uno de ellos permite rastrear un aspecto del estado psicológico y afectivo distinto, pero su uso por separado implica ciertas dificultades. En primer lugar, hoy en día conceptos como el de *salud mental* siguen muy ligados a la práctica clínica, a la presencia o ausencia de trastornos o enfermedades mentales, a los manuales diagnósticos o a la prescripción de medicación psicoactiva. Por otro lado, el uso de conceptos como *felicidad* o *satisfacción con la vida* resultan insuficientes debido a que la falta de objetividad empleada en su evaluación les confiere una cierta inconsistencia temporal. Por ello, en las páginas que siguen se utilizará, en términos generales, el concepto de *bienestar psicológico* para hacer referencia a los aspectos psicológicos que esperamos encontrar entre las personas con una adecuada situación laboral.

La presente tesis se estructura en torno a dos objetivos generales. El primero es analizar si el desempleo puede causar un empobrecimiento del bienestar psicológico. El segundo de ellos es el análisis de la relación entre distintas formas de empleo precario y el bienestar psicológico. En el caso concreto de los estudios acerca del impacto del desempleo sobre el bienestar psicológico, su origen se remonta a la Gran Depresión de los años treinta. Uno de estos primeros trabajos, y quizá el más conocido de cuantos se han publicado, es el llevado a cabo en la población austriaca de Marienthal (Jahoda et al., 2017). Marienthal había sido fundada para acoger a las personas que se empleaban en una fábrica textil, y el cierre de esta fábrica llevó a la población a una tasa de desempleo del 75%. Este aumento del paro permitió a los autores concebir su trabajo no tanto como un análisis de los parados de manera aislada sino más bien como el estudio de una ciudad en paro. Además del lógico empobrecimiento en términos monetarios, el desempleo desembocó en una pérdida de referencias temporales. Así, el tiempo se vació de contenido y perdió su capacidad de estructurar la vida cotidiana. En términos de bienestar psicológico no se

describen trastornos concretos, sino más bien una apatía generalizada y una falta de objetivos vitales.

Por otro lado, la transformación de los mercados de trabajo en las sociedades postindustriales ha traído consigo el abandono del modelo industrial asalariado fordista y el auge de las formas de trabajo atípicas o el desarrollo de la economía sumergida (Eichhorst & Marx, 2015; Sanchis, 2011). A esto se le suma la eclosión del sector terciario (que, en el caso de España, aglutina en la actualidad a más del 75% de la población ocupada española), la reducción del sector secundario, la aparición de nuevos riesgos laborales (automatización de los procesos productivos o deslocalización) (Malo & Cueto, 2019) y las medidas destinadas a aumentar la flexibilidad de los mercados de trabajo impulsadas por algunos gobiernos. Una de las consecuencias para la fuerza de trabajo de esta transformación es la aparición de formas de trabajo caracterizadas por una mayor inestabilidad, inseguridad y bajos salarios. Un informe de los académicos Casado-Díaz et al. (2021) elaborado a partir de datos de la Encuesta de Población Activa, estima que casi la mitad de la población ocupada en España encajaría dentro de alguna de las formas de precariedad laboral. Ante estos datos no parece extraña la aparición de una nueva rama de estudios económicos que relacionan ciertas situaciones laborales precarias con el bienestar psicológico. Dichos estudios se centran en el análisis de cómo aquellas nuevas formas de empleo caracterizadas por bajos salarios, inestabilidad laboral o ausencia de estabilidad en los horarios, podrían condicionar el desarrollo de una mayor vulnerabilidad psicológica.

En la actualidad la relación entre la situación laboral y el bienestar psicológico sigue siendo objeto de estudio de economistas y psicólogos/as. Aunque cada uno de los capítulos de esta tesis incluye una revisión de la literatura, se ha optado por introducir aquí algunos de estos trabajos, con especial interés en los metaanálisis. Con respecto al impacto del desempleo sobre el bienestar psicológico, Paul y Moser (2009) llevaron a cabo un metaanálisis de 237 estudios de corte transversal y 87 longitudinales y concluyeron que el desempleo no solo está correlado con un peor bienestar psicológico, sino que además confirman que esta relación es causal. El efecto del desempleo es mayor en hombres que en mujeres y en países con un débil desarrollo económico y con una mayor desigualdad de rentas.

Barblink et al. (2020), en otro metaanálisis, también encuentran una asociación entre el desempleo y el bienestar psicológico, pero afirman que la relación causal no parece tan clara y ponen de manifiesto la necesidad de llevar a cabo experimentos naturales y estudios longitudinales para poder controlar terceras variables que pudieran estar sesgando el análisis. Barnay (2016) revisa la relación entre la situación laboral y la salud (tanto física como mental) a partir de más de 150 trabajos y encuentra que tanto el empleo (en comparación con el desempleo) como el estatus laboral tienen un papel protector del bienestar psicológico.

Finalmente, en relación con el grado de precariedad, cabría citar el metaanálisis de Vancea y Utzet (2017) en el que concluyen una relación causal entre variables relacionadas con una situación laboral precaria (número de horas trabajadas o tipo de contrato, por ejemplo) y un peor bienestar psicológico o el de Schneider y Harknett (2019), que concluyen que las jornadas inestables en los horarios de trabajo, también características del empleo precario, se asocian con malestar psicológico, mala calidad del sueño e infelicidad.

Estos dos objetivos generales se concretan a su vez en seis objetivos específicos. En primer lugar, se propone el análisis de la relación entre el desempleo y el bienestar psicológico en España a partir de datos (ediciones de la Encuesta Nacional de Salud de España [ENSE] de los años 2006, 2011 y 2017) que permitan evaluar, además, la evolución del bienestar dependiendo de las fluctuaciones del ciclo económico.

La literatura ha establecido que el efecto del desempleo sobre el bienestar no es de la misma magnitud en hombres que en mujeres y que la menor vinculación de ellas con el mercado de trabajo estaría influyendo en un menor impacto del desempleo femenino en comparación con lo que sucede en hombres. En este sentido, el segundo objetivo de la tesis es determinar si, efectivamente, esta relación entre el desempleo y el bienestar psicológico en España es la misma en hombres que en mujeres, así como el análisis de las variables que estarían influyendo en esta hipotética diferencia de género.

Otro aspecto que también ha sido descrito en países europeos como Reino Unido o Alemania es la posibilidad de que los efectos del desempleo se expandan más allá de la persona desempleada y lleguen a influir en el bienestar psicológico de personas cercanas. Así, el tercer objetivo es diferenciar el efecto del desempleo dependiendo de si este es

directo (aquel que sufre la propia persona desempleada), o indirecto, (el que sufre la pareja de la persona sin empleo) y comprobar, como se ha planteado en el objetivo anterior con el efecto directo, si este efecto indirecto varía dependiendo de que la persona desempleada sea hombre o mujer.

El comienzo de la pandemia por COVID-19 y sus consecuencias permitió la coexistencia de cambios exógenos en la situación laboral con un potencial empeoramiento del bienestar psicológico de la población. A partir de estas dos premisas, el cuarto objetivo es comprobar cómo la transición de una a otra situación laboral puede estar modulando el bienestar psicológico. De la misma forma que se ha planteado en objetivos anteriores, este análisis permitiría, además, comprobar si el empeoramiento es más grave en hombres que en mujeres y cuáles son las claves para entender este efecto diferencial.

El quinto objetivo específico concreta el segundo de los objetivos generales enumerado más arriba, es decir, el del análisis de la relación entre la precariedad laboral y el bienestar psicológico. Parte de la investigación sobre la precariedad laboral en la actualidad pone de manifiesto la necesidad de utilizar la satisfacción con el puesto de trabajo como forma de evaluar la multidimensionalidad de la precariedad laboral. Por otro lado, el control de la muestra a partir de la satisfacción laboral permite purgar el análisis de la heterogeneidad inobservable creada por variables subjetivas relacionadas con la satisfacción laboral como las expectativas que la persona tiene depositadas en su puesto de trabajo (A. E. Clark, 1997; Pagán & Malo, 2009) o la preferencia de cada persona por el trabajo asalariado o el autoempleo (Cueto & Pruneda, 2017). A partir de esta premisa, este quinto objetivo es la estimación de un modelo que permita diferenciar la relación entre la precariedad y el bienestar psicológico dependiendo tanto del grado de satisfacción laboral como del grado de estrés laboral subjetivo que declare la persona.

Finalmente, se propone un sexto objetivo que se sería transversal a los cinco objetivos específicos anteriores. En ciencias sociales y, particularmente, en economía, una de las tareas de los y las investigadores/as es la reducción de la endogeneidad presente en los modelos estimados. En el caso de esta tesis, la fuente de la endogeneidad es evidente: la relación entre la situación laboral y el bienestar psicológico es susceptible de ser bidireccional. Así, es posible que una situación laboral esté causalmente relacionada con un determinado bienestar psicológico, pero no es menos cierto que ese bienestar psicológico podría aumentar las probabilidades de que una persona se encuentre en una

determinada situación laboral. Por ejemplo, una persona desempleada podría tener una mayor probabilidad de ver afectado su bienestar psicológico, pero también pudiera ser que una persona con un bienestar psicológico afectado tuviese una mayor probabilidad de perder su empleo o una menor probabilidad de encontrar otro empleo. Por ello, en cada uno de los capítulos de la tesis se plantea como objetivo la reducción de esta fuente de endogeneidad, sea a través de las técnicas econométricas empleadas (capítulos dos, tres y cinco) o sea a través de la forma de recoger la información (capítulo cuatro).

España, junto con otros países del Sur de Europa, lleva décadas registrando las tasas más elevadas de desempleo de la Unión Europea. El encadenamiento de dos crisis recientes en poco más de 10 años ha provocado que una generación entera no haya conocido un mercado de trabajo con tasas de desempleo por debajo del 10 por ciento. Además, los efectos de la Gran Recesión podrían estar extendiéndose más allá de los años con las condiciones económicas más adversas, especialmente entre las personas más jóvenes (Escalonilla et al., 2021). Más allá del desempleo, España cuenta (al menos contaba antes de la última reforma laboral) con una de las tasas de temporalidad más elevadas de la Unión Europea[2] y con uno de los mayores porcentajes de personas que, aun teniendo empleo, se mantiene en riesgo de pobreza.[3] Por ello, el cumplimiento de los objetivos planteados en esta tesis podría ser relevante, en primer lugar, porque implicaría la necesidad de actuar políticamente para la mejora de la salud mental de la población de uno de los países que más ansiolíticos y antidepresivos consumen a nivel mundial teniendo, paradójicamente, una prevalencia de ansiedad y depresión relativamente bajas.

En segundo lugar, las altas tasas de desempleo podrían estar ocasionando que una parte importante de las personas desempleadas se pierda en la transición entre el desempleo y el reempleo debido a una trampa del desempleo en virtud de la cual, la falta actual de empleo estaría generando un malestar psicológico, unas cicatrices, que podrían disminuir la probabilidad de encontrar un nuevo empleo en el futuro, problema especialmente preocupante en jóvenes (A. E. Clark et al., 2001; Knabe & Rätzel, 2011; Virtanen et al., 2016). Así, estas personas corren el riesgo de seguir indefinidamente atrapadas en un círculo vicioso que comienza con la pérdida del empleo y continúa con un empeoramiento

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[2] Los últimos datos conocidos (Eurostat, 2022-Q1) mostraban una tasa de temporalidad en España del 24,3 por ciento, siendo la tasa media de la Unión Europea-27 del 14 por ciento.
[3] Según Eurostat, en 2020 (última serie con los datos completos) esta tasa era del 11,8 por ciento y la media de los 27 era del 8,8. En el año 2021 (sin datos sobre la media de la UE) la tasa de trabajadores en riesgo de pobreza en España era de 12,7 por ciento. El único país que superaba esta tasa era Rumania con un 15,2 por ciento.

del bienestar que, a su vez, impide o dificulta el reempleo o, en el mejor de los casos, obliga a encadenar un empleo precario tras otro.

Finalmente, de la misma forma que la mera existencia de un empleo no es capaz de proveer de un salario que permita niveles de vida adecuados, en ocasiones tampoco es capaz de proveer niveles de bienestar psicológico idóneos. La Gran Dimisión (*Great Resignation* o *Big Quit* en inglés) pone de manifiesto la necesidad de implementar medidas para evaluar y mejorar el nivel de bienestar de los trabajadores. Una de las conclusiones de la *Global Workforce Hopes and Fears Survey,*[4] llevada a cabo en marzo del año 2022 con una muestra de más de 50.000 personas que formaban parte de la población activa de más de 44 países, es que la Gran Dimisión aún no ha tocado techo y que un 20 por ciento de las personas con empleo ven *extremadamente probable* o *muy probable* renunciar a su trabajo durante el siguiente año para obtener otro. La posibilidad de una mejor remuneración está explicando parte de este fenómeno: para el 71 por ciento de los encuestados los factores financieros son importantes para cambiar de puesto de trabajo. Sin embargo, junto a las razones puramente salariales emergen otros factores de orden psicológico. A saber: casi siete de cada diez personas afirman que la satisfacción laboral o su propia identidad como trabajador o trabajadora son factores que podrían justificar un cambio de empleo, y para seis de cada 10 lo es la sensación de que la empresa se preocupa por ellos y ellas, la posibilidad de desplegar todo su potencial creativo o la superación de las metas y objetivos impuestos por la organización.

La clave es que buena parte de estos factores no pecuniarios que las personas señalan como definitorios a la hora de cambiar de empleo son similares a las funciones latentes del empleo expuestas por Jahoda (1982) y ampliadas por Warr (1987) que se verán más adelante y que son las que estarían relacionadas con un mejor bienestar psicológico en los empleados en comparación con los desempleados. En otras palabras, las personas estarían renunciando a su empleo porque, aparte de considerar que su trabajo no está siendo adecuadamente remunerado, dicho trabajo no les aporta ningún beneficio psicológico o, en el mejor de los casos, el beneficio se ha visto reducido. En suma, el reto que tienen los gobiernos y las empresas es tan complejo que obviar los factores de bienestar psicológico no solo supone un riesgo para la supervivencia de las empresas, que

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[4] https://www.pwc.com/gx/en/issues/workforce/hopes-and-fears-2022.html

pueden verse obligadas a renunciar a parte de sus plantillas, sino que, como vemos con el fenómeno de la Gran Dimisión, también podría tener consecuencias macroeconómicas.

Las limitaciones de espacio impuestas por las revistas académicas en las que los distintos capítulos de esta tesis se han publicado, hace que el marco de referencia común a toda la tesis no quede convenientemente explicitado. Por ello, el objetivo de este capítulo introductorio es justamente presentar ese marco de referencia que servirá para dotar de cohesión a los capítulos de la tesis y, por extensión, a las conclusiones que de ella se deriven y que se incluirán en el capítulo final. Así, este capítulo introductorio se divide en los siguientes epígrafes. En primer lugar, se presentan tanto los modelos teóricos que intentan explicar los efectos de desempleo sobre la salud mental, como aquellos que tienen el objetivo de explicar la relación entre la precariedad laboral y el bienestar psicológico, así como una breve discusión relacionada con dichos modelos. En segundo lugar, se presentan las características creadas por la pandemia por COVID-19 y que se han aprovechado para el análisis de la situación laboral y el bienestar psicológico en esta tesis. Finalmente, se presentan las características más notables del mercado de trabajo español, del estado de bienestar psicológico en España y, una estructura general de la tesis.

2. Modelos que explican la relación entre la situación laboral y bienestar psicológico

Aunque el objetivo de esta tesis es esencialmente empírico, no sería adecuado ignorar los modelos que tratan de explicar la relación entre distintas situaciones laborales y el bienestar psicológico. Sería conveniente, en este punto, abundar en la idea de que los modelos no deben de ser considerados como entidades estancas. Más bien al contrario, sería adecuado resaltar la relación tanto interna (entre los modelos que intentan explicar un mismo fenómeno) como externa (relación entre modelos que explican el desempleo y los que explican la precariedad laboral). En el primer caso, algunos autores han demostrado la validez de varios modelos para explicar la relación entre el desempleo y el bienestar psicológico (Janlert & Hammarström, 2009) lo cual invita a contemplar los modelos como complementarios entre sí. Por otro lado, el desempleo es un fenómeno íntimamente relacionado con la precariedad laboral, de hecho, la falta de empleo podría considerarse, *stricto sensu*, como un tipo de precariedad. Así, el desempleo estaría creando las condiciones necesarias para el aumento de la precariedad laboral al reducir el poder de negociación de las personas trabajadoras y la predisposición de estas para

rechazar un empleo precario (Vives et al., 2015). Por lo tanto, los modelos que explican uno y otro fenómeno han de ser complementarios toda vez que esos fenómenos están relacionados. A continuación, se presenta un resumen de los modelos más relevantes.

- Teoría de la deprivación económica

En esencia, este modelo asume que las consecuencias negativas del desempleo o de una situación laboral precaria se justifican ante la falta de acceso de la persona desempleada a un salario adecuado, asumiendo que esta falta de renta disponible es un requisito previo de la buena salud mental (Janlert & Hammarström, 2009). Aunque esta relación entre una falta de salario y una peor salud mental ha sido demostrada en diversos trabajos (Nordenmark & Strandh, 1999; Rantakeisu et al., 1999), también existen evidencias de cierta inconsistencia en esta relación. En un trabajo pionero en el acercamiento de la economía al concepto de *felicidad*, Easterlin (1974) concluye que mientras dentro de un país existe una relación clara entre renta y felicidad (las personas de un estatus alto se declaran más felices) estas diferencias encontradas entre las personas de un mismo país no se observan al comparar países pobres con países ricos. Además, mediante análisis de series temporales, demostró que, mientras que el nivel de renta per cápita se había doblado entre 1946 y 1970 en Estados Unidos, el nivel medio de felicidad se mantenía constante. Este fenómeno, conocido como la *Paradoja de Easterlin*, ha sido analizado por numerosos trabajos, algunos de los cuales (Blanchflower & Oswald, 2004; Oswald, 1997) apoyan las conclusiones obtenidas por Easterlin (1974) y otros (Hagerty & Veenhoven, 2003) la contradicen.

La relación entre ingresos y bienestar continúa siendo objeto de análisis. Kahneman y Deaton (2010) descomponen ese bienestar en dos factores, uno emocional (*emotional well being*), que sería la calidad de las experiencias diarias de una persona y que se evaluarían a partir de la presencia de placer, ansiedad, tristeza, ira o afecto; y un componente de evaluación de la vida (*life evaluation*), esto es, los pensamientos que la persona tiene acerca de su vida. Según estos autores, el componente evaluativo aumentó de manera constante con los ingresos, pero el bienestar emocional se estabilizó en 75.000 dólares al año, cifra a partir de la cual la relación entre ambas variables deja de ser lineal.

Con todo, la reducción de ingresos de las personas desempleadas no parece ser capaz de explicar, por sí sola, la falta de salud psicológica, teniendo más fuerza explicativa las

pérdidas no pecuniarias del desempleo (Di Tella et al., 2001; Frey & Stutzer, 2002; Winkelmann, 2014).

- Modelos de las funciones del empleo

Aunque estos modelos han sido desarrollados en el seno de la psicología social, han sido de los más utilizados y citados por economistas que han evaluado las consecuencias de la situación laboral sobre el bienestar psicológico. Según el primero de ellos, propuesto por Jahoda (1982) a partir de la citada experiencia en Marienthal, el empleo estaría cumpliendo tanto una función manifiesta (la provisión de un salario) como un conjunto de funciones latentes. Entre las funciones latentes del empleo estarían la de dotar a la persona de una estructura temporal de la vida diaria, facilitar vínculos personales y experiencias compartidas con personas ajenas al núcleo familiar, unir al individuo con propósitos que trasciendan los suyos, establecer un estatus personal y participar en la construcción de la identidad personal y social y, finalmente, proporcionar un cierto nivel de actividad. Así, la desaparición del empleo supondría también la desaparición tanto de la función manifiesta como la de las latentes. Es justamente la ausencia de estas funciones la que estaría creando el malestar en el desempleo.

Warr (1987) propuso una ampliación de las funciones del empleo de Jahoda y enumeró una serie de factores ambientales que determinarán el bienestar psicológico. Estas características ambientales serían una oportunidad para ejercer un cierto control sobre el medio, una oportunidad de hacer uso de las habilidades y conocimiento adquiridos, objetivos externos al individuo, una variedad en las tareas realizadas (ausencia de trabajo repetitivo), información clara acerca de las consecuencias derivadas de la conducta, la disponibilidad de un salario, seguridad física en el trabajo, una oportunidad de contacto interpersonal y un reconocimiento de la posición social.

Según este modelo, estas características actuarán del mismo modo que lo hacen las vitaminas con respecto a la salud fisiológica, de modo que el incremento de algunos de los componentes del medio provocará beneficios para la salud mental hasta alcanzar un nivel en el que el beneficio se mantendría constante (es el caso de la vitamina E o de la disponibilidad de un salario). Así mismo, incrementos de otras características del medio provocarían beneficios hasta llegar a un nivel en el que esos incrementos podrían provocar disminuciones del bienestar que se había alcanzado previamente (es el caso del exceso de

la vitamina D o del de control sobre el medio) (Álvaro-Estramiana, 1992). Recientemente, Borkowska y Czerw (2022) han verificado la relación no lineal entre el bienestar psicológico y alguna de las "vitaminas" propuestas en el modelo de Warr.

Al contrario que el modelo propuesto por Jahoda (1982), que se limita únicamente a la diada empleo/desempleo, el modelo de Warr (1987) es capaz de explicar también los efectos psicológicos de empleos opresivos o precarios que produzcan insatisfacción laboral (Álvaro-Estramiana, 1992; Ezzy, 1993). En este sentido, la ausencia de vitaminas se puede dar en un entorno de desempleo, pero también en el entorno de un empleo con falta de seguridad física, con poca capacidad de ejercer el control sobre el medio laboral, o en un empleo que no reconozca el estatus de la persona trabajadora. Además, este modelo permitiría explicar por qué el desempleo podría afectar de manera distinta a dos personas. Por ejemplo, el desempleo podría ser más dañino para las personas de mediana edad que para los más jóvenes ya que aquellos dependen más del empleo para suplir la necesidad de un salario o la necesidad de contacto personal. En este sentido, las personas jóvenes podrían beneficiarse de un hipotético salario de sus padres o de contactos sociales más regulares típicos de la juventud (Ezzy, 1993).

Estos modelos, aunque útiles para la comprensión de la forma en la que la situación laboral afecta al bienestar psicológico, han recibido algún comentario crítico. Tanto la teoría de Jahoda (1982) como la de Warr (1987) intentan explicar el efecto de la falta de empleo sobre la salud mental desde posiciones exteriores a la persona (desde fuera hacia dentro), dejando de lado la interpretación subjetiva que la persona hace de su situación. Sin embargo, la teoría de la agencia (Fryer & Payne, 1984) pone el foco en las cogniciones derivadas del cambio de estatus desde el empleo al desempleo. Así, para estos autores, la persona se convierte en un agente *activo* cuyas creencias, intenciones y objetivos para su autorrealización influirán en la relación entre la situación laboral y el bienestar psicológico. Según este modelo, los problemas que aparecen con el desempleo no se deben tanto a la ausencia de las características protectoras del empleo, como a las consecuencias de *tratar de entender y hacer frente a la situación* [de desempleo] (Fryer & Payne, 1984, p. 279). En esencia, la diferencia entre estas teorías es que parten de supuestos ontológicos distintos. Mientras Jahoda (1982) o Warr (1987) parten de las características sociales y externas al individuo, la teoría de la agencia parte del interior del individuo para explicar cómo se ve afectado por las características sociales.

- Teoría de la normalización social del desempleo

Según Clark (2003) el bienestar psicológico de una persona empleada se verá erosionado por el desempleo de alguien procedente de su grupo de referencia.[5] Sin embargo, el bienestar psicológico de una persona desempleada se beneficia del desempleo de los demás. Aunque las personas desempleadas muestran un peor bienestar psicológico en comparación con las personas empleadas, este bienestar mejorará si la pareja o alguna persona de su hogar se encuentra en desempleo. Así mismo, este proceso podría actuar a nivel regional: el bienestar de las personas desempleadas se verá beneficiado por elevadas tasas de desempleo en la población en la que vive. Este efecto se debe a la normalización del desempleo, es decir, al hecho de contemplar la opción de estar desempleado como una opción válida.

Esto podría explicar por qué las consecuencias negativas del desempleo sobre la salud mental suelen ser más débiles en zonas, localidades o países en las que el desempleo está más extendido o normalizado. Así, en épocas de recesión, el desempleo se vería como algo inevitable o, al menos, incontrolable. Este efecto ya ha sido descrito por Jahoda, Lazarsfeld y Zeisel (2017) en el seminal estudio de los parados de Marienthal cuando se afirma que el malestar de las personas sin empleo se agudizaba en aquellas zonas en las que el desempleo no era generalizado y también se ha comprobado en estudios de más reciente publicación (Gathergood, 2013; Malisauskaite et al., 2022).

Sunstein y Thaler (2008), este último galardonado con el premio Nobel de Economía del año 2017 por sus contribuciones a la economía conductual, afirman que en muchas ocasiones las personas escogen la opción que menos esfuerzo les supone, pero esta opción no necesariamente ha de ser la más beneficiosa para ellas. Los autores se refieren a esta opción como *opción por defecto*, esto es, "aquellas que prevalecerán si la persona decide no hacer nada para cambiarla". Aunque este fenómeno ha sido aplicado por ejemplo a la elección de planes de pensiones dentro de un mercado de libre competencia, también podría ser aplicado al fenómeno de la normalización del desempleo. Así, en una sociedad con altas tasas de desempleo y en hogares en los que el desempleo es la opción

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[5] Clark (2003) define el grupo de referencia a nivel regional, de hogar y de pareja.

normalizada, en otras palabras, la *opción por defecto*, el desempleo puede verse de manera más benévola y su relación con el bienestar psicológico será menor.

- Significatividad vital del desempleo

Dolan y Powdthavee (2012) evalúan el efecto del desempleo sobre la *felicidad*[6] y concluyen que el desempleo será más dañino conforme esas personas consideren tal acontecimiento como algo importante en sus vidas; de hecho, las personas desempleadas para las que el desempleo no fue un evento importante en sus vidas, tenían niveles de felicidad parecidos a las personas empleadas que creían que el riesgo de perder su empleo (fenómeno íntimamente relacionado con la precariedad laboral) era un evento importante en sus vidas. En resumen, el desempleo daña a todas las personas que lo sufren, pero más a aquellas que lo analizan como un evento importante en sus vidas.

Abundando en lo anterior, Kahneman y Thaler (2006) concluyen que las personas tienden a exagerar acontecimientos vitales cuando su atención se focaliza en esos acontecimientos. Quizá las altas tasas de desempleo conlleven una normalización de la falta de empleo explicada en párrafos anteriores y, a la vez, permitan que las personas desempleadas retiren su atención de su falta de empleo. Sin embargo, en países, regiones u hogares en los que el desempleo no se ha normalizado, será más difícil retirar la atención de la situación de falta de empleo.

Además, la significatividad vital del desempleo se antoja de gran utilidad, por ejemplo, para explicar las diferencias encontradas entre el efecto que el desempleo tiene para hombres y para mujeres. Strandh et al. (2013) apuntan a los roles de género en la sociedad como factor clave para explicar el mayor impacto del desempleo en hombres que en mujeres. Así, en sociedades menos igualitarias, el sustentador principal será el hombre y el empleo de las mujeres será secundario (en términos de salario, por ejemplo). Esta situación crearía una menor vinculación de la mujer con el mercado de trabajo. Justo aquí, es donde podría entrar en juego el desempleo como evento vital. Las mujeres percibirán su desempleo como poco significativo en su trayectoria vital y focalizarán menos su atención en él, ya que la importancia que tiene este en su familia es secundario y, por extensión, su vinculación con el empleo es menor. Sin embargo, los hombres, que en

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[6] Los autores se aproximan a este concepto a partir del uso del *General Health Questionnaire*.

sociedades en las que el mercado de trabajo está, en mayor o menor medida, segregado por sexos, actuarán como sustentadores principales y su desempleo sí podría suponer un evento importante en sus vidas. Esa puede ser la razón por la que la salud psicológica de los hombres haya sido más sensible a la crisis del año 2008 que la de las mujeres (Gili et al., 2016).

- Modelos del locus de control y de la indefensión aprendida

El locus de control (Rotter, 1966) hace referencia al grado en el que la persona atribuye las consecuencias de su conducta a algo externo a ella (locus de control externo) o a algo interno (locus de control interno). En el primer caso, la persona percibe que puede controlar la situación por sí misma y, en el segundo caso, la persona asume que la situación se debe a factores que escapan a su control.

Aunque el concepto de locus de control ha sido desarrollado desde el ámbito de la psicología, la economía se ha interesado recientemente por el grado en el que las personas atribuyen sus éxitos o fracasos a algo externo o interno a ellas, especialmente desde el ámbito del mercado de trabajo (Cobb-Clark, 2015). Por ejemplo, Caliendo et al. (2015) concluyen que las personas con un locus de control interno son más activas en su búsqueda de empleo y tienen salarios de reserva más elevados. En un artículo reciente, Berger et al. (2022) concluyen que los participantes con un locus de control interno se benefician más de las políticas activas del mercado de trabajo que aquellas personas con un locus de control externo.[7] Finalmente, algunos estudios (O'Brien & Kabanoff, 1979; Tiffany et al., 1970) concluyen que las personas desempleadas perciben la causa de sus fracasos laborales como algo ajeno a ellas y que esa atribución es la que estaría detrás de la erosión del bienestar psicológico. Esta conclusión, además, confirmaría los resultados obtenidos en los primeros trabajos sobre el efecto del desempleo de los años treinta (Bakke, 1933).

El modelo del locus de control está íntimamente relacionado con la teoría de indefensión aprendida. Esta teoría (Seligman, 1975) postula que aquellos acontecimientos que se perciben como incontrolables y, por ello, inevitables para la persona causarán un sentimiento de fracaso que, finalmente, podría conducir a síntomas depresivos. La

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[7] Piénsese que las políticas activas del mercado de trabajo no son sino una forma de trasladar a la persona el control sobre las circunstancias que están impidiendo o dificultando la consecución de un empleo. Por ello, parece coherente que una persona con un locus de control interno sea más capaz de controlar estas circunstancias con respecto a una persona con un locus de control externo.

persona ha aprendido que, haga lo que haga, el resultado de sus acciones siempre será el mismo y, por ello, debido a la percepción de ausencia de control sobre sus acciones, la persona deja de responder en busca de un cambio. Esta teoría clásica en psicología se ha aplicado, entre otros, a la explicación de la aparición de trastornos como la depresión o en el fracaso escolar, pero también se ha aplicado, desde la economía, a la explicación de los efectos psicológicos que aparecen ante el desempleo (Barber, 1982; Bjørnstad, 2006). La persona desempleada intenta implicarse en una búsqueda activa de empleo, pero ante sus constantes fracasos, aprende que nada de lo que haga va a tener como consecuencia el reempleo. Esta falta de control de la persona lo convertirá en un sujeto pasivo que desiste de buscar un empleo o de mejorar sus probabilidades de encontrarlo. Así, mediante este proceso, podría aparecer lo que en economía se conoce como *efecto del trabajador desanimado* y la persona desempleada podría pasar a forma parte de la población inactiva.

Así, una persona que haya aprendido que existe una falta de contingencia entre lo que hace (pongamos por caso buscar un empleo) y las consecuencias esperadas de su acción (encontrar ese empleo) tenderá a estilos de atribución externos, esto es, la persona habrá aprendido que la situación está fuera de su control. La consecuencia de todo es la pérdida de respuesta de afrontamiento (la persona dejará de buscar un empleo).

- Teoría del estrés laboral

Los modelos teóricos que permiten explicar la influencia de las formas atípicas de empleo sobre el bienestar psicológico son más escasos si los comparamos con los modelos acerca del desempleo. Las razones que explican esta relativa escasez pueden ser varias. En primer lugar, mientras el concepto de desempleo es fácilmente definible, la frontera entre lo que es un trabajo precario y lo que no es más difusa y, además, pueden variar en el tiempo y en el espacio. En segundo lugar, la precariedad tiene múltiples dimensiones y podría venir explicada por el tipo de contrato (o por su ausencia), por el salario o por el tipo de jornada. En este intento por avanzar en la definición de la multidimensionalidad de la precariedad laboral, una de las propuestas (García-Pérez et al., 2020) es el uso de la satisfacción laboral de la personas con respecto a determinadas situaciones laborales. El uso de *pesos hedónicos* para calibrar la importancia relativa de cada una de las dimensiones de la precariedad permite concluir el avance notable del fenómeno en España durante los últimos años y el importante peso del componente de la temporalidad para medir la precariedad. En tercer lugar, el componente de precariedad es más subjetivo que

el concepto de desempleo. De esta forma, una persona con una determinada situación laboral y contractual puede considerarse a sí misma trabajadora precaria y otra, en su misma situación, puede considerase trabajadora no precaria.

Aunque en la actualidad, el concepto de precariedad está muy ligado a la existencia de contratos temporales o a la inseguridad laboral, es decir, a la merma de la capacidad de una persona para poder mantener un empleo; el concepto de precariedad laboral ya aparece esbozado por Adam Smith en *La Riqueza de las Naciones* (1996, p. 717), aunque más asociado, en este caso, con el tipo de tareas a realizar que con el tipo de relación contractual:

Un hombre que dedica toda su vida a ejecutar unas pocas operaciones sencillas, cuyos efectos son quizás siempre o casi siempre los mismos, no tiene ocasión de ejercitar su inteligencia o movilizar su inventiva para descubrir formas de eludir dificultades que nunca enfrenta. Por ello pierde naturalmente el hábito de ejercitarlas y en general se vuelve tan estúpido e ignorante como pueda volverse una criatura humana.

La literatura ha relacionado una serie de factores laborales estresantes con la erosión de la salud mental y ha concluido que este tipo de factores se dan en alto grado entre las personas que trabajan bajo formas contractuales de carácter temporal. De acuerdo con De Cuyper et al. (2008), este estrés laboral puede tener su origen en un falta de inversión de la empresa en sus trabajadores temporales (ya sea en términos de salario, complementos salariales, promoción laboral o formación); en unas peores condiciones laborales (en términos de una menor autonomía y control sobre su trabajo, una mayor monotonía, una menor capacidad para desarrollar sus habilidades que los trabajadores con contratos indefinidos, una falta de apoyo por parte de sus compañeros con contratos indefinidos, o una dificultad para adaptarse a su situación). Finalmente, el tercer origen del estrés laboral puede estar en la inseguridad laboral.

Algunos autores (Shoss, 2017) proponen los modelos vitamínicos (Warr, 1987) y de funciones del empleo (Jahoda, 1982) para explicar el mayor estrés laboral de los trabajadores en situación precaria. Así, se propone que la precariedad estará amenazando las *vitaminas* y los recursos (tales como la identidad, los ingresos o el estatus social) que se adquiere a través de trabajo. Por otro lado, el empleo precario estaría relacionado con una amenaza de las funciones latentes del empleo (como el estatus) o de la función

manifiesta del salario. Por último, algunas investigaciones concluyen que las formas precarias de empleo se relacionan con una mayor exposición a condiciones laborales que conllevan un riesgo físico para la salud y que dicha exposición está relacionada con un aumento del estrés (Tompa et al., 2007; Vancea & Utzet, 2017).

- Teoría de la comparación y el intercambio social

Según esta teoría, los problemas psicológicos pueden tener su origen en una percepción de los trabajadores temporales de que su trabajo no está siendo recompensado de manera equitativa si se compara con los trabajadores permanentes y, por lo tanto, en una percepción de desequilibrio entre sus esfuerzos y las recompensas que obtienen (De Cuyper et al., 2008). Esta comparación llevaría a la percepción de que se está produciendo un intercambio desigual entre el empleado y la organización respecto a los trabajadores permanentes. La literatura ha propuesto dos modelos teóricos para explicar esta desigualdad. En primer lugar, la precariedad laboral se interiorizará como una ruptura del contrato psicológico mediante el cual los empleados intercambian su compromiso con la empresa por seguridad laboral (Shoss, 2017). En segundo lugar, la percepción de un intercambio desigual con la organización llevaría a los trabajadores precarios a percibir una injusticia distributiva (Piccoli & De Witte, 2015). La vulnerabilidad psicológica se produce cuando el trabajador percibe que niveles altos de esfuerzo no se ven recompensados adecuadamente y considera que las recompensas (dinero, estima y oportunidades profesionales) no se están repartiendo equitativamente. Piccolli y De Whitte (2015) han evaluado la importancia de estos dos mecanismos explicativos y sus resultados mostraron el papel mediador tanto de la percepción de la ruptura del contrato psicológico como de la injusticia distributiva, aunque esta última tenía un mayor poder explicativo del malestar psicológico de los trabajadores precarios.

Con todo, De Cuyper et al. (2008) han comprobado la inconsistencia de algunos de estos modelos teóricos. Por ello, aconseja la introducción de un mayor número de variables de control tales como el sexo, la edad o el nivel educativo; la introducción de variables que permitan distinguir más específicamente a los tipos de trabajadores temporales (por ejemplo el tipo de contrato o su duración) o la voluntariedad/involuntariedad[8] de su situación contractual; la revisión de la validez y consistencia de las variables de

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[8] De hecho, De Cuyper (2008), parte de la necesidad de que este contrato temporal no sea ni buscado ni deseado por la persona para poder ser estudiado en su relación con la salud mental.

resultados; la introducción de variables que permitan distinguir los posibles beneficios de los contratos temporales (una menor carga de trabajo, por ejemplo) y los aspectos negativos de los contratos permanentes (una mayor supervisión por parte de la empresa, por ejemplo) y las exceptivas de los trabajadores.

3. Transiciones laborales y bienestar psicológico durante la pandemia

Cuando esta tesis se encontraba en su ecuador se produjo un acontecimiento que, en parte, condicionó su desarrollo e incluso modificó su estructura. Entre mediados de marzo y principios de mayo de 2020, buena parte de los gobiernos del mundo decretaron políticas de confinamiento general debido a las consecuencias de la pandemia por COVID-19. La situación sin precedentes tuvo un fuerte impacto en la economía y, por extensión, en las tasas de empleo (López-Valcárcel & Vallejo-Torres, 2020). El confinamiento y la paralización de la economía provocaron cambios en el mercado laboral que afectaron a la mayoría de la población en edad de trabajar en forma de despidos, Expedientes de Regulación Temporal de Empleo (ERTE) o la imposición del teletrabajo. En total, casi 2.700 millones de trabajadores en todo el mundo se vieron afectados por las medidas excepcionales implementadas para controlar la crisis sanitaria (International Labour Organization, 2020).

Además de las consecuencias físicas de la enfermedad por COVID-19, la pandemia también impactó en el bienestar psicológico de la población (Brooks et al., 2020). La hipótesis que se maneja a lo largo del capítulo dedicado a la relación entre el bienestar y la situación laboral durante la pandemia es que las personas reaccionan de manera diferente a las consecuencias psicológicas de la misma dependiendo de cuál era en ese momento su situación laboral. La asociación entre las distintas situaciones laborales durante la pandemia y el bienestar psicológico ha sido estudiada para el desempleo (R. Yao & Wu, 2021), para el teletrabajo (Boulet & Parent-Lamarche, 2022) y para los ERTE (Posel et al., 2021).

Sin embargo, la relación entre la situación laboral y el bienestar psicológico, como ya hemos dicho, podría estar sesgada por la posible endogeneidad de la variable de desempleo debido a la doble causalidad entre ambas variables. Una forma de poder reducir esta doble causalidad, más allá del modelo econométrico empleado o de la disponibilidad, no siempre posible, de datos en forma de panel, es contar con datos de

personas que han transitado entre distintas situaciones laborales debidos a causas ajenas a ellas.

Un ejemplo de esta forma de proceder se encuentra en el trabajo de Farré et al. (2018), quienes estimaron el efecto causal del desempleo a través de una muestra de personas trabajadoras del sector de la construcción. El colapso de este sector durante la fase más aguda de la Gran Recesión permitió la existencia de un *shock* exógeno en el mercado de trabajo derivado de la crisis de empleo. En otro trabajo, Marcus (2013) estimó el efecto indirecto del desempleo sobre la *salud mental* a partir del uso de una muestra de personas desempleadas debido al cierre de la fábrica en la que trabajaban bajo la premisa de que el *shock* exógeno que supuso el cierre de la fábrica permitirá una interpretación causal. En último término, el objetivo en ambos artículos era que ese *shock* exógeno (la crisis económica o el cierre de las fábricas) reduzca la probabilidad de que las personas que transitan desde el empleo al desempleo lo hagan debido a un bienestar psicológico empobrecido.

De la misma forma, la idea de contar con información recogida durante la fase más aguda de la pandemia y del confinamiento es poder asegurar que las transiciones de una situación laboral a otra se deben a un *shock* exógeno, cuyo origen es la paralización de la economía, y reducir la influencia del bienestar psicológico en dicha transición.

En resumen, la pandemia por COVID-19 ha permitido contar con datos de personas que han transitado entre distintas situaciones laborales debido a razones ajenas a su bienestar psicológico, lo cual permite comprobar hasta qué punto esa transición puede estar modulando el grado de afectación del bienestar psicológico originado por las condiciones creadas por la pandemia, pero descontando la influencia del bienestar psicológico en dicha transición.

4. Desempleo, precariedad y bienestar: especificidades del caso español

Este capítulo inicial culmina con una explicación acerca de algunos de los factores relacionados con el mercado español y con el bienestar psicológico de la población española que pueden llevar a considerar los objetivos propuestos en estas tesis especialmente relevantes. En cuanto al mercado de trabajo en España, una de sus características más repetidas es la elevada tasa de desempleo. Históricamente, España, junto con otros países del Sur de Europa como Grecia, Italia y Portugal, se ha situado a la cabeza de los países de la Unión Europea en cuanto a tasas de desempleo. A modo de ejemplo, y centrándonos en la comparación entre España y el resto de la Unión Europea, la tasa más baja de desempleo en España de la serie histórica a partir del primer trimestre del 2001 (7,93 por ciento; 2T 2007, INE) es algo más de tres puntos porcentuales inferior que la cifra más alta de la UE-27 (11,2 por ciento; 2013, Eurostat). En el Gráfico 1.1 se han incluido las tasas totales de desempleo de España y de la UE-27.

GRÁFICO 1.1. Tasa de desempleo en España y en la UE-27 (2006-2021)
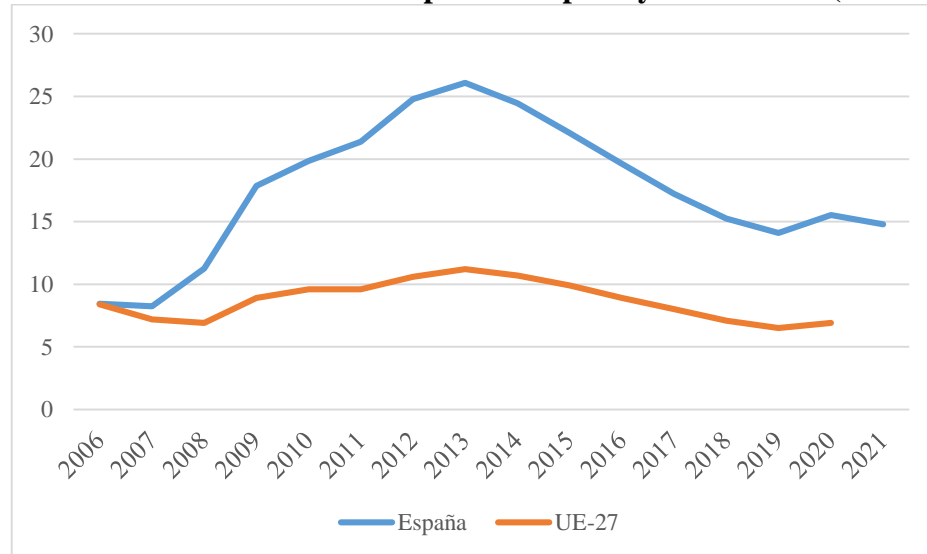
Fuente: elaboración propia a partir de datos de INE y Eurostat

Por sexos, las diferencias son prácticamente inexistentes en la UE-27. Sin embargo, en España las mujeres tienen tasas de desempleo más altas. Estas diferencias se redujeron durante la Gran Recesión (por la mayor destrucción del empleo masculino) pero han vuelto a aparecer a partir de la recuperación económica. En el Gráfico 1.2 se han incluido las tasas desempleo por sexos de España y de la UE-27.

GRÁFICO 1.2. Tasa de desempleo en España y en la UE-27 (2012-2021) por sexos
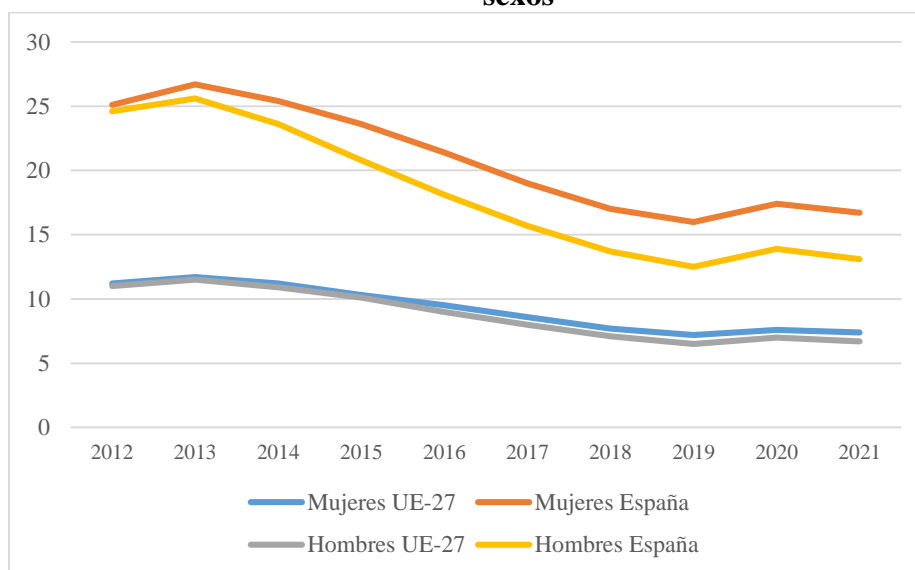
Fuente: elaboración propia a partir de datos de Eurostat

Además de las elevadas tasas de desempleo, si las comparamos con la media de la Unión Europea, otra característica notable del mercado de trabajo español es la elevada tasa de contratos temporales. Por ejemplo, de acuerdo con los datos del INE, durante el último trimestre del 2021, la tasa de contratos temporales en España supuso el 25,4 por ciento del total. Sin embargo, según Eurostat, en la Unión Europea (UE-27), la tasa de temporalidad máxima (2009-2020) ha sido del 15,7 por ciento (15,2 por ciento en hombres y 16,3 por ciento en mujeres) y se registró en el año 2017. Además, la tasa de temporalidad en la UE muestra un patrón mucho más estable que la de España; para el periodo analizado, mientras que en la Unión Europea el peso de los contratos temporales se mantiene alrededor del 15 por ciento, en España la tasa de temporalidad descendió durante los años de la Gran Recesión y volvió a aumentar a partir del año 2013, con la mejora de la economía, hasta situarse en el año 2019 en un 26,3 por ciento. En el Gráfico 1.3 se incluyen las tasas de temporalidad totales para España y para la UE-27.

GRÁFICO 1.3. Tasa de temporalidad en España y en la UE (2009-2021)
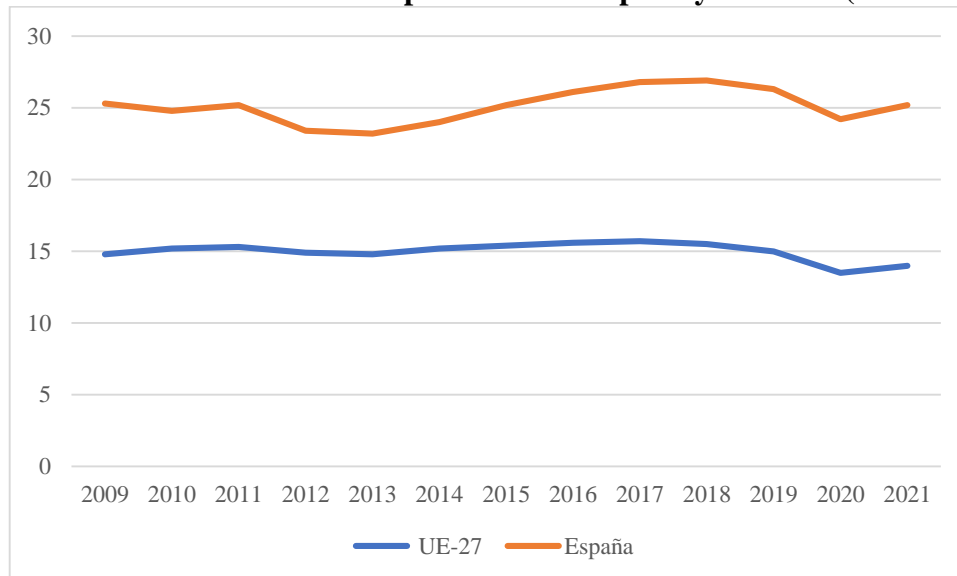
Por sexos, la temporalidad tanto en España como en la Unión Europea es superior entre las mujeres que entre los hombres. Las diferencias entre unas y otros, sin embargo, son mayores en España. El aumento de las contrataciones temporales a consecuencia de la mejora de las condiciones económicas referidas en el párrafo anterior afectó especialmente a los hombres, con una subida drástica de las contrataciones temporales hasta el año 2015, momento en el que se igualaron las tasas de hombres y mujeres. A partir de ese momento las diferencias no han hecho más que crecer hasta situarse en el año 2021 en casi 5 puntos porcentuales. En el Gráfico 1.4 se incluyen las tasas de temporalidad por sexos para España y para la UE-27.

GRÁFICO 1.4. Tasa de temporalidad en España y en la UE (2009-2021) por sexos
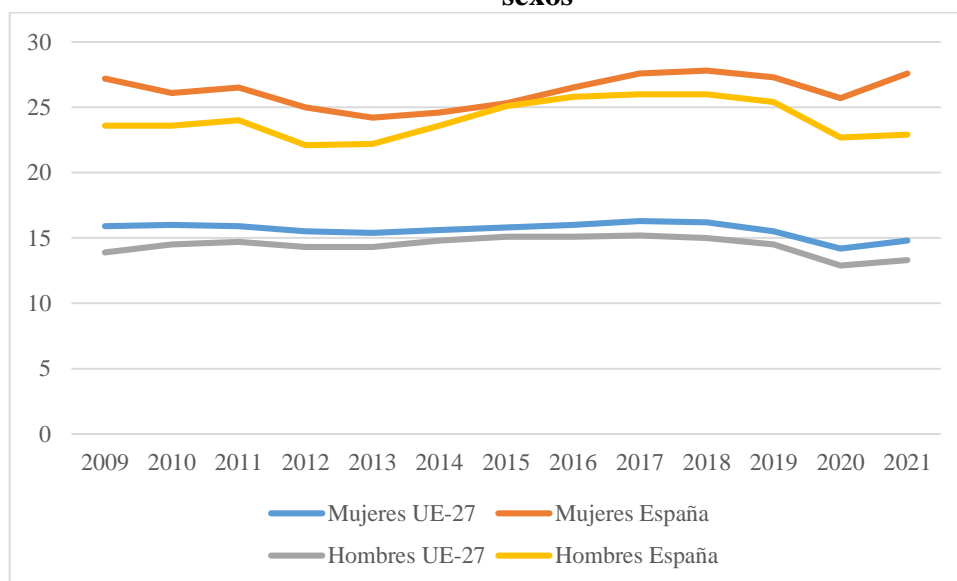
Como ya hemos dicho, la población ocupada que no consigue salir del riesgo de pobreza en España supera la media de los 27 países de la UE y, salvo Grecia y, en algunos momentos Italia, la tasa de trabajadores en riesgo de pobreza es la más alta de las registradas entre los países del entorno de España (Peña-Casas et al., 2019). En el Gráfico 1.5 se muestran las tasas de trabajadores en riesgo de pobreza en España y la UE-27.

GRÁFICO 1.5. Tasa de trabajadores en riesgo de pobreza. España y la UE (2010-2020)
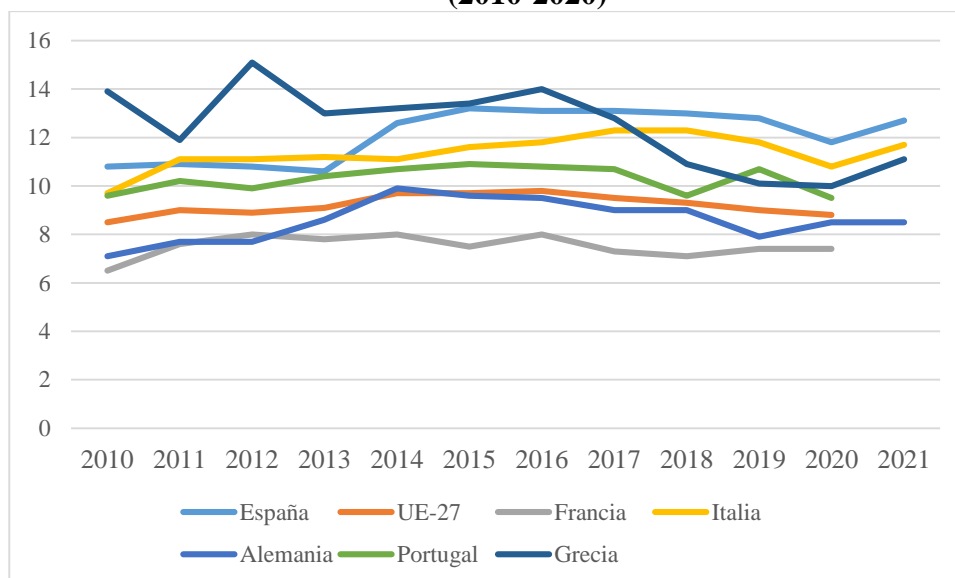
La existencia, dentro del mercado de trabajo, de un segmento primario con estabilidad laboral, posibilidad de promoción y buenas condiciones salariales entre otras

características, y de otro segmento o mercado secundario con peores condiciones laborales y una menor movilidad ascendente estaría creando una segmentación en el mercado de trabajo que no siempre puede venir explicada, tal y como la teoría neoclásica defiende, por la productividad de la persona trabajadora. Así, la existencia de estos mercados de trabajo segmentados se explicará por factores del lado de la demanda (tales como factores institucionales como la legislación laboral o factores atribuibles al ciclo económico) y la pertenencia a dichos mercados vendría explicada por factores del lado de la oferta tales como la edad, el género, la condición de inmigrante o el nivel formativo (Cárdenas del Rey, 2020). Además, esta segmentación del mercado de trabajo español contribuye al establecimiento de un sistema de protección por desempleo fragmentado con personas desempleadas con protecciones relativamente altas, personas con protecciones asistenciales e incluso personas sin ningún tipo de protección (Mato, 2012).

Evidentemente en España, dada la tasa de temporalidad o de trabajadores en riesgo de pobreza, este mercado secundario es más amplio que en otros países. Además, la posibilidad de ascender desde el mercado secundario al mercado primario es menor en España que en otros países. Así, un estudio de Eurofound (2019) concluye que, de los cuatro países analizados (España, Reino Unido, Francia y Alemana), son los dos primeros quienes registran más flujos entre las distintas situaciones laborales pero, mientras en el Reino Unido el mercado se caracteriza por altas tasas de movilidad tanto ascendente como descendente, España presenta los niveles más bajos de movilidad ascendente y un alto riesgo de movilidad descendente que afectará, principalmente a las personas de peores condiciones laborales. Esta falta de movilidad ascendente perpetuará la existencia de contratos temporales que, además, tienen efectos negativos en las carreras laborales de esas personas. Así mismo, el informe analiza la composición de los submercados de trabajo y concluye que, del lado de la oferta, ser mujer, persona con bajo nivel educativo, joven o inmigrante aumenta las probabilidades de formar parte del mercado secundario.

Así, el análisis del mercado de trabajo español con respecto a su relación con el bienestar psicológico podría tener un doble interés, tanto por sus elevadas tasas de desempleo como por su temporalidad, variable, esta última, íntimamente relacionada con la precariedad laboral. En este sentido, y como hemos visto, ambas características han sido puestas en relación con un peor bienestar psicológico.

El uso de una encuesta española, con información acerca de la posición en el mercado de trabajo y además con un gran número de variables de salud (física y mental) parece más que justificada. La Encuesta Nacional de Salud tiene una publicación pentaanual. Las tres últimas ediciones de esta encuesta se llevaron a cabo en el año 2006, 2011 y 2017. Por ello, esta tesis se beneficia de trabajar con datos recogidos en un contexto temporal en el que, respectivamente, las tasas de desempleo fueron las más bajas de toda la serie histórica de España, en un contexto en el que las tasas de desempleo fueron las más altas de toda la serie histórica y, finalmente, en un contexto de recuperación económica. En el Gráfico 1.6 se pueden observar las tasas de desempleo durante los meses en los que se llevó a cabo el trabajo de campo de la recogida de información.

GRÁFICO 1.6. Tasas de desempleo ENSE
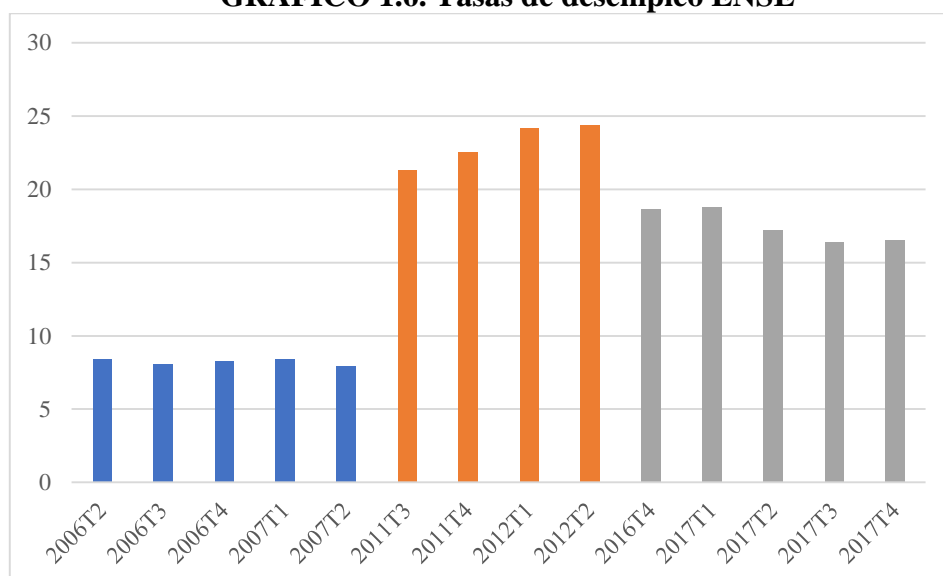
Fuente: elaboración propia a partir de datos del Instituto Nacional de Estadística.

En azul se muestra la tasa de desempleo de España durante el tiempo en el que se recogió la información de la edición de la ENSE del año 2006, en naranja aquellas tasas registradas durante la edición del año 2011 y finalmente, en gris las tasas de la edición del 2017. El interés de la unificación en una misma base de datos de las tres últimas ediciones de la ENSE es comprobar hasta qué punto el ciclo económico puede estar influyendo en la relación entre el bienestar psicológico de la población residente en España y su situación laboral.

En contraste con las altas tasas de desempleo, los datos oficiales de los que se dispone sitúan a España en una posición intermedia en lo que a bienestar psicológico se refiere. En el Gráfico 1.7 se incluyen las tasas de prevalencia de síntomas de depresión de España

y en otros países de la UE. En 2014 España se encontraba dos décimas por encima de la media de los países de la UE y con mejores datos que países de su entorno como Francia (7%) o Portugal (10,1%). Los datos del año 2019 reflejan un descenso considerable de la tasa de prevalencia de los síntomas depresivos en España. La tasa de España (4,8%) se encuentra ahora más de dos puntos por debajo de la media de los países de la EU. Estos datos solo son mejorados por otros países del sur de Europa como Grecia (2,7%), Italia (4,2%) y por Rumania (4,3%).

GRÁFICO 1.7. Prevalencia de síntomas de depresión UE (2014 y 2019)
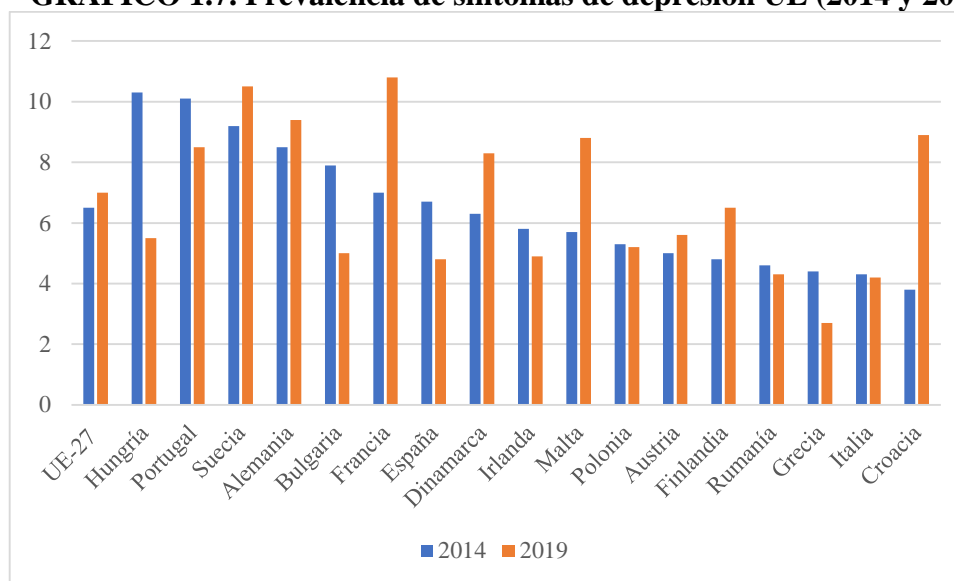
Fuente: elaboración propia a partir de datos de Eurostat.

La disponibilidad de datos de Eurostat no permite analizar los cambios ocurridos durante la pandemia. Sin embargo, el último informe *Health at a Glance 2021: OECD Indicators* (OECD, 2021b) contiene información recogida durante los meses de marzo y abril del 2020, esto es, en plena pandemia. Según este informe, la prevalencia de depresión en España se encontraba por debajo de la media de los 15 países más ricos de la OCDE (19% *versus* 22%) y muy por debajo de los países con las tasas más elevadas: Suecia (30%) y Corea (37%). En cuanto a las tasas de ansiedad, España se sitúa de nuevo por debajo de la OCDE15 (22% *versus* 25%) y muy lejos de las tasas de países como Reino Unido o México (que en ambos países es del 50%). Las tasas de suicidio parecen estar reflejando esta menor tasa de problemas de salud mental. Así, el número de muertes por suicidio en España es de 7 por cada 100.000 habitantes. Por debajo de España estarían países como Turquía (4,4/100.000), Grecia (4,7/100.000) o México (5,5/100.000) país, este último, que paradójicamente tenía la tasa de prevalencia de ansiedad más elevada de todos los países analizados. El número de muertes por suicidio por cada 100.00 habitantes en los

países de la OCDE es de 11 y el mayor número de muertes se encuentra en Eslovenia (16,5/100.000), Lituania (21,6/100.000) y Corea (24,6/100.000).

Este nivel de bienestar psicológico contrasta, en embargo, con el consumo de medicación relacionada con la salud mental en España. Según la ENSE del año 2017, el 5,6% y el 12,5% de la población afirmó haber consumido antidepresivos y tranquilizantes respectivamente durante las dos semanas anteriores a la encuesta. En el Gráfico 1.8 se incluye el consumo de dosis diarias de antidepresivos por cada 1000 habitantes de España y de los países de su entorno. Mientras países como Portugal (con altas tasas de prevalencia y elevado consumo de antidepresivos) o Italia (con baja prevalencia y bajo consumo) reflejan pautas de consumo esperables para su nivel de prevalencia, España, siendo uno de los países con niveles de prevalencia de ansiedad y depresión medios, se sitúa entre los países con un mayor consumo de ansiolíticos y antidepresivos. Las razones de este consumo comparativamente elevado son varias y su naturaleza es demasiado compleja como para ser abordadas en esta tesis. Sin embargo, se pueden esbozar algunas ideas que permitan acercase, aunque sea superficialmente, a la situación.

En enero del año 2020 el Defensor del Pueblo emitía una resolución[9] alertando de la escasa capacidad del Sistema Nacional de Salud para cubrir la demanda de atención psicológica y de la diferencia entre la ratio de psicólogos por habitantes en España y en los países de su entorno. Ante esta situación, la resolución recomendaba *incrementar progresivamente este tipo de asistencia en los servicios autonómicos de salud*. Se puede deducir que, ante la dificultad de la población para acceder a un/a psicólogo/a, las consultas sobre la salud mental son resueltas en la atención primaria a partir de la prescripción de medicación, y problemas que quizá no requiriesen medicación son abordados como primera (y única) alternativa con antidepresivos o ansiolíticos.

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[9] https://www.defensordelpueblo.es/resoluciones/estudio-de-necesidades-e-incremento-de-la-atencion-psicologica-en-el-sistema-nacional-de-salud/

GRÁFICO 1.8. Consumo de antidepresivos de España y países de su entorno (2019, 2020 y 2021)
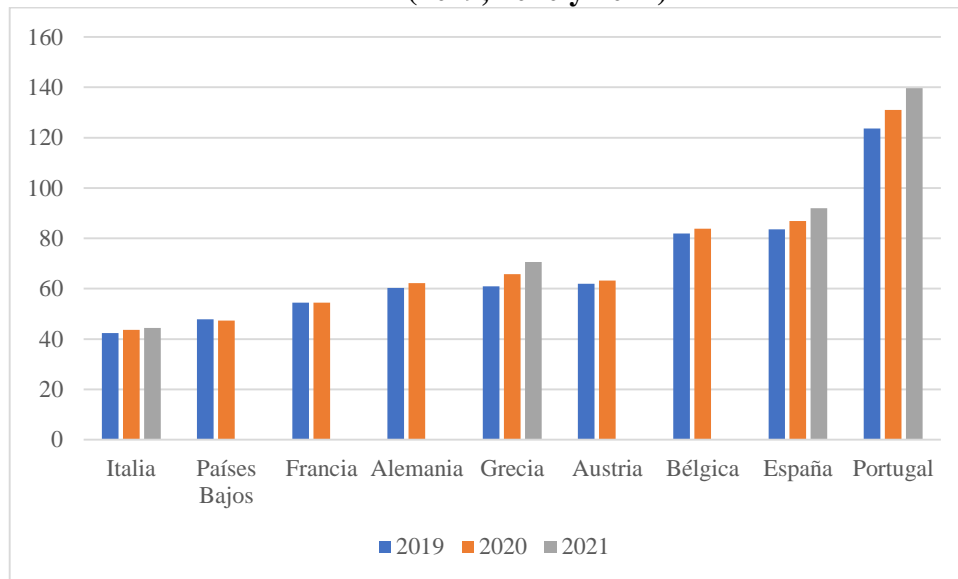
En resumen, a pesar de que España presenta mejores datos comparativos en varios indicadores de bienestar psicológico (prevalencia de depresión, por ejemplo) también existen datos que invitan a la precaución. Como hemos dicho, España es uno de los países del mundo en el que más medicación antidepresiva se consume. De hecho, según los datos completos más recientes de la OCDE (año 2020) España es el sexto país en consumo de fármacos antidepresivos, solo superado por Islandia, Portugal, Australia, Canadá y Suecia. Además, aunque, como hemos visto, España no presenta cifras alarmantes al respecto, el número de suicidios parece estar aumentando. Según datos del INE, en el año 2020 se alcanzó el número de muertes por suicidio más alto de toda la serie histórica registrada (3.941, casi 11 suicidios por día), siendo este número de muertes por suicidios casi tres veces superior en hombres (2.930) que en mujeres (1.011). La tasa de suicidios por 100.000 habitantes pasó de 7,6 en 2018 a 8,3 en 2020 (de 11,4 a 12,6 en hombres y de 3,9 a 4,2 en mujeres). Además, todas estas cifras podrían estar empeorando de resultas de las consecuencias de la pandemia por COVID-19.

5. Estructura de la tesis

Aparte de este capítulo introductorio y del capítulo de conclusiones generales, la tesis se compone de cuatro capítulos. Estos cuatro capítulos se corresponden con tres artículos publicados o aceptados para su publicación y con un cuarto que se encuentra en este momento en revisión. Dada esta consideración, los capítulos que conforman el cuerpo

central de la tesis se han redactado en inglés puesto que es el idioma de las revistas en las que se publicaron. Además, el respeto a la literalidad de las publicaciones realizadas justifica algunas diferencias en la apariencia de los capítulos, como ocurre, por ejemplo, con los resúmenes iniciales.

El segundo capítulo de esta tesis recoge un análisis general acerca del efecto del desempleo sobre la salud mental en España, realizada con datos de la Encuesta Nacional de Salud. Para tratar de controlar la doble causalidad entre las dos variables de interés (desempleo y salud mental) se aplica un modelo de ecuaciones simultáneas y el uso de la tasa provincial de desempleo a modo de variable instrumental de la situación de desempleo. Extendiendo parte de las conclusiones de este capítulo, y aplicando la misma metodología y la misma fuente de datos, el tercer capítulo se centra, por un lado, en un análisis del efecto del desempleo dependiendo del sexo de la persona desempleada. Además, por otro lado, se identificaron dos tipos de efectos del desempleo: un efecto directo, esto es, el efecto que aparece en un individuo ante su propia situación de desempleo; y un efecto vicario, es decir, el efecto que la situación de desempleo de una persona estaría teniendo en el bienestar psicológico de su pareja. Para llevar a cabo este análisis se fusionaron los módulos individuales y familiares de las tres oleadas de la ENSE utilizadas en esta tesis.

El cuarto capítulo de la tesis supone una aproximación empírica al impacto que las consecuencias de la pandemia por COVID-19 tuvieron sobre el bienestar psicológico, y un análisis acerca de cómo este impacto puede estar modulado por la situación laboral de la persona. Para cumplir este objetivo se llevó a cabo una encuesta durante los meses de confinamiento estricto a personas residentes en varios países y se aplicó un modelo probit ordenado.

Finalmente, en el quinto capítulo se determina la relación entre la precariedad laboral y el bienestar psicológico. Para identificar a las personas trabajadoras en precario se usó el tipo de contrato (funcionariado, contrato indefinido, contrato temporal de corta y larga duración, empresario/a, trabajador/a autónomo/a y situaciones laborales atípicas) y el tipo de jornada (jornada partida, jornada continua y jornada irregular o rotativa). Para purgar la estimación de heterogeneidad inobservable se aplicó un modelo de clases latentes. La tesis se cierra con un capítulo de conclusiones y de propuestas de futuras líneas de investigación, redactado en español puesto que no ha sido publicado.

La Figura 1.1 muestra un esquema acerca de los objetivos planteados en esta tesis. Como ya se ha señalado en las páginas anteriores, la tesis parte de la premisa de que el desempleo y la precariedad laboral están causalmente relacionadas con el bienestar psicológico. Sin embargo, esta relación causal sería bidireccional, de manera que el bienestar psicológico también podría estar influyendo en la probabilidad de que la persona se encuentre en una determinada situación laboral. Al mismo tiempo, el bienestar psicológico se verá influido por características individuales como el sexo, la edad o el nivel educativo y por características ambientales, como, por ejemplo, el ciclo económico o la región de residencia de la persona.

FIGURA 1.1. Esquema general de la tesis
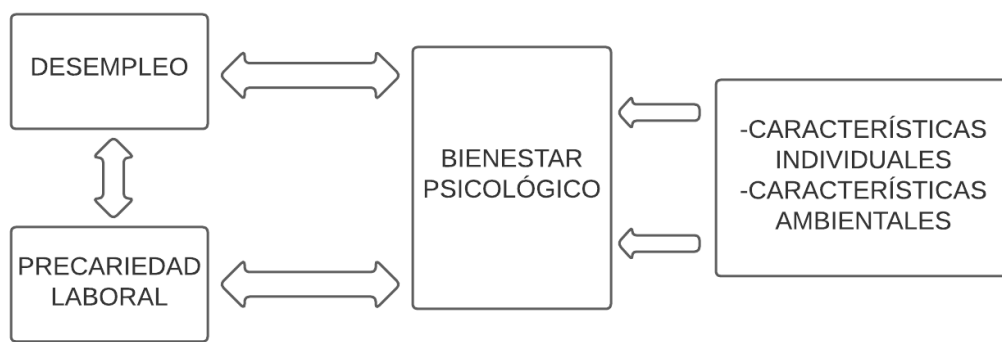
Capítulo 2. The effect of being unemployed on psychological well-being: The Spanish Case

Abstract

Background: The lack of work appeared to be linked to several symptoms related to poor psychological well-being. Likewise, the reverse relationship, namely the influence of poor psychological well-being on the risk of job loss, has also been analysed, i.e. distress could lead to a poorer work performance culminating in potential job loss. Thus, the bidirectional nature of the relationship between unemployment and psychological well-being makes the accurate estimation of causal relationships a complex matter, leaving room for additional research on the subject.

Aims of the study: The aim of this research is to analyse the influence that unemployment could have on psychological well-being taking into account the bidirectional nature that exists between both concepts.

Methods: In order to tackle the causal effect of being unemployed on psychological well-being, we present a biprobit model taking into account the presence of dummy endogenous regressors and we compare these results with those obtained from a standard univariate probit. Our identification strategy exploits geographical information on the unemployment rates as instrument. We use Spanish cross-sectional data from the 2006, 2011 and 2017 years.

Results: Based on the results, the paper concludes that unemployed persons in Spain could be subject to a 5.4% higher probability of suffering from poor psychological well-being (versus 11% obtained using a standard probit).

Discussion: The results obtained confirm a negative impact of unemployment situation on psychological well-being. In other words, the probability of unemployed people suffering from poor psychological well-being seems superior to that for individuals with a job. Moreover, the marginal effect obtained from a univariate probit model without the possibility of controlling the mental health selection effects, proves the existence of a problem of simultaneity that would have overestimated the effect of being unemployed on psychological well-being.

Implications for health care provision: It is hoped that the conclusions obtained here prove useful in the implementation of specific mental health care provision aimed at unemployed people. In this context, the evidence obtained should result in the incorporation of health assistance as an essential part in response to the needs of this collective.

Implications for health policies: These special needs of unemployed people should be contemplated not only from a health care provision but also as part of a broader system that incorporates the mental health care of unemployed persons as part of more general public health policies. Finally, these results suggest that mental health-related objectives

should be considered when planning, implementing, and evaluating active labour market policies for the unemployed.

Implications for further research: The length and severity of the last recession, together with the risks associated with the global crisis resulting from COVID-19, reiterate the obvious concerns about the consequences of economic crises and unemployment on psychological well-being. In this context, our study could be a step forward in the study of the causal relationships between unemployment and psychological well-being when new data are available.

1. Introduction

The length and severity of the last recession, together with the risks associated with the global crisis resulting from COVID-19, reiterate the obvious concerns about the consequences of economic crises and unemployment on psychological well-being (PWB). In this context, the study of the relationships between unemployment and PWB is not something new, having received in the past substantial attention by academics (Wilson & Walker, 1993). Said research has mainly been motivated by the social and economic problems involved as well as the difficulties in obtaining an adequate measurement of said relationship. The lack of work appears to be linked to the appearance of anxiety and mood disorders and even suicidal behavior (Virgolino et al., 2022).

Likewise, the reverse relationship, namely the influence of poor PWB on the risk of job loss, has also been analysed, i.e. distress could lead to a poorer work performance culminating in potential job loss (Coe & Zamarro, 2011; Eliason & Storrie, 2009; Marcus, 2013) with important direct and indirect costs to patients and their families (Addo et al., 2013). The crucial importance of unemployment effects on a person´s psychological state emanates from the risk of redundant workers becoming distressed, thereby making it difficult for them to return to work. The hypothesis of a reverse causality that increases the risk of unemployment as a result of despondency could take into account the existing gaps in labour market participation and employment rates of people with mental disorders (OECD, 2021a).

Thus, the possibility of a double causality between unemployment and PWB is both a perturbing social problem and as such, provides an excellent platform for ongoing research (Frijters et al., 2010). In this chapter we seek to measure one of the causal relationships, namely, unemployment as the origin of a potential adverse effect on PWB. In order to obtain reliable results, the simultaneity problem is tackled via the correction of the double causality between the independent variable (work situation) and the dependent variable (PWB) by means a bivariate probit model using Instrumental Variables (henceforth, IV); (Heckman, 1978; Maddala, 1983). The bivariate probit model is an already proven potential option when wishing to control for the endogeneity of a model with binary variables (Osorno del Rosal & Navarro-Ibañez, 2000; Rodriguez-Hernandez & Barros-Garcia, 2013). This methodology benefits from the advantage that it takes into account the correlation between the errors of both equations when estimating

the regression (Greene, 1998). We use this model and compare it with a standard probit one to contrast the importance of the potential simultaneity problem.

This chapter exploits a rich database available from Spain, one of the developed economies suffering from historically high levels of unemployment. In fact, in this country joblessness has been an acute social and economic problem for decades. During the last two recessions, the record high Spanish unemployment rates were 24.1% (1994) and 26.1% (2013), respectively. The latter figure signifies that in 2013 unemployment in Spain was 2.4 times that of the EU-28 average rate of 11%. The lowest rate in four decades corresponds to the year 2007, when unemployment reached a record low of 8.23%, still relatively high in terms of international standards. The problems associated with the volume of unemployment in Spain, as well as the long duration of the last recession (six years of labour market adjustment), make the country an exceptional showcase and source for evidencing and analysing the consequences of unemployment on PWB.

In the Spanish case, according to the latest available data for 2020, the participation rate of people with some disability was less than half that of the general participation rate: 34.3% versus 76.1%. Unemployment rate differentials also differ: 22.2% among people with some disability, as compared to the general rate of 15.4%. Moreover, among those with disability, people suffering from distress show an even lower participation rate of 26.6% (National Statistics Institute, 2022).

In sum, in this chapter we propose to compare results obtained from a standard probit and a bivariate probit model in order to understand the importance of taking into account the causal effect of unemployment situation on PWB for the Spanish case. As IV, we use the provincial information on the unemployment rates which, although it has already been applied to analyse other issues (for example, in Alonso-Borrego and Carrasco (2017) to analyse domestic violence) to the best of our knowledge, it has not been applied to investigating the way in which unemployment influences mental health.

The chapter is structured as follows: first, we explain the main results revealed in the existing literature regarding this topic. Secondly, we introduce the theoretical model used to explain the influence of employment status on mental health. Next, the data sources,

variables and methodology used in the analysis are explained. Finally, the study results and conclusions are presented.

2. The effect of being unemployed on PWB: a literature review

Regarding unemployment, much of the economic literature studying the relationship between this status and distress (Cygan-Rehm et al., 2017) adopts as a starting point the research performed by Jahoda (1982) in the field of social psychology. According to this author the consequences of unemployment can be motivated by considering those functions involved in having a job: income, imposition of a temporary structure, establishment of personal bonds and shared experiences, proposition of objectives and purposes that transcend the individual, ascription to a status and the obligation to maintain a certain level of activity. It is the absence of these functions that could be conducive to the appearance of distress. Based on this theoretical model, some research has emphasized the pecuniary consequences of unemployment (Luo, 2020), while other studies have expanded the consequences of unemployment to areas such as personal development or lack of autonomy (Hagler et al., 2016).

Research with respect to how economic conditions or employment status affect PWB has been conditioned by numerous difficulties involving the adequate measurement of the effects of unemployment on PWB. In this regard some progress has been made in the past. First, the introduction of standardized psychological measurements, such as the General Health Questionnaire-12 (Goldberg et al., 1997) have, since the 1980s, permitted the use of a generally accepted method to assess PWB. Second, separating the analysis of transitions from employment into joblessness using information from unemployed persons who subsequently became employed made it possible to produce more specific estimations. Results showed that improvements in mental health as a consequence of finding work were more important than the deterioration caused by redundancy (Murphy & Athanasou, 1999). Third, research increasingly considered labour market processes that could potentially be misidentifying the problems of transitions to and from unemployment. One such problem is the correlation of unemployment with age, as a result of delayed school to work transitions or early retirement processes. Panel data analysis allows controlling for this, as well as enabling the potential selection of those mentally unhealthy persons susceptible to becoming unemployed, as exemplified in the German case where mental health declines even before job loss (Stauder, 2019). Fourth,

research ceased to be centred on low-skilled male workers and broadened its horizons to include a wider occupational spectrum and female workers in the reference population (Harkness, 2016). Finally, the exogenous shock caused by the impact of the COVID-19 pandemic on the labour market has made it possible to analyse its effects on the PWB of workers. In this sense, some works carried out during the COVID-19 pandemic (Ikeda et al., 2022; R. Yao & Wu, 2021) conclude that joblessness was indeed related to worse PWB when compared to being employed.

However, the relation between occupational status and PWB still appears to be unresolved. Thus, whereas some studies using panel data have found weak effects of unemployment on distress (Stauder, 2019) or even no effects (Schmitz, 2011), other research with longitudinal data confirms the detrimental effect of being unemployed (A. E. Clark et al., 2001; Drydakis, 2015). Furthermore, using a meta-analysis, with 237 cross-sectional survey studies and 87 longitudinal ones, Paul and Moser (2009) conclude that unemployment is not only related to worse PWB, but also causes it. In addition, possessing a job seems to protect individuals from the presence of anxiety and depression disorders (Llena-Nozal et al., 2004; Plaisier et al., 2008).

In general, many studies have approximated the psychological situation using the score obtained for a subjective survey-based question. Another aspect of PWB used by researchers is the prescription of mental health medications or alcohol abuse. Bradford and Lastrapes (2014) estimated the relationship between the prescription of anxiolytics and antidepressants in the USA and labour market activity. The authors show that a decrease of 1% in the employment rate leads to an increase of 10% in the medication prescriptions associated with the alleviation of depression and anxiety. Regarding alcohol abuse, Mossakowski (2008) concludes that involuntary unemployment predicts drinking behaviour at ages between 27-35 years.

This negative effect of the economic downturn on PWB seems to be more moderate in the presence of more developed welfare systems. In this context, Cygan-Rehm et al. (2017) assess the effect of being unemployed on psychological health using four longitudinal surveys for four different countries: Germany, Australia, United Kingdom and the USA. Although the result of this research reveals a significant impact of unemployment situation on PWB in the four countries evaluated, the strength of the welfare system —such as the German one— appears to reduce the impact of this effect.

In this regard, Gudmundsdottir (2013) evaluated the relationship between economic factors arising from the economic collapse of 2008 and changes in PWB in Iceland, a country traditionally characterized by a generous welfare system. One of the conclusions of this research is that the economic crisis had a limited impact on PWB, which could indicate that, in effect, strong welfare systems could act favourably as a PWB protection factor when facing the consequences of an economic crisis.

Similar results have been found with the children of unemployed persons. Golberstein et al. (2019) analyse the relationship of the economic cycle and mental health based on the evaluation of the effect that the unemployment rate and housing price indices have on child mental health. Based on cross-sectional data from the National Survey of Health Interviews of the United States, the authors conclude that the PWB of children deteriorates with worse economic conditions in a way comparable to what happens in adults.

With respect to economic recessions, another important topic is the difference between the influence of economic crises on PWB, on the one hand, and the potential moderating effect that crises may have on the specific relationship between unemployment and well-being. The literature includes two types of conclusions that, a priori, seem to contradict each other. First, there are some studies (Buffel et al., 2015; Drydakis, 2015) that reveal an increased level of distress among the population due to the economic crisis. Secondly, the negative impact of the latter contrasts with research that affirms that the economic crisis could generate some type of adaptation in unemployed individuals which enables them to overcome the former's negative consequences of the lack of employment (Gathergood, 2013). Indeed, a recent paper (Malisauskaite et al., 2022) concluded that, while GDP growth would be related to a reduction in the deterioration of well-being, regardless of the employment situation of people, the improvement of the economic situation and GDP growth worsen the negative influence of unemployment on well-being, particularly in the case of men. This literature explains the attenuating effect of high unemployment rates from a process of social normalization (A. E. Clark, 2003) of the unemployment situation in areas with high unemployment rates or in times of economic decline.

In the specific case of Spain, previous studies seem to confirm the existence of a positive relation between an unemployment situation and distress. Rocha et al. (2010) analyse

those variables which are more likely to be associated with a higher prevalence of mental health problems in the Spanish population. Based on a descriptive analysis and logistic regression, they conclude that one of the variables most frequently associated with worse PWB is unemployment. Additionally, the increase in unemployment rates due to the Spanish recession highlights unemployment as a mediating variable of PWB (Farré et al., 2018; Gili et al., 2013; Stoyanova & Pinilla, 2020; Urbanos-Garrido & Lopez-Valcarcel, 2015).

In this chapter we are interested in comparing the results obtained from a standard probit and a biprobit model (which takes into account the cause-effect relationship between PWB and unemployment) proposing an instrument to cope the endogeneity of unemployment variable.

3. Data

The data used in this work have been obtained from the Spanish National Health Survey (NHS; Ministry of Health, Social Services and Equality) editions of 2006, 2011 and 2017. This cross-sectional survey is aimed at the resident population in Spain and consists of three questionnaires (household, selected adult, and minors) that address four specific areas: sociodemographic, health status, use of health services and health determinants. The dependent variable was obtained thanks to the incorporation in the NHS of the General Health Questionnaire (GHQ-12; 12-item version)[10] (Goldberg et al., 1997), a psychological scale frequently used to assess the impact of unemployment situation on health (Cygan-Rehm et al., 2017; Paul & Batinic, 2010; Robone et al., 2011). The maximum score that could be obtained in the test is 12, which indicate a maximum risk of suffering a *common mental disorder* (Sánchez-López & Dresch, 2008; Silva et al., 2020), and the minimum is zero, which indicate a total absence of risk. Following both the correction manual of the scale (Lobo & Muñoz, 1996) and previous investigation (Artazcoz et al., 2004; Urbanos-Garrido & Lopez-Valcarcel, 2015) a score of three or higher will be used as a cut-off point to differentiate people at risk for mental disorders.

Table 2.1 presents the GHQ-12 scores, accompanied by the average unemployment rate and GDP per capita in Spain, corresponding to the three years of the NHS editions. The

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[10] See the complete General Health Questionnaire-12 in the Annex 1 to this paper.

evolution of both Spanish employment and PWB indicators over the period considered suggests, once again, the adequacy of the data used to analyse the relationship between both concepts.

TABLE 2.1. Unemployment, GDP per capita and PWB in Spain

	2006	**2011**	**2017**
Unemployment rate	8.45	21.39	17.22
GDP per capita (Euros)	23,307.5	22,569.0	24,574.5
GHQ-12 score	17.7	19.3	15.6

Source: NHS and National Statistics Institute data.
Note: Percentage of people with a score compatible with a deterioration in PWB. In GHQ-12 test, the higher the score the greater the risk of psychological suffering.

The theoretical model that sustains this work takes as the central concept the aforestated latent deprivation model (Jahoda, 1982). According to this theory, employment fulfils the manifest function of providing people with economic resources from a salary that guarantees their sustainability, as well as latent functions related to five factors: the temporal structure, social contact, group goals, status and identity and, finally, a specific activity. However, this theory leaves in the background those characteristics of a person and the process by which said characteristics contribute to and model the way in which unemployment affects health (Álvaro-Estramiana, 1992). In this sense, and trying to resolve this deficiency, the present chapter proposes expanding the theoretical model with the variables that prior literature has shown as influencing PWB.

The variables included in the model and the latter's specification are included in Table 2.2. Unemployment is the independent variable and a deterioration in PWB is the dependent variable. Gender, age, level of education, GDP per capita, nationality, municipality size and the province where the person lives are used as explanatory variables and provincial unemployment rate[11] is used as IV. Table 2.3 shows the descriptive statistics.

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[11] Trying to find the most reliable IV, we consider using data to provincial level to capture the potential differences between the various provinces that make up each region. Nevertheless, the data reported by the Ministry of Health, Consumption and Social Welfare do not include information at the provincial level. Because of this, a formal request was made to the Ministry for the transfer of provincial data for research purposes.

TABLE 2.2. Variables included in the analysis

Variable	Rank
Unemployed person	1 if the person is unemployed; 0 if they are working
GHQ-12 score (PWB)	1 if the person has obtained a GHQ-12 score equal to or greater than three, 0 otherwise
Gender	1 if the person is a man; 0 if the person is a woman
Age 16-35	1 if the person is between 16 to 35; 0 otherwise
Age 36 or more	1 if the person is 36 or more; 0 otherwise
Educational level below secondary school	1 if the person is illiterate, without studies or has obtained a primary education certification, 0 otherwise
Medium educational level	1 if the person has obtained a secondary school certification, high school certification or professional training, 0 otherwise
University educational level	1 if the person has obtained a university degree, 0 otherwise
GDP per capita	Continuous variable
Province	1 if the person resides in this Autonomous community, 0 otherwise
Provincial unemployment rate	Continuous variable
Nationality	1 if the person has Spanish nationality; 0 otherwise
Municipality size	0 if the person lives in a municipality with a population of less than 10,000; 1 if they live in a municipality with a population of between 10,000 to 20,000; 2 if they live in a municipality with a population of between 20,000 to 50,000; 3 if they live in a municipality with a population of between 50,000 to 100,000; 4 if they live in a municipality with a population of more than 100,000; 5 if they live in a provincial capital (except those included in the next category), and 6 if they live in a municipality with a population of more than 500,000.

TABLE 2.3. The composition of employed and unemployed people

	People with work	Unemployed	Total
Population (N)	31,423	6,893	38,316
Percentage of positive GHQ-12 scores (%)			
	15.0	28.7	17.5
Distribution by gender (%)			
Female	48.2	54.4	49.3
Male	51.8	45.6	50.7
Distribution by education level (%)			
Less than secondary school	16.7	23.6	17.9
Medium level	56.8	63.9	58.1
University	26.4	12.5	23.9
Distribution by age (%)			
16-35	28.35	34.30	29.42
More than 36	71.65	65.70	70.58
Regional unemployment rate (average)			
	14.57	18.26	15.24
Nationality (%)			
Spanish nationality	91.1	89.0	90.7
Other nationality	8.9	11.0	9.3
Municipality size (%)			
More than 500,000	11.95	9.55	11.51
Province capital	21.96	21.82	21.94
More than 100,000	7.68	8.50	7.83
From 50,000 to 100,000	8.07	9.72	8.36
From 20,000 to 50,000	15.77	16.41	15.89
From 10,000 to 20,000	12.03	11.63	11.96
Less than 10,000	22.54	22.37	22.51

Source: 2006, 2011 and 2017 Spanish National Health Survey.
Note: the original sample was 38,380, but 64 people have to be dropped due to missing values in the education variable.

These variables have been summarized in three large blocks: the work situation of the person, individual features, and the environment. A schematic approximation of the model proposed is shown in Figure 2.1.

FIGURE 2.1. The model
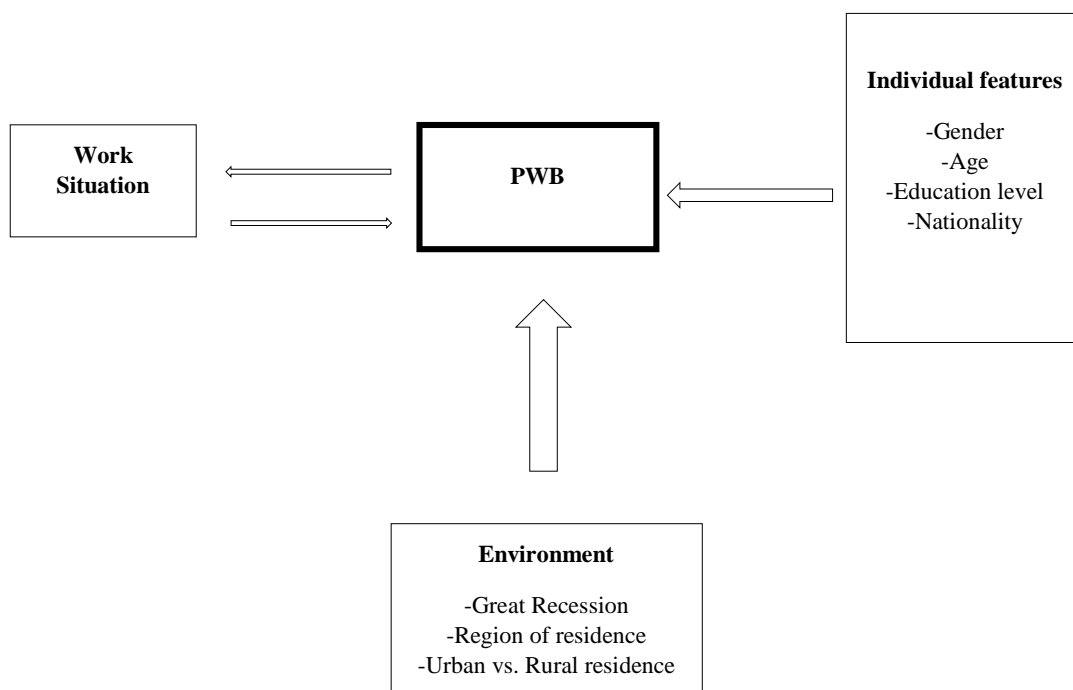
In order to explain the personal characteristics that could affect PWB, several variables have been included. As for gender, it occupies a preeminent place as a moderating variable in the relationship between mental health and unemployment both because it is precisely this variable that explains part of the prevalence of some mental disorders in the population (Red Nacional de Vigilancia Epidemiológica. Instituto de Salud Carlos III, 2017) and because gender could influence the manner in which a person affronts a period of economic crisis (Gili et al., 2016; Strandh et al., 2013). As far as age is concerned, there have been several studies that analyse its relationship with PWB, for example in older workers (Falba et al., 2009; Mandal & Roe, 2008; Mosca & Barrett, 2016). Some research (Blanchflower & Oswald, 2008) points to an inverted U-shape relation between psychological distress and age over a lifetime, that is, distress reaches its peak at middle-age. However, when this psychological discomfort is created by unemployment, this relationship converts into a U-shape, with young and older than 50-year-old individuals suffering more from the consequences of unemployment than middle-aged people (Paul & Moser, 2009). We also include, within this block, the educational level reached by the person. In this regard, Chevalier and Feinstein (2006) conclude that education reduces the risk of poor PWB, achieving constant life-long effects. Finally, nationality is also included. Migrations flows may affect PWB in, at least, two different ways. Firstly, migration may be associated with detrimental psychological stress in a person (Rocha et al., 2010). Migratory flows can also be considered as an investment in human capital. The

person decides to leave their country in search of a higher income or a more beneficial environment in terms of relative PWB. That decision, however, is not free of costs. The costs of the psychological impact in the form of stress or mal-adaptation processes must be added to the more visible economic costs. Furthermore, migration flows can be related to a deterioration of mental health among the citizens of the recipient country due to the lack of trust arising from the potential increase of ethnic diversity (Awaworyi Churchill et al., 2019).

Finally, regarding the context of the person, the GDP per capita is included in order to evaluate the way in which the cycle influence the relationship between unemployment and PWB (Gathergood, 2013; Malisauskaite et al., 2022). Moreover, we introduce dummy variables at provincial level in order to capture the influence that living in a particular location could have on an individual's psychological state and the size of the municipality in order to differentiate living in a rural or in an urban area. In this regard, literature has shown that areas with larger population are characterized by higher rates of criminality, isolation or pollution which may increase the risk of distress (Peen et al., 2010).

4. Method

The proposed model considers the estimation of the effect of a binary variable (unemployment; U) on another binary variable (PWB). However, as already explained, unemployment situation may impact PWB, but the latter may be spuriously related to unemployment due to unobservable variables. In this situation, the independent variable will become endogenous and an estimation using logit or probit analysis could lead to biased results. Trying to avoid unbiased estimations, a bivariate probit model (Heckman, 1978; Maddala, 1983) with an IV is proposed. The representation of the estimated model is as follows (Han & Lee, 2019):

$$(1) \quad PWB = 1[X' \beta + \delta_1 U - \varepsilon_1 \geq 0],$$

$$(2) \quad U = 1[X'\alpha + Z'\gamma - \varepsilon_2 \geq 0],$$

$$(\varepsilon_1, \varepsilon_2 | X) \sim N(0,0,1,1,\rho)$$

Where 1 is the indicator function taking the value one if the statement in the brackets is true and zero otherwise; X is a vector of exogenous regressors that determine both PWB and U; Z is an exogenous variable to be used as an IV that affect U but not PWB; β, δ, α and γ are a vector of parameters to be estimated; N $(0,0,1,1, \rho)$ indicates the standard bivariate normal distribution with correlation coefficients ρ. Note that if Corr(ε_1, ε_2)$\neq$0 unemployment will be endogenous in the first equation and, thus, an estimation using an ordinary probit would lead to inconsistent results (Wooldridge, 2010).

5. Results

The results of the estimations are shown in Table 2.4. The first column presents the results of a standard univariate probit model, where the dependent variable is the risk if suffering from a poor PWB. The second and third columns show the results for the estimation of the bivariate model (Equations 1-3).

The positive sign of the coefficient of the unemployment variable indicates that the risk of a poor PWB is significantly higher in people who are unemployed. Similarly, the first column of Table 2.5 shows the marginal effect of the unemployment variable in the univariate probit model. Results show that, ceteris paribus, unemployment increases the probability of suffering from worse PWB by 11%. However, as explained above, due to simultaneity problems, this effect may be including other factors that are biasing the result. Therefore, this study proposes the estimation of the bivariate model (Equations 1 and 2) to contrast the results of the previous model.

<div align="center">TABLE 2.4. Univariate and Bivariate Probit Model</div>

Variables	Univariate probit (PWB)	Bivariate mod. PWB eq. (Equation 1)	Bivariate mod. Unemployment eq. (Equation 2)
Being Unemployed	.44901*** (.01884)	.21787** (.10909)	
Gender (ref: Women)			
Men	-.30512*** (.01560)	-.31487*** (.01613)	-.20949*** (.01566)
Age (ref: 36-64)			
16-35	-.07686*** (.01731)	-.06649*** (.01801)	.21083*** (.01719)
Education level (ref: University)			
Less than secondary school	.21848*** (.02517)	.25332*** (.02995)	.72941*** (.02698)
Medium level	.15206*** (.01981)	.17688*** (.02310)	.44313*** (.02161)
GDP per capita	-.00007*** (.00000)	-.00008*** (.00000)	.00003*** (.00000)
(Ln) Provincial unemployment rate (IV)			.49842*** (.01952)
Nationality (ref: Spanish)	-.08151*** (.02618)	-.08797*** (.02632)	-.13288*** (.02676)
Municipality size (ref: less than 10,000 inhabitants)			
From 10,000 to 20,000	.00642 (.02874)	.00578 (.02863)	-.00542 (.02851)
From 20,000 to 50,000	.05997** (.02686)	.05890** (.02666)	-.01831 (.02683)
From 50,000 to 100,000	.04924 (.03322)	.05302 (.03311)	.05694* (.03280)
More than 100,000	.02308 (.03633)	.02737 (.03642)	.06071* (.03570)
Province capital	.09106*** (.02520)	.09095*** (.02513)	.00412 (.02548)
More than 500,000	.10763*** (.03533)	.11010*** (.03517)	.04673 (.03652)
Cons.	.85178*** (.23399)	.88968*** (.23317)	-3.14065*** (.24103)
ρ			.13424** (.06308)

<div align="right">Wald test of rho=0: chi2(1) = 4.52925
Prob > chi2 = 0.0333</div>

*** Statistical significance: 1%; ** Statistical significance: 5%; * Statistical significance: 10%. Standard errors in parentheses

Note[1]: results of Equations 1 and 2 include controls for 52 provincial dummies, which are not shown for reasons of space

Note[2]: other variables such as self-employed status, marital status or the fact of having children have been used in a previous analysis. However, they have not been included in the final model due to their lack of significance and the possibility that those variables may suffer from the same double causality that requires correction.

The results of the estimation of the bivariate model are presented in the second and third columns of Table 2.4. As in the case of the probit univariate model, from Equation (1) we can deduce that, again, unemployed people have a higher probability of obtaining a score compatible with a poor PWB. Moreover, the estimated correlation coefficient ρ in Table 2.4 is positive and significant at a confidence level of 95% (see Wald test in Table 2.4), indicating that people with unobservable characteristics that increase the probability of suffering distress, in turn, have a higher probability of being unemployed. In other words, we can affirm that the unemployment variable is endogenous in the first equation. In this sense, the choice of the bivariate model is more efficient than the univariate model since it allows controlling the effect of unobservable factors that could affect an individual's labour market situation and psychological condition at the same time.

Hence, the subsequent analysis of the results is focused on the bivariate model because it is the statistically preferred one. In this way, and regarding individual features, the coefficient referring to the gender variable is consistent with investigations carried out with the Spanish population (Rocha et al., 2010) and other epidemiology studies (Red Nacional de Vigilancia Epidemiológica. Instituto de Salud Carlos III, 2017). Namely, being a woman increases the probability of suffering a mental disorder. With respect to the age variable, the data suggest that the older a person is, the higher the probability of obtaining a risk score. Regarding the education level, people with university degrees are the least likely to suffer from a mental disorder as compared to people without education or with primary, secondary or vocational education. Again, this conclusion is in line with the results found in other studies (Chevalier & Feinstein, 2006; De la Cruz-Sánchez et al., 2013). Regarding nationality, it seems that having Spanish nationality is accompanied by better PWB as compared to those without it. The negative sign of this variable indicates that people with Spanish nationality have a lower probability of obtaining a score of three or higher in the GHQ-12 than people possessing other nationalities.

As far as environmental variables are concerned, the average GDP per capita for each of the years in which the interview was conducted also shows statistically significant results: the higher the GDP per capita, the lower the probability of poor PWB risk score. This result appears to indicate that economic growth affects PWB positively and significantly. Finally, the positive coefficient of the municipality size indicates that the risk of mental disorder is higher for those persons residing in larger areas.

The third column of Table 2.4 shows the estimation results of the unemployment equation (Equation 2). Note that it not only includes the same variables as in Equation 1 but also includes the provincial unemployment rate, the variable that we have considered as an instrument. The coefficients estimated in Equation 2 are all significant. Especially relevant to the objective of this study is the coefficient of the IV in Equation 2. The results show that it has a highly significant effect, indicating that the provincial unemployment rate explains the probability of being unemployed. As expected, its positive coefficient reveals that the higher the level of provincial unemployment, the greater the probability of suffering from psychological problems.

The two conditions to be able to use the provincial unemployment rate as IV are that, effectively, the unemployment rate is predictive of individual unemployment situation, as, in fact, we have just explained happens. Moreover, the use of an IV requires a second condition, namely, that said variable is uncorrelated with the error term, that is, that the provincial unemployment rate only affects PWB through its relationship with the individual situation of unemployment. However, community-level unemployment can also affect individual mental health, for example, through the fear generated in the person to lose their job when unemployment rates begin to rise (Buffel et al., 2015; Córdoba-Doña et al., 2016). To confirm that this second condition is fulfilled in order to use the unemployment rate as IV, Equation 1 has been re-estimated, but in addition to individual unemployment, we have also introduced the unemployment rate by province.[12] Thus, while the unemployment situation remains significant (P<.001), the coefficient of the unemployment rate is not significant (p=0.155). In other words, for our sample the unemployment rate by province alone by itself does not seem to be explaining the variations in the GHQ-12 result. Thus, the two conditions to be able to use the provincial unemployment rate as IV would be fulfilled.

Once the probit bivariate model has been estimated, thus correcting the bias of the potential endogeneity, it is possible to calculate the impact of unemployment situation on PWB, through its marginal effect. The results are shown in Table 2.5. The differences between the marginal effects calculated using the two models (univariate and bivariate probit model) becomes evident. In the first case the marginal effect obtained is 0.11, while in the second case, the marginal effect is reduced to 0.054 (resulting significant at a

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[12] The results of this estimation have been included in Annex 2.

confidence level of 95%). The difference between the results obtained with both models suggests that endogeneity could be overestimating the impact that the unemployment status of an individual can have on PWB. We conclude that it is crucial to take into account the potential endogeneity in these types of studies in order to obtain unbiased results.

TABLE 2.5. Marginal effects

	Univariate probit model	Bivariate probit model
Being Unemployed	.11041***	.05395**
	(.00456)	(.02680)

*** Statistical significance: 1%; ** Statistical significance: 5%; * Statistical significance: 10%. Standard errors in parentheses

6. Conclusions

This chapter aims to analyse the effect that unemployment has on PWB. Specifically, this effect has been studied basing our study on the score obtained by the General Health Questionnaire-12, one of the most used tests in this type of analysis, which is included in most of the surveys that assess the psychological conditions of citizens. The application of the econometric model described in this chapter allows us to control for the potential bias when studying the relationship between unemployment and PWB given that both variables are spuriously related due to unobservable factors that can bias the analysis. For this reason, in this paper we compare a standard univariate probit model with a bivariate probit model that allows us to control for potential endogeneity. Our findings confirm the existence of endogeneity in the model, indicating the existence of unobservable factors which result in those persons with poor PWB as being the most likely candidates for the unemployment register.

The marginal effect of 5.4% obtained confirms the conclusions of a substantial portion of the literature dedicated to the study of the relationship between individual occupational status and PWB. In sum, our results indicate that unemployed people have a higher probability of obtaining a score compatible with a poor PWB. In addition, the marginal effect of 11% obtained from a univariate probit model without the possibility of controlling the well-being selection effects, proves the existence of a problem of simultaneity that would have overestimated the effect of being unemployed on PWB.

It is hoped that the conclusions obtained here prove useful in the implementation of public policies aimed at unemployed people. In this context, the knowledge accumulated over the years should result in the incorporation of health assistance as an essential part in response to the needs of this collective. Furthermore, the latter needs should be contemplated not only from a health care policy perspective but also as part of a broader system that incorporates the mental health care of unemployed persons as part of more general public health policies. Finally, these results suggest that PWB-related objectives should be considered when planning, implementing, and evaluating active labour market policies for the unemployed.

Capítulo 3. Joblessness and Psychological Well-Being by Gender: Direct and Vicarious Effects

Abstract

This chapter provides the first available analysis for the whole of Spain of the direct and vicarious effects of unemployment on psychological well-being. With individual and household data from the 2006, 2011 and 2017 National Health Surveys, and using a methodology that allows us to control for unobservable variables, a direct effect is estimated showing the detrimental influence of unemployment on personal well-being. Looking at gender differences, men show this negative effect of joblessness. However, among women, this direct effect is significant for childless women only. Regarding the vicarious or indirect effect, we find that the partner of the unemployed person is vicariously affected by their joblessness. This vicarious effect is significantly higher when the unemployed partner is a man rather than a woman. Results are interpreted in accordance with Becker's theory of specialization. Analysis of low opportunity cost of joblessness for women with children is novel in the literature about the effects of unemployment on psychological well-being.

1. Introduction

In addition to the possibility of earning a salary, employment is related to a series of functions such as a schedule, shared experience with unfamiliar people, individual goals, personal status and identity as well as physical activity (Jahoda, 1981). This conceptualization expands the value of employment beyond its financial importance and makes it more of an element that *provides people with a sense of personal identity which may be tied to the particular work role or the more general social role of breadwinner in a family* (Price et al., 1998). The effect of being unemployed therefore manifests itself through the absence of these financial and non-financial functions, thus affecting PWB of the unemployed person (Janlert & Hammarström, 2009; Paul & Batinic, 2010).

There is abundant literature that focuses on how individual unemployment is related to worse PWB in the person suffering it (Cygan-Rehm et al., 2017; Eliason & Storrie, 2009; Frijters et al., 2010; Gnambs et al., 2015; O'Leary et al., 2020; Paul & Moser, 2009). PWB is usually approximated from a score obtained in a psychometric test (Cygan-Rehm et al., 2017; Urbanos-Garrido & Lopez-Valcarcel, 2015), levels of alcohol consumption (Jørgensen et al., 2019) or incidence of suicide (Milner et al., 2014) among others. Following Kahneman and Riiss (2005), Dolan et al. (2017) propose to split well-being into two components, experienced one and general life evaluations, finding that unemployment is related differently to each of them.

However, this literature has largely ignored looking at the effects of employment status on family members. This research takes advantage of the availability of six Spanish databases and combines them in order to analyse, first, the effect of unemployment on the PWB of the individual. This is carried out while taking into account both individual characteristics and those of the household.

Secondly, in addition to the employment situation itself, this chapter also analyses how family circumstances such as employment status of the partner or raising children affect the PWB of the individual. Thus, a double effect of unemployment is considered: the primary or direct effect on the PWB of the sufferer, and a secondary or vicarious effect transferred through a crossover process (Westman, Hamilton, et al., 2004), in this specific case, to the partner of the unemployed person. The research includes a gender perspective,

analysing whether differences between men and women can be determined, and whether the effect of unemployment on PWB is altered by the experience of motherhood.

To the best of our knowledge, this is the first country level study that evaluates the effect of unemployment on households in Spain. It is particularly appealing to analyse this issue in a country where the family is an institution of reference both in economic and social terms, as seen by the key role played by family members during the Great Recession providing both financial and non-financial support (Mínguez, 2017).[13] In addition, the applied methodology allows us to consider causal relationships between unemployment and PWB while avoiding biased results.

The chapter is structured as follows: first, we introduce the related literature in the next section. Then, section 3 is devoted to presenting the analytical method, and section 4 to explaining data sources and variables. Section 5 describes research results and section 6 concludes.

2. Literature review

Until recently, research on the psychological consequences of unemployment was mainly carried out by comparing the symptomatology of samples of unemployed men with the symptomatology of employed men (Dew et al., 1991). The indirect effects of joblessness were thus absent from the literature. However, there is currently enough research available to be able to say that unemployment seems to be related not only to the PWB of the unemployed person themself but also to that of their family (Beck, 2016; Maitoza, 2019; Nikolova & Nikolaev, 2021; Pedersen et al., 2005; Ström, 2003).[14] An important part of this research studies the transfer of the effects of unemployment between members of a couple Thus, the well-being of a person may decrease due to the mental health problems of their partner (Pascual-Sáez et al., 2019), and unemployment could have vicarious effects.

Using a sample of 2,973 couples, Luhmann et al. (2014) demonstrate this transmission between couples and conclude that unemployed men are more affected than unemployed

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[13]Previous research carried out in Catalonia evaluated the effect of unemployment with regard to different family roles (Artazcoz et al., 2004).

[14]Although the unemployment of an individual is the most frequently studied phenomenon regarding risks of psychological distress among other family members, some studies have also shown the impact of temporary employment (Inanc, 2018) or the effects of fearing joblessness (Bünnings et al., 2017).

women and that, although the unemployment of one member of the couple affects both, the unemployed member is more affected.

Nikolova and Ayhan (2019) also compare the direct effect with the vicarious effect of unemployment. They worked with a sample of German couples in which one of the partners had become unemployed due to company closure, thus avoiding potential estimation biases arising from the possibility of people losing their jobs due to poor PWB (two-way causation). The authors found that the unemployment of one of the partners had a negative influence on the life satisfaction of the other, estimating that this vicarious effect accounts for 25% of the effect caused by unemployment itself. The results, moreover, were insensitive to household income, which demonstrates the non-pecuniary value of employment and the effect of its social value.

Marcus (2013) concludes that this vicarious effect of unemployment is almost as important as the primary one, suggesting that underestimating the vicarious effect of unemployment would entail underestimating also the health costs of unemployment. This research was carried out with a sample of people residing in Germany who had lost their jobs due to firm closure. Again, the existence of an exogenous cause of unemployment (the closure of a factory) facilitated the analysis of a causal relationship between the unemployment of a person and the PWB of their partner.

To explain the vicarious effect of stressful working conditions transmitted from one spouse (who suffers them in the first person) to the other, Westman and Vinokur (1998) proposed a transmission or crossover model with three possible sources. According to this model, influence may be due: (I) to the existence of stressors common to both spouses, which would imply that the influence of work tensions on the stress of the spouse is spurious; (II) to the direct transmission of tension from one spouse to another through mechanisms of empathy; or (III) to conflicts resulting from work tension in one of the spouses leading to the deterioration of the relationship. Later, Westman et al. (2004) applied this same model to the processes of tension generated by a reduction in personnel among the Russian military. These transmission mechanisms would not be self-exclusive, and several may work simultaneously (Howe et al., 2004; Z. Song et al., 2011; Westman, Etzion, et al., 2004).

Some authors state that this transmission could depend on the employment situation of the recipient. According to Clark (2003) if the partner of the unemployed person is also unemployed, the vicarious effect will be less detrimental in terms of psychological distress when compared with having employed partners. The author explains this counter-intuitive result using the concept of social norm. Hence, the unemployment of the member receiving the effect will moderate the social norm deviation of the sender's joblessness and, therefore, the vicarious effect of the lack of employment. The evidence in this regard is ambiguous, since Marcus (2013) not only fails to confirm this result but finds evidence to the contrary. But Luhmann et al. (2014) conclude, first, that people who become unemployed show lower reductions in well-being if their partner is also unemployed. And, secondly, they affirm that the vicarious effect of unemployment negatively affects well-being only if the member receiving the effect had a job. In essence, both the work of Clark (2003) and Luhmann et al. (2014) show that unemployment will be less harmful as it has become a social norm within the couple.

According to Westman et al. (2004), from a theoretical point of view, gender also plays a moderating role on the vicarious effect of unemployment: the effect of male unemployment on the PWB of their female partners is greater than the effect of female unemployment on that of their male partners. This gender difference has been demonstrated in countries such as Germany (Knabe et al., 2016) or Australia (Bubonya et al., 2017). However, Westman, Etzion, et al. (2004) in an investigation carried out from Israeli population, found a vicarious effect of unemployment but could not conclude the presence of gender differences in either the direction or the intensity of this vicarious effect.

This phenomenon could be explained through Becker's theory of specialization (Becker, 1991), according to which the unit of decision is not the individual, but the family itself. Households can use their time by selling it on the labour market, using it in domestic production, or consuming goods and services. According to Becker, each adult member of the household will focus on those activities that maximize family well-being depending on the benefit they provide. Thus, the different wages and working conditions that affect men and women within the same family will influence their specialization. For this reason, if women's wages are lower and their working conditions worse, the opportunity costs that women will have to bear due to unemployment will be lower than those for men. Thus, the way in which families will tend to maximize their well-being may be

conditioned by gender stereotyped division of production, and therefore the vicarious effect of women's unemployment will be lower than that of men. At the same time, this feminization of domestic and care tasks is related to a worsening of women's job expectations (Mussida & Patimo, 2021), which places women in a vicious circle that makes it increasingly difficult for them to participate in the job market.

This process of male specialization in the labour market could be explaining the higher salaries of married men compared to single men. However, new articles have questioned the theory of specialization. For example, some works (Bonilla et al., 2022; Ludwig & Brüderl, 2018) propose that the salary difference has its origin in the selection for marriage of people with higher salaries and more promising careers. In any case, be it from the specialization theory or from the marriage wage premium theory, the evidence points to a lower link between married women and the labour market (Bonilla et al., 2022).

This vicarious effect may appear as a complement to the better-known direct effect of unemployment, the one suffered by the jobless person. Again, gender differences may exist, as a result of differences in the opportunity cost of unemployment. In societies where female work is characterized by relatively poor conditions (lower wages, temporary employment or part-time work) work attachment and links to the labour market may be reduced for women. If women become unemployed, their loss will be less than that of unemployed men and, consequently, the direct effect of unemployment will be lower for women (Gili et al., 2016; Strandh et al., 2013). On the other hand, in societies with a similar level of labour market attachment for men and women, there would be no differences in the way in which unemployment affects PWB of males and females. In short, the lower opportunity cost of women's unemployment and the consequent greater specialization in household production could explain both a lower direct and a lower vicarious effect of women's unemployment when compared with the effects of men's.

In addition, following the theories of Becker (1991), gender differences in the family regarding unemployment experiences may also depend on the presence of minors. Different social roles in raising children and different levels of investment that men and women make in raising children may cause such differences. This theory has been corroborated in different studies, some of which emphasize the reduction in the protective role in preventing mental distress played by being employed of mothers, while others

point out a lesser negative impact of joblessness. In terms of the first, Helbig et al. (2006) find that full-time employment is associated with lower rates of psychological distress among fathers but not among mothers when compared with part-time work or unemployment. Plaisier et al. (2008) reach similar conclusions: having a job protects men regardless of whether they have children or not. However, in the case of women it only protects those who are not mothers. Finally, Leupp (2017) concludes that being a mother reduces the protective factor of both full and part-time employment, although the health effects of paid work tend to increase as children grow up.

Regarding the lesser negative impact of joblessness, Russo et al. (2021) find a decreased psychological impact of unemployment on Italian women and relate it to a greater investment on the part of women in their role as caregivers. This is related to the existence of traditional gender stereotypes still common in Italy which associate the role of women with family care work and the role of men with being family breadwinners. Finally, Artazcoz et al. (2004) looked at the Autonomous Community of Catalonia in Spain. They found that, among women, unemployment was associated with poor PWB but only among childless women, and especially among those who work in high level occupations.

The objective of this research is to contrast these theories for the whole of Spain. The Spanish labour market has usually been characterised by significant gender differences. According to the most recent data from the Spanish Labour Force Survey (April to June 2022), the unemployment rate of women reached 14.15%, while that of men was 10.99%[15]. Temporary employment among salaried workers is also higher for women than for men (24.8% vs. 19.9%). The Statistical Office also offers data on the gender wage gap, showing that women's median salary represented 73.0% of men's in 2019. In addition, this gap may be greater, precisely, in the face of the appearance of health problems (Rodriguez-Alvarez & Rodriguez-Gutierrez, 2018). Women also show a much higher rate of part-time employment than men (21.8% vs. 6.8% in 2022).

These data reveal different opportunity costs of unemployment for men and women. Thus, the impact of employment situations on the PWB of individuals and family members can be interpreted differently according to gender. Moreover, the task of looking after dependent family members in Spain is largely borne by women (Farré & González,

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[15]The gender unemployment gap disappeared during most of the Great Recession (2009-2013) but not because of female employment growth. Rather it was due to the rise in male unemployment.

2019). All of this therefore makes the inclusion of family variables in this research relevant and timely.

3. Methods

We analyse the effect of unemployment on PWB taking into account individual and family characteristics. However, as already explained, unemployment (U) may have causal effects on psychological well-being (PWB) and these variables may be spuriously related due to unobserved factors. To tackle this issue, we consider how to estimate the effect of endogenous binary variables applying a binary response model (Heckman, 1978; Maddala, 1983). Unlike models in which the endogenous variable is continuous, a problem arises due to two-stage methods not generally being consistent with dummy endogenous variables. For this reason, here we present the case using two binary variables (well-being and unemployment). This situation is illustrated in the following parametric model (Greene, 2003):

$$PWB = 1[X' \beta + \delta_1 U - \varepsilon_1 \geq 0] \qquad (1)$$

$$U = 1[X'\alpha + Z'\gamma - \varepsilon_2 \geq 0] \qquad (2)$$

$$(\varepsilon_1, \varepsilon_2 | X) \sim N(0,0,1,1, \rho)$$

Where 1 is the indicator function taking the value one if the statement in brackets is true and zero otherwise; X is a vector of exogenous regressors that determine both PBW and U; Z is an exogenous variable to be used as an instrumental variable (IV) (Han & Lee, 2019); β, δ, α and γ are a vector of parameters to be estimated; N (0,0,1,1, ρ) indicates the standard bivariate normal distribution with correlation coefficients ρ. Note that when ρ is zero, ε_1 and ε_2 are uncorrelated and hence there is not a problem of endogeneity. Therefore, the model for PWB is the standard probit model. However, if ρ ($\varepsilon_1, \varepsilon_2$) $\neq 0$, the use of a methodology that does not take into account this endogeneity could bias the results obtained. In this case, the bivariate probit model (Equations 1 and 2) generates consistent and asymptotically efficient parameter estimates and can be estimated by maximum likelihood (see Greene (2003) for details). Finally, in order to measure the impact of unemployment on PWB, once endogeneity is controlled for, the calculation of the marginal effect of unemployment can be estimated without bias.

4. Data

This research uses data from the Spanish National Health Survey (NHS; Ministry of Health, Social Services and Equality). The data corresponds to three waves (2006, 2011 and 2017) and to both the individual and household databases. The possibility of having data from three different periods allows us to analyse the evolution of the psychological well-being of unemployed people depending on the economic cycle. In this sense, Blázquez-Fernández et al. (2017) conclude that the increase in unemployment rates is related to an increase in the number of suicides, especially during the years of the Great Recession. Along the same line, Arrondo et al. (2021) conclude that being unemployed is less determinant of psychological well-being during the recovery phase of the crisis (2018), as compared to the downturn one (2013) due to an increase of the unemployed person's expectations of finding another job during the recovery phase.

This survey is made up of people residing in family households within Spanish territory. The large samples used, the diversity of health variables analysed, and the inclusion of variables related to social characteristics make it an excellent reference survey for examining the relationship between socioeconomic and health determinants. Another advantage of this survey is the incorporation of a General Health Questionnaire (GHQ-12; 12-item version). This is the most frequently used instrument in Europe (Cygan-Rehm et al., 2017; Paul & Batinic, 2010; Robone et al., 2011) for measuring the psychological state of unemployed people.

All these characteristics make the NHS an ideal database for carrying out this research. Initially, the total sample was 38,380 (31,479 being workers and 6,301 unemployed). However, 209 people have had to be eliminated from the total sample due to missing values in the scores for the GHQ-12, education level, labour situation of the partner and marital status. Additionally, in order to evaluate the influence of the gender regime, homosexual couples have also been eliminated. Thus, the total sample comprised 38,073 people (31,218 workers and 6,855 unemployed people).

The research required merging the three individual databases available from the NHS, which contain both health and work information. Also, in order to carry out the analysis of vicarious effects of unemployment and other family factors, the household databases from the three waves were also merged. A final mergence using the available

identification number of households permits the obtaining of a complete database with individual and family information.

Regarding PWB and the use of the GHQ-12, the NHS answers are initially scored from zero to three. For each response, a higher score corresponds to a higher risk of suffering from distress. To operationalise the proposed dependent variable and following the correction instructions of the questionnaire manual (Lobo & Muñoz, 1996), we have dichotomized the GHQ-12 scores,[16] assigning 0 to those responses that indicate an absence of distress risk (values from 0 to 1), and 1 to those responses associated with an increased risk (values to 2 to 3). Subsequently, the final variable is calculated by adding up each of these dichotomized scores. Since the survey consists of 12 questions, the total result for each person ranges between a maximum score of 12 and a minimum score of 0.

In order to differentiate those people in risk of suffering psychological distress from the rest, it was necessary to use a threshold. According to the aforementioned GHQ-12 administration manual for the Spanish population, this threshold is between two and three. Following previous research also performed with the Spanish population (Artazcoz et al., 2004; Urbanos-Garrido & Lopez-Valcarcel, 2015), this research uses a score equal to or greater than three as a cut-off point. Graph 3.1 presents the NHS risk-scores, accompanied by the average unemployment rate corresponding to the three years used of the NHS. The evolution of unemployment and psychological well-being indicators over the period considered gives a first impression of the potential relationship between these variables.

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[16]The complete General Health Questionnaire-12 is included in the Annex 1.

GRAPH 3.1. Unemployment rate and PWB in Spain (2006, 2011 and 2017)

In our model, unemployment is introduced as the independent variable and distress risk as the dependent variable. Gender, age, level of education attained, GDP per capita, nationality, marital status, partner's employment situation, presence of minors in the household and the size of the municipality are used as explanatory variables. Table 3.1 shows the descriptive statistics.

TABLE 3.1. The composition of employed and unemployed people

	People with work	Unemployed	Total
Sample size (N)	31,218	6,855	38,073
Percentage of positive GHQ-12 scores (%)			
	15.0	28.8	17.5
Distribution by gender (%)			
Male	48.2	54.4	49.3
Female	51.8	45.6	50.7
Distribution by age (%)			
Less or equal to 25	5.6	11.3	6.6
25-65	93.7	88.7	92.8
More than 65	0.7	0.0	0.6
Distribution by education level (%)			
Less than secondary school	16.7	23.6	17.9
Medium level	56.9	63.9	58.1
University	26.4	12.5	23.9
GDP per capita (average)			
	23,502.2	23,483.2	23,498.8
Regional unemployment rate (average)			
	14.6	18.3	15.3
Nationality (%)			
Spanish nationality	91.1	89.0	90.8
Other nationality	8.9	11.0	9.3
Partner' employment situation (%)			
The person does not live with a partner	35.8	48.3	38.0
Employed	45.6	31.5	43.0
Unemployed	5.8	11.7	6.8
Out of labour market	12.8	8.4	12.0
Minors in household			
Yes	38.3	37.8	38.2
Minors in the household (continuous variable; average)			
	0.6	0.6	0.6
Marital status (%)			
Single	30.3	39.6	31.9
Married	59.6	47.5	57.4
Widowed	1.9	1.8	1.9
Divorced/separated	8.3	11.1	8.8
Municipality size (%)			
Over 500,000 inhab. or prov. capital	33.9	31.4	33.42
500,000 (except prov. cap.)-20,001 inhab.	31.5	34.5	32.06
20,000 inhabitants or less	34.6	34.1	34.52

Source: own elaboration based on the 2006, 2011 and 2017 Spanish National Health Survey.

Finally, variable Z in Equation (2) indicates the instrument used to tackle any potential endogeneity, this being the annual unemployment rate in the provinces where persons live. As pointed out by Alonso-Borrego & Carrasco (2017) or Álvarez Llorente (2002), this variable exploits information about local labour market conditions, which is useful for predicting the employment status of individuals. A priori, it is assumed that this provincial unemployment rate is uncorrelated with the error term. We requested data on the provinces in which each person resides from the Spanish Ministry of Health, the provincial unemployment rate being calculated for each of the three periods covered by the information collected for each of the three editions of the NHS.

5. Results

Table 3.2 presents the results of the bivariate probit analysis (Equations 1-2)[17] using four different models: Model 1 for the complete sample, Model 2 for men and Models 3A and 3B for women.

For each model, the first column collects the results of Equation (1) and the second those of Equation (2). Note that in the estimation of Equation (2) the same variables have been included as in Equation (1) except for the unemployment variable, which is being used as a dependent variable, and the provincial unemployment rate, which is the variable that serves as an instrumental variable.

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[17] The equations of the bivariate probit model and the marginal effects have been estimated following the syntax proposed by (Nichols, 2011).

TABLE 3.2. Bivariate Probit Model

Variables	MOD. 1 Eq. 1		MOD. 1 Eq. 2		MOD. 2 Eq. 1		MOD. 2 Eq. 2		MOD. 3A Eq. 1		MOD. 3A Eq. 2		MOD. 3B Eq. 1		MOD. 3B Eq. 2	
Unemployment	.1886 (.0945)	**			.2828 (.1256)	**			.0147 (.1474)				.1727 (.0833)	**		
Gender (ref: Women)																
Men	-.2967 (.0164)	***	-.2279 (.0161)	***												
Age (ref: 36 years and older)																
16-35	-.0646 (.0191)	***	.1003 (.0188)	***	-.0879 (.0292)	***	-.0124 (.0280)		-.0354 (.0262)		.1812 (.0256)	***	-.0439 (.0252)	**	.1389 (.0357)	***
Education level (ref: University)																
Less than secondary school	.2252 (.0295)	***	.7273 (.0268)	***	.1155 (.0433)	***	.7095 (.0412)	***	.3204 (.0412)	***	.7118 (.0361)	***	.2906 (.0342)	***	.6022 (.0467)	***
Medium level	.1507 (.0224)	***	.4375 (.0219)	***	.0870 (.0339)	***	.4214 (.0352)	***	.1998 (.0308)	***	.4439 (.0280)	***	.1780 (.0261)	***	.3897 (.0362)	***
GDP per capita	-.0000 (.0000)	***	.0000 (.0000)	***	-.0000 (.0000)	***	.0000 (.0000)	***	-.0000 (.0000)	***	.0000 (.0000)	***	-.0000 (.0000)	***	.0000 (.0000)	***
Provincial unemployment rate			.0332 (.0009)	***			.0387 (.0014)	***			.0289 (.0013)	***			.0258 (.0018)	***
Nationality (ref: Spanish)	-.0956 (.0258)	***	-.0947 (.0268)	***	-.0319 (.0400)		-.2841 (.0378)	***	-.1336 (.0353)	***	.0637 (.0382)	*	-.1412 (.0351)	***	.0679 (.0525)	
Partner' employment situation (ref: unemployed)																
The person does not live with their partner	-.1920 (.0381)	***	-.1898 (.0359)	***	-.1320 (.0546)	**	-.1135 (.0512)	**	-.2748 (.0565)	***	-.3374 (.0517)	***	-.2506 (.0533)	***	-.4393 (.0718)	***
Employed	-.2358 (.0346)	***	-.4383 (.0296)	***	-.1897 (.0473)	***	-.4529 (.0419)	***	-.3084 (.0537)	***	-.5085 (.0434)	***	-.2720 (.0451)	***	-.6264 (.0632)	***
Inactive	-.2383 (.0404)	***	-.4916 (.0364)	***	-.2129 (.0523)	***	-.4840 (.0471)	***	-.2331 (.0653)	***	-.4154 (.0607)	***	-.2038 (.0607)	***	-.4753 (.0755)	***
Minors	.0202 (.0174)		.0344 (.0178)	**	-.0330 (.0275)		-.0675 (.0289)	**	.0749 (.0239)	***	.1448 (.0237)	***	.1162 (.0446)	***	-5.7509 (.0659)	***
Marital status (ref: single)																
Married	-.0797 (.0285)	***	-.1483 (.0277)	***	-.0487 (.0436)		-.2733 (.0401)	***	-.0994 (.0382)	***	-.0562 (.0384)		-.0955 (.0383)	**	-.0348 (.0518)	
Widowed	.2496 (.0539)	***	-.3359 (.0603)	***	.1852 (.1129)		-.2527 (.1188)	**	.2678 (.0627)	***	-.2471 (.0701)	***	.2827 (.0618)	***	-.2888 (.0796)	***
Divorced/separated	.2092 (.0292)	***	-.0725 (.0297)	**	.1694 (.0483)	***	-.1340 (.0473)	***	.2295 (.0372)	***	.0086 (.0386)		.2309 (.0372)	***	.0605 (.0487)	
Size of the municipality (ref: over 500,000 inhab. or province capital)																
500,000 (except prov. cap.)-20,001 inhab.	.0024 (.0189)		.0208 (.0195)		.0607 (.0286)	**	-.0272 (.0289)		-.0370 (.0255)		.0537 (.0266)	**	-.0412 (.0253)		.0574 (.0347)	*
20,000 inhabitants or less	-.0869 (.0191)	***	-.0038 (.0195)		-.0495 (.0288)	*	-.0595 (.0286)	**	-.1115 (.0258)	***	.0262 (.0269)		-.1125 (.0258)	***	.0407 (.0348)	
Unemployed*Nº minors													.0189 (.0497)		14.1099 (.0743)	***
Nº minors													-.0358 (.0293)		-.4234 (.0318)	***
Cons.	1.2470 (.2347)	***	-2.3329 (.2331)	***	.9486 (.3534)	***	-1.6157 (.3375)	***	1.1619 (.3174)	***	-3.2488 (.3258)	***	1.1794 (.3169)	***	-3.1348 (.4196)	***
	Wald test of rho=0: chi2(1) = 6.08438 Prob > chi2 = 0.0136**				Wald test of rho=0: chi2(1) = 5.62897 Prob > chi2 = 0.0177**				Wald test of rho=0: chi2(1) = 3.55648 Prob > chi2 = 0.0593*				Wald test of rho=0: chi2(1) = 4.53934 Prob > chi2 = 0.0331**			

*** Statistical significance: 1%; ** Statistical significance: 5%; *Statistical significance: 10%. Standard errors in parentheses

Regarding the results of the bivariate estimation, the correlation coefficient ρ has a positive sign and is significant in the four models. This would indicate the presence of unobservable variables that are increasing the probability of suffering a psychological problem and that, at the same time, said unobservable variables are also increasing the probability that the person is unemployed. In essence, the significant result of the ρ value seems to be related to the endogeneity of the unemployment variable in the first equation and so therefore the choice of a simultaneous equations methodology appears to be justified.

As for direct effects on unemployment (Mod. 1; complete sample), absence of employment is related with lower PWB suffered by the jobless person. Similarly, unemployment vicariously affects PWB: people who live with an unemployed partner show decreased psychological health when compared with people who do not live with a partner, those who live with employed people and those who live with inactive people. Regarding personal features, older people, those with a low level of education and people with a nationality other than Spanish are more likely to obtain a score compatible with a higher psychological risk. Finally, a single person has better PWB when compared with widowed or separated/divorced people, but not when compared with married people.

The significance and the negative sign of the variable that includes the GDP of the years of each of the survey waves indicate that the greater the wealth of the country, the lower the psychological risk that the person manifests. Finally, as a result of the negative sign in the third category in relation to municipality size, living in more rural areas seems to decrease the risk of psychological distress. In general, these results are in line with the conclusions of previous research (Chevalier & Feinstein, 2006; De la Cruz-Sánchez et al., 2013; Peen et al., 2010; Rocha et al., 2010).

Regarding gender, women are more likely than men to suffer psychological problems. This result is consistent with other research carried out in Spain (Rocha et al., 2010) which demonstrates that being a woman, regardless of employment status, is related with higher probability of obtaining a score corresponding to psychological risk.

In order to delve into the differential effect of unemployment by gender, Models 2 and 3A present the result for men and for women respectively. For men (Mod. 2) the coefficient of the unemployment variable is positive and significant. However, the

estimation for women (Mod. 3A) shows a non-significant coefficient. Thus, unemployment situation is related to worse PWB in the case of men but not in that of women. Therefore, this result is in line with research claiming than unemployment situation shows a differential effect between men and women (Gili et al., 2016; Llena-Nozal et al., 2004). Regarding the unemployment vicarious effect, all models show that people whose partner is unemployed have a greater risk of suffering a psychological problem. Thus, the vicarious effect appears to hold for both men and women. Finally, having children is detrimental for the psychological well-being of women, but not for that of men.[18]

With the objective of clarifying the difference between men and women regarding the unemployment coefficient, an additional model for women is proposed. Given that having children in the family significantly affects women (with a positive sign) but not men, and given that the gender pay gap in Spain seems to widen after motherhood (De Quinto et al., 2021; Molina & Montuenga, 2009), we have created an interaction variable that brings together employment situation with the presence or not of minors in the household. This interaction has been used in a new estimation only for the female subsample. The hypothesis of this estimation is that the worsening of working conditions after maternity will be related to a decrease in the protection (risk) factor of employment (unemployment). This hypothesis is based on evidence demonstrating that the gender gap exacerbates after the onset of motherhood and that the protection factor associated with employment is conditioned by the existence or not of certain congenial working conditions (Barnay, 2016; Bildt & Michélsen, 2002).

Before commenting on the results, we present Graph 3.2, which contains the representation of the mean GHQ-12 scores of employed and unemployed men and women depending on the presence of children. Indeed, the average score is higher among the unemployed. Additionally, having children seems to be mediating the relationship between employment status and PWB. Among both unemployed men and women those with children score lower than those without. A possible explanation could be that the presence of children in the home helps unemployed people to establish a time structure (McKee-Ryan et al., 2005). In fact, the lack of a daily time structure is one of the latent

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[18]Age, education level, GDP per capita, Spanish nationality, marital status and the size of the municipally show similar behaviour as in Mod. 1.

functions of employment and its absence is related to the psychological discomfort of unemployment (Jahoda, 1981). Among employed people it is quite the reverse, those with children show a higher score, although the magnitude of the difference is smaller.

GRAPH 3.2. Mean Distress Risk scores of employed and unemployed depending on gender and the presence of children
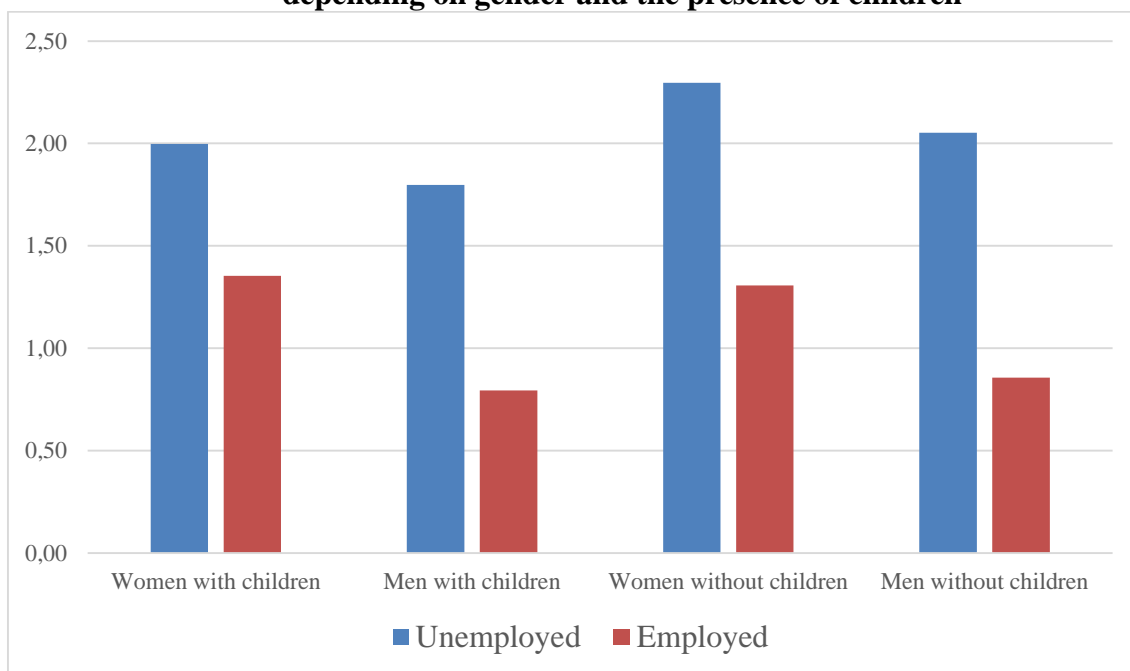
Model results about whether women with children and women without show different effects of unemployment on PWB appear in Table 3.2 (Mod. 3B). The model hypothesizes that if motherhood penalizes women in employment terms and causes gender gaps to increase, the positive aspects of employment will be reduced with worsening working conditions and the negative aspects of unemployment will also be reduced by the presence of children in the home. This would also be supported by the fact that in a somewhat traditional country like Spain, childcare responsibilities still fall mainly on women.[19] That is to say, this reduction in the opportunity cost could be moderating the influence of unemployment on PWB. Estimated coefficients now show that, taking into account the new interaction variable, the unemployment situation itself becomes harmful for women. This is shown by the coefficient in the first row, which becomes significant, as opposed to that of the previous Model (3A). Therefore, when we consider the unemployment variable only as a component term, the existence of the two

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[19]For Spain, the most recent data available regarding the distribution of domestic and care tasks by gender dates back to 2016 (Eurofound's European Quality of Life Survey, 2016). The average number of hours a week that men dedicate to the care and education of their children in Spain is 23 and the average dedicated by women 38. Similarly, the number of hours that women dedicate to housework (20) is also higher than the number of hours that men dedicate (11).

types of unemployed women does not reveal the significance of unemployment. It is by entering the interaction variable, when the two types of women are distinguished, and the effect of having children is subtracted from the net effect of unemployment, that this becomes significant and with a positive sign.[20] Other researchers have reached similar conclusions with data from Germany (Helbig et al., 2006), the Netherlands (Plaisier et al., 2008) and Catalonia (Spain) (Artazcoz et al., 2004).

Table 3.3 includes the marginal effects, which indicate the variation in the probability of obtaining a score compatible with psychological distress risk. The marginal effects are reported for the unemployment variable as well as for the variable that measures the employment situation of the partner. Regarding the primary effects of unemployment (first row), the results for the unemployment variable show that, ceteris paribus, the probability of obtaining a risk score for unemployed people (Mod. 1), in comparison with employed people, is 5% higher. For men (Mod. 2) this reaches 6%. Both results appear to be significant at a confidence level of 95%. For women (Mod. 3A), the marginal effect is not significant.

TABLE 3.3. Marginal effects (bivariate models)

	MOD. 1		MOD. 2		MOD. 3A		MOD.3B	
Unemployment	.0469 (.0233)	**	.0603 (.0264)	**	.0041 (.0419)			
Partner' employment situation (ref: unemployed)								
The person does not live with their partner	-.0524 (.0108)	***	-.0309 (.0131)	**	-.0863 (.0187)	***	-.0775 (.0170)	***
Employed	-.0632 (.0099)	***	-.0432 (.0114)	***	-.0957 (.0180)	***	-.0835 (.0148)	***
Inactive	-.0638 (.0111)	***	-.0479 (.0123)	***	-.0742 (.0210)	***	-.0640 (.0190)	***

*** Statistical significance: 1%; ** Statistical significance: 5%; *Statistical significance: 10%. Standard errors in parentheses.

Regarding the vicarious effect of unemployment (second to fourth row), the partner's unemployment also increases the risk of presenting poor PWB compared to other work situations and compared to not living with a partner. However, this risk is greater when

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[20]Additionally, estimations have been made with two samples of women, with and without children. In the sample of women with children, the model estimates a significant and negative coefficient of the unemployment variable (-.4179436; p = .017); among women with children, unemployment reduces the risk of suffering a psychological problem. Among women without children, unemployment is not significant (.3624945; P = .125). In this last case the model does not predict a lower PWB among unemployed women and should be interpreted with caution, since the Wald test is not significant. However, the former does allow us to observe how the opportunity cost of staying at home for women with children can fall to such levels that the fact of being unemployed is not related to a higher level of distress, but rather the contrary.

the unemployed partner is the man. When the partner is a woman and employed the risk is reduced by 4.3%, but when the partner is an employed man, the probability of obtaining a score corresponding to psychological distress is reduced by 9.5% (Mod. 3A) and 8.3% (Mod. 3B). In essence, the protective function of women's working situations in relation to their male partners is significantly smaller than the estimated influence that employed men may have in relation to their female partners.

The results obtained with the marginal effects of the vicarious effect contrast with results from previous research. For example, Luhmann et al. (2014), using data for Germany, do not find significant differences between the vicarious effect of male and female joblessness. Similarly, Nikolova and Ayhan (2019), also with German data, discard the existence of a different unemployment vicarious effect for men and women. However, Marcus (2013) finds a higher vicarious effect of unemployment on PWB when it is the man who becomes unemployed compared to when it happens to a woman. Finally, Esche (2020) compares West Germany and East Germany, finding an asymmetric effect, but only among West German couples, who are more likely to follow the traditional male breadwinner model. These conclusions would be in line with the literature that evaluates the differences between the direct effect of male and female unemployment. Strandh et al. (2013) and Gili et al. (2016) have shown that the asymmetry in the direct effects of unemployment, that is, the greater impact on PWB of male compared to female performance, are facilitated by societies with traditional gender roles. According to Baranowska-Rataj and Strandh (2021), this explanation of the divergence in the direct effects of unemployment could be extended to vicarious effects.

6. Conclusions

The objective of this research is to analyse the effect that an individual's employment situation has on PWB, taking into account their individual and family characteristics (such as their partner's employment status or child rearing responsibilities). To carry out this analysis, six official databases from Spain were used. The peculiar characteristics of the Spanish labour market make this study very relevant. In the first place, Spain stands out as one of the European Union member states with the highest unemployment rates. Second, Spain has a high gender wage gap, which means that the opportunity cost of unemployment is different for men and women. Thirdly, Spain is considered to be a country with labour market segmentation very marked by gender, and one in which

domestic and care work is highly feminized. These patterns lead us to expect that gender differences may play a significant role in the way in which each person interprets their work situation.

Probit models with simultaneous equations permit controlling for the potential endogeneity of unemployment and psychological performance. The results obtained indicate that, indeed, there are unobservable variables affecting both the probability that the person is unemployed and the probability of obtaining a score corresponding with higher psychological risk. Results can be summarized in three parts.

Firstly, the estimated models allow us to confirm the relationship between unemployment situation and worse PWB. Thus, the probability that a person obtains poor PWB risk score is about 5% higher among unemployed people than among those employed. This effect is conclusive both for the complete sample (4.7%) and for men (6%), but not for women.

Secondly, due to the lack of significance of the unemployment variable with the subsample of women, the analysis was repeated introducing an interaction variable that considered the situation of women with children. By introducing this new variable into the equation, unemployment itself becomes harmful for women. These results are compatible with the idea that women with children may experience an increase in the opportunity cost of working, and a reduction in the opportunity cost of joblessness. Thus, for these women, unemployment may not be so harmful for psychological well-being. Following Becker's theory, the labour market penalizes women who have decided to be mothers. This penalty decreases the opportunity cost of not working in such a way that job loss is not experienced as painful. This effect is not observed among women in general, but it is present in the subsample of women living with children.

Perhaps the penalization suffered by women when they become mothers is not limited only in terms of salary. According to Plaisier et al. (2008) this effect could also be related to the role that society attributes to men and women as workers. Thus, women may be less influenced than men by the non-economic benefits of employment, that is, the primitive latent functions of employment (Jahoda, 1981), such as self-esteem and self-realization. Thus, the role of mother could be overshadowing the role of worker. It is expected that this effect will be more significant the more the role of women is associated with the functions of caring for children or housework.

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Thirdly, the inclusion of the partner's employment situation permits us to provide conclusive evidence of the existence of a vicarious effect of unemployment. The vicarious effect is significantly higher when the partner whose employment situation changes is a man than when it is a woman. Perhaps due to the disadvantageous situation of women in the Spanish labour market when compared with men, the protective capacity of employed female partners is less significant than that of male partners.

This research concludes pointing out that the inclusion of family variables (employment status of the partner or child rearing responsibilities) is necessary in order to obtain unbiased results when studying the effects of employment situations on well-being. Given the high cost of mental health problems (OECD/European Union, 2018), attention to the relationship between employment situation and PWB, as well as attention to mental health in the workplace, are now considered priorities in government agendas. For this reason, the results of this research may be relevant.

Capítulo 4. Psychological Well-Being during the COVID-19 Lockdown: Labour Market and Gender Implications

Abstract

In the Spring of 2020, a great number of countries introduced different restrictive measures in order to cope with the COVID-19 pandemic. This chapter examines the labour market transitions of individuals brought about by some of those measures, and the effect of such transitions on psychological well-being. The fact that it has been possible to distinguish between unemployment transitions before the pandemic began and those resulting from the lockdowns is worth highlighting. Evidence is provided showing that unemployment due to the lockdown had a greater negative impact on psychological well-being than furloughs and teleworking. Gender differences confirm that women experienced greater adverse effects as compared to men. Specifically, women working at home exhibited greater negative effects when compared with those on furlough, probably due to a combination of work disruption and increased family obligations. Finally, on the contrary to men, women living in areas with more rigorous restrictions show a reduced probability of worse PWB when compared to those residing in areas without restrictions. This finding suggests that women are willing to sacrifice freedom of movement as long as restrictions protect their at-risk relatives.

1. Introduction

The COVID-19 pandemic created an unprecedented economic situation that had a devastating impact on the world economy, with rigorous restrictions heavily affecting freedom of movement (Shek, 2021). During the first half of 2020 economic lockdowns were widespread and led to workplace closures. Labour market disruption led to many people becoming unemployed, while others were furloughed or started teleworking. Other workers maintained business as usual under the supervision of health authorities. According to the International Labour Organisation, 93 per cent of the world's workers resided in countries with some sort of workplace closure measures in place during the first half of 2020 (International Labour Organization, 2021).

The impact of the COVID-19 crisis disproportionately affected female workers. Jobs held by women were at greater risk than those held by men due to the unique consequences of the lockdowns and freedom of movement restrictions on the service sector. For example, sectors with higher-than-average female employment, such as health and social services, were under extraordinary stress due to the pandemic. Also, it is likely that the additional burden of care work in the family affected women more than men.

In order to mitigate the effects of the pandemic, different countries implemented a range of measures in order to control its spread. While some European countries such as Spain or Italy ceased all non-essential activity, others, such as the USA reacted later and in a less centralized manner. Different degrees and timing of restrictions may have shaped the way in which measures have affected working situations and thus, the psychological well-being (PWB)[21] of the population. The aim of this study is to analyse the changes in the employment situations of individuals due to these restrictions (unemployment, teleworking or furloughs) and the effect of such changes on PWB.

Becoming unemployed may bring about loss of income, social relationships and other advantages of having a job such as objectives and purposes that transcend the individual, ascription to status and obligation to maintain a certain level of activity (Jahoda, 1982). The transition from employment to unemployment or from working in the workplace to

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[21] Using the score obtained in the General Health Questionnaire (GHQ-12) as the dependent variable, the concept of PWB is defined in this paper as the degree to which a person shows symptoms of non-psychotic morbidity (Goldberg, 1967), mainly anxiety and depression (Kiliç et al., 1997). The concept of PWB, used to refer to the score obtained in the GHQ-12, has already been used by other authors (Sánchez-López & Dresch, 2008)

telecommuting may therefore have affected the mental well-being of workers. Controlling for, amongst other variables, economic sector and the different requirements regarding workplace closures and household conditions, the events of 2020 created favourable conditions for amplifying the literature that relates PWB with the labour market consequences of the pandemic. That is the objective of this chapter.

Thus, we have designed an ad-hoc questionnaire in order to obtain information about working situations, well-being status and other socio-demographic characteristics. The survey allows us to distinguish between how people were employed prior to the onset of the COVID-19 pandemic and how their employment situation changed during confinement. Although most of the sample is made up of Spanish workers, given that the degree of restrictions on mobility depended on the measures imposed by governments, the survey was extended to the population of other countries during the same period in the hope that cross-country comparison would make it possible to capture how different levels of mobility restrictions could be affecting PWB. Finally, it is worth highlighting that the restrictions created exceptional circumstances in the labour market that, in turn, offer a unique opportunity to analyse the influence of employment situation on PWB. For example, many countries reacted to the COVID-19 crisis by making widespread use of furloughs.

This research contributes to the existing literature in two areas. First, sudden changes in work-related situations serve as external shocks that minimize the bidirectionality problems common to this type of studies. In general, the existing literature that relates employment situation with PWB must tackle the bidirectionality between these two variables. Specifically, when studying whether unemployment can affect PWB, the hypothetical effect that PWB has on the probability of becoming or remaining unemployed should be isolated in order to not bias the results. A lack of control of bidirectionality could lead to overestimating the effect of the unemployment situation on PWB, since part of this impact may be due to a greater probability of being unemployed for people with worse PWB. Thus, the main contribution of this chapter comes from being able to distinguish, among unemployed workers, between those who were already unemployed and those who became jobless as a direct result of the pandemic. Second, this research aims to expand the knowledge provided by the existing literature on the

evolution of PWB during the pandemic and how this evolution could be dependent on factors such as the person's employment situation or the degree of restrictions on mobility.

The structure of the chapter is as follows: in the next section, the literature discussing the relationship between PWB and employment situation during the pandemic is reviewed. Then, the empirical model and the data are presented in sections three and four. In the fifth section we analyse the results, and a final section is devoted to conclusions and discussion.

2. Literature Review

Although the lockdown due to the COVID-19 pandemic is very recent, there is some research that has attempted to analyse its detrimental effects on PWB. Since the beginning of the pandemic, this literature has focused on the origins of worse PWB, concluding that three main factors are causing it: permanent exposure to a fear of contagion of oneself or a family member (Cao et al., 2020; Li et al., 2020), restrictions imposed by different governments (Brooks et al., 2020) and overexposure to news related to the pandemic (González-Sanguino et al., 2020; H. Yao, 2020). Furthermore, this reduction in PWB does not seem to be uniform, but instead accentuated among certain circumstances. Thus, groups such as women, young people and immigrants seem more prone to this deterioration (García-Álvarez et al., 2020; Pieh et al., 2020; Proto & Quintana-Domeque, 2021). Additionally, this relationship may be affected by external factors such as access to information about the pandemic, friendship quality, trust in public institutions such as the government, judiciary or mass media; or the type of confinement (self-imposed vs. lockdown) (Bittmann, 2022; Lu et al., 2021; Ye et al., 2022).

One of the most interesting consequences of the COVID-19 pandemic is its effects on labour markets. Employment situation changes such as moving from the normal workplace into teleworking, entering a furlough scheme or becoming unemployed, could also be related to PWB. There is evidence available about the impact of these three most significant employment changes. Regarding the loss of employment, recent research carried out during the pandemic for the USA (R. Yao & Wu, 2021), Spain (Escudero-Castillo et al., 2021; González-Sanguino et al., 2020), Japan (Ikeda et al., 2022) and South Africa (Posel et al., 2021) highlights that job loss during the disruption caused by the pandemic has negatively affected psychological well-being and quality of life.

Additionally, these findings about the loss of employment are in line with research carried out before the pandemic (A. E. Clark et al., 2001; Cygan-Rehm et al., 2017; Paul & Moser, 2009).

Recent research into the way in which different work transitions are related to different degrees of PWB confirm that transitions from employment into joblessness are associated with worsening PWB, while transitions from unemployment into work are related to improvements in it (Arya et al., 2021). Several authors have considered gender to be one of the most interesting variables when it comes to analysing how work transitions affect PWB, finding that men seem to be more sensitive to the negative effects of unemployment (Strandh et al., 2013). This gender difference is especially accentuated in countries where the role of men is more associated with the labour market than that of women. Gender stereotypes cause women's roles to be relatively more connected to caring activities outside the labour market and, thus, unemployment may have a moderated effect on them. Likewise, this greater labour market attachment of men is the cause of PWB improvements related to transitions from unemployment into work also being superior among men when compared to women (Chung & Hahn, 2021; Huber et al., 2011).

The relationship between teleworking and PWB seems less clear. Moens et al. (2021) find contradictory effects in this matter: teleworking promotes greater efficiency and a lower risk of burnout while at the same time reducing probability of job promotion and weakening ties with colleagues and employers. Furthermore, people obliged to work from home during the lockdown could have changed their perceptions about work and started considering their jobs less meaningful, which in turn may negatively affect their engagement at work, a finding made among health workers by Wijngaards et al. (2022). Another occupation that has been strongly affected by teleworking during the pandemic was that of academics. In this sense, Ugwu et al. (2022) found that teleworking during the closure of universities in Nigeria was related to lower work-life-balance among university teaching staff with high levels of work engagement. In the literature, we can find other examples of ambivalence regarding the effects of teleworking on PWB: some studies find positive effects (Kossek et al., 2006; Tavares, 2017), while others find negative ones (Escudero-Castillo et al., 2021; Mann & Holdsworth, 2003; Y. Song & Gao, 2020). However, these contradictory effects of teleworking could be more related to different degrees of organizational support (in terms of regular communication or suitable

workloads), peer support or levels of conflict between work and family obligations rather than the teleworking situation itself (Oakman et al., 2020).

Research on transitions from employment into furloughs is scarce. However, the work by Posel et al. (2021) concludes that previously employed workers who became unemployed or furloughed during the pandemic were more prone to depression than those who retained their jobs. These authors differentiated between paid and unpaid furloughs, concluding that the possible protective effect of a furlough scheme, due to workers knowing of the existence of a job to which they will return when the situation improves, disappears in the absence of income.

All in all, additional evidence is necessary about the consequences of employment situation changes for PWB. The lockdowns due to COVID-19 may facilitate such analyses since they prompted unexpected unemployment situations, as well as sudden growth of teleworking around the world. There is already evidence about the effect of the pandemic on the PWB of individuals, for example, in regard to greater anxiety and stress (González-Sanguino et al., 2020). Generally speaking, the situation can be said to be leading to the appearance of relatively serious PWB problems, the scope of which has not yet been clearly defined.

In this context, the effect of teleworking, furloughs and the different effects of changes in work situations on the PWB of men and women are the topics to be addressed in this paper. The specific questions to be answered are the following: What is the relationship between an employment transition into joblessness and PWB? How much of an effect on PWB does movement from the usual workplace into teleworking have? Does PWB, *ceteris paribus*, vary as a result of differences in the degree of restrictions on freedom of movement? And finally, are there significant gender differences in these effects?

3. Data

For the purposes of this research, a database was created by means of designing a specific questionnaire and conducting an online survey of 1,165 workers. This survey was completed during the period April 11th to May 7th, 2020, at the peak of the first wave of the COVID-19 pandemic during which the strictest confinements were occurring in Spain, Europe and across large parts of the world. Although the majority of respondents

were working Spanish residents, the survey was supplemented with people living in other countries[22] which had different restrictive measures in order to evaluate how differing restrictions during the lockdown may influence PWB. Two conditions were established for respondents: being involved in the labour market and having had at least one job during the previous 12 months.

In order to tackle several standard issues typical of online information methods (Baltar & Brunet, 2012) such as self-selection bias or lack of representativeness, elevation coefficients were used. In this regard, in addition to the criteria of gender, three age groups and three educational levels and quota sampling were applied to the group of respondents. The combination of the criterion variables resulted in 18 subsamples or quotas.[23]

In Table 4.1 the variables used in the model are presented. In order to capture workers' psychological well-being, we have used Goldberg's General Health Questionnaire (Goldberg, 1967) (12-items version). This questionnaire is a self-administered originally aimed at detecting non-psychotic psychiatric illnesses among general practice patients (Goldberg & Blackwell, 1970). Its original version consisted of 60 items, with later shorter versions consisting of 28 (Goldberg & Hillier, 1979) and 12 items (Goldberg et al., 1997) being developed. The version administered in this investigation was the 12-item reduced version, which is one of the most widely used screening instruments (Chung & Hahn, 2021; K. A. Clark, 2021; Sánchez-López & Dresch, 2008) and included in surveys such as the Spanish National Health Survey or the British Household Survey Panel. Furthermore, studies carried out for the analysis of the internal consistency of this test offer Cronbach's alpha coefficients of 0.76 (Sánchez-López & Dresch, 2008) or 0.87 (Montazeri et al., 2003), representing satisfactory results and, therefore, making it a suitable instrument for evaluation of PWB and detection of non-psychotic psychiatric disorders. The treatment of the components of the GHQ-12 was based upon an initial calculation for each respondent of the mean of the results of the 12 items. Then, this mean was recalculated as an ordinal variable with three values: low, medium and high risk.

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[22]The complete list of countries is Andorra, Argentina, Australia, Belgium, Belize, Cambodia, Canada, Chile, Colombia, Denmark, Ecuador, France, Germany, Hungary, Italy, Japan, Jordan, Mexico, Morocco, New Zealand, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, Turkey, United Kingdom and the United States of America.
[23]The weighting coefficients have been obtained from the sample of the last Spanish National Health Survey, carried out in 2017.

TABLE 4.1. Variables included in the analysis

Variable	Variable description
Risk of suffering PWB problems	Categorical variable comprising low, medium and high levels of risk.
Working situation	Categorical variable covering whether the person was unemployed before the lockdown; working before the lockdown but becoming unemployed during it; on furlough due to the pandemic; on leave; teleworking; or working in the usual pre-pandemic workplace.
Economic sector	Categorical variable comprising the primary, secondary and tertiary sectors.
Occupational group	Categorical variable comprising directors and managers; scientific and intellectual professionals; support professionals; accounting and administrative employees; catering, security, vendors and other lower-skilled workers.
Years of work experience	Continuous variable.
Income	Categorical variable comprised of people with an income of 800€ to 1200€; between 1201€ and 2000€; and above 2000€.
Restrictions during confinement	Categorical variable including if people could go outside without any restrictions; if they could go outside but only for a limited time; or if they could go outside only for specific matters such as buying food or work-related reasons.
Confinement in Spain	Dichotomous variable showing whether the respondent is confined in Spain or elsewhere.
Gender	Dichotomous variable.
Age	Continuous variable.
Education level	Categorical variable including low, medium and university levels.
Disability	Dichotomous variable illustrating if the person has a disability.
Marital status	Categorical variable showing if the person is married, separated, divorced, single or widowed.
Household members at risk of COVID-19	Dichotomous variable covering whether the person lives with someone at risk of infection by COVID-19.
Spain as country of birth	Dichotomous variable covering whether the person was born in Spain.
Number of people confined in the household	Categorical variable showing the number of people in the household, from one to "five or more" individuals.
Minors in the household	Dichotomous variable covering whether minors live in the household.
Dwelling with a patio	Dichotomous variable that covers whether people can use a patio or garden.
M^2 per capita in the dwelling	Continuous variable aimed at considering the amount of living space.

Note: number of observations= 1165 (Men=481; Women=684)

Given the multidimensionality of the GHQ-12, the test can be separated into different factors. Some authors (Werneke et al., 2000) conclude there are two factors: anxiety and depression on the one hand, and social dysfunction on the other. Others, however, conclude that a third factor should be added to this structure: loss of confidence (Graetz, 1991). In this regard, Romppel et al. (2013) conclude that unidimensional interpretation offers a useful screening measure for mental distress. Thus, although using different dimensions could be useful for measuring specific factors of psychological distress, it "does not offer many practical advantages in differentiating clinical groups or identifying

association with clinical or health-related quality of life variables" (Gao et al., 2004). Because of this and given that the main aim of this chapter is to observe how the pandemic may be affecting psychological well-being, we have not deemed it necessary to look at the impact on the separate dimensions.

Regarding the independent variable around which the research is centered (working situation), respondents were given six mutually exclusive options: employed, unemployed before the lockdown, becoming unemployed during the lockdown, furloughed due to lockdown, on leave for other reasons, and teleworking.

4. Method

The ordered probit model is constructed around a latent regression as follows:

$$Y^* = X'\beta + \varepsilon \tag{1}$$

where Y^* is an unobserved dependent variable, X is a vector of explanatory variables, β is a set of parameters in the model and ε is a random term normally distributed.[24] What is generally observed instead of Y^* is the categorical variable Y, which can be represented as:

$$Y = 0 \quad if\ Y^* \leq \mu_1,$$

$$Y = 1 \quad if\ \mu_1 \leq Y^* \leq \mu_2,$$

$$Y = 2 \quad if\ \mu_2 \leq Y^* \leq \mu_3, \tag{2}$$

$$\vdots$$

$$Y = M \quad if\ \mu_M \leq Y^*,$$

where the cutpoints, μs, are unknown parameters to be estimated along with β in the model, and M are the possible outcomes for Y. After normalising the mean and variance of ε to zero and one, the probabilities associated with the alternative values that the observed variable Y can have can thus be represented as:

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[24]It is possible to assume other distributions for ε such as, for example, the logistic one.

$$Prob(Y = 0|X) = \Phi(\mu_1 - X'\beta),$$

$$Prob(Y = 1|X) = \Phi(\mu_2 - X'\beta) - \Phi(\mu_1 - X'\beta),$$

$$Prob(Y = 2|X) = \Phi(\mu_3 - X'\beta) - \Phi(\mu_2 - X'\beta), \qquad (3)$$

$$\vdots$$

$$Prob(Y = M|X) = 1 - \Phi(\mu_M - X'\beta),$$

where Φ represents the cumulative distribution function of a standard normal distribution. For all the probabilities to be positive, the μs should fulfil:

$$0 < \mu_1 < \mu_2 < \cdots < \mu_M. \qquad (4)$$

The non-linear model described before can be estimated through a maximum likelihood approach. In this study we follow this model using three cutpoints, which result in three risks of suffering mental disorder that in this text we have identified as low, medium and high risk.

5. Results

The chapter presents three types of analyses. The first analysis makes use of descriptive statistics. The distribution of the risk of suffering a PWB problem across all the independent and control variables is exhibited in Table 4.2. Differences in the proportion of people at high risk can be seen to be highly correlated with working situation. The proportion is notable among the group who became unemployed during the lockdown (28.0%), while it is small among those teleworking or working in the usual workplace. The group made up of those who were previously unemployed, and workers furloughed or on leave, show intermediate proportions of people at high risk. Regarding differences by gender, a larger proportion of women show high risk of PWB problems (10.67%), when compared with men (7.90%).

TABLE 4.2. Distribution of the risk of suffering a PWB problem

	High risk	Medium risk	Low risk
Working situation (%)			
Unemployed (out of work before the lockdown)	16.67	53.85	29.49
Becoming unemployed (out of work during the lockdown)	28.00	54.00	18.00
Furloughed due to the lockdown	15.17	59.55	25.28
On leave for other reasons	14.29	50.00	35.71
Teleworking	7.02	59.70	33.27
Working in the usual workplace	4.71	60.87	34.42
Economic sector (%)			
Primary	3.45	55.17	41.38
Secondary	8.48	55.15	36.36
Tertiary	9.89	59.73	30.38
Occupational group (%)			
Directors and managers	13.16	60.53	26.32
Scientific and intellectual professionals	7.41	58.10	34.48
Support professionals	10.91	55.76	33.33
Accounting and administrative employees	10.34	64.66	25.00
Catering and vendors	15.29	59.87	24.84
Other lower-skilled workers	8.65	60.58	30.77
Years of work experience (average)	16.30	19.28	21.18
Income (%)			
Low level	15.00	59.38	25.62
Medium level	9.68	59.57	30.75
High level	4.84	57.53	37.63
Restrictions during confinement (%)			
Without restrictions	11.11	55.56	33.33
Medium level of restrictions	0.00	75.00	25.00
High level of restrictions	9.51	59.02	31.47
Confinement in Spain (%)			
Yes	9.81	58.76	31.43
No	6.96	60.87	32.17
Gender (%)			
Men	7.90	55.93	36.17
Women	10.67	61.11	28.22
Age (average)	41.31	44.02	45.95
Educational level (%)			
Low level	14.46	60.24	25.30
Medium level	10.84	59.79	29.37
High level	8.54	58.54	32.91
Disability (%)			
Yes	9.50	58.79	31.71
No	11.11	61.11	27.78
Marital status (%)			
Married	8.75	59.35	31.90
Separated or divorced	9.84	56.56	33.61
Single	10.54	59.19	30.27
Widowed	9.09	63.64	27.27
Household members at risk of COVID-19 (%)			
Yes	11.90	58.73	29.37
No	8.31	59.09	32.60
Spain as country of birth (%)			
Yes	9.96	59.09	30.95
No	6.11	58.02	35.88
Number of people confined in the household (av.)	2.79	2.68	2.63
Minors in the household (%)			
Yes	10.56	59.10	30.34
No	8.89	58.89	32.22
Dwelling with a patio (%)			
Yes	7.44	59.50	33.06
No	10.12	58.87	31.01
M² per capita in dwelling (average)	35.59	36.38	40.03

TABLE 4.3. Distribution of variables by gender

	Total sample	Men	Women
Working situation (%)			
Unemployed (out of work before the lockdown)	6.70	6.65	6.73
Becoming unemployed (out of work during the lockdown)	4.29	4.37	4.24
Furloughed due to the lockdown	15.28	13.93	16.23
On leave for other reasons	3.61	2.49	4.39
Teleworking	46.44	45.95	46.78
Working in the usual workplace	23.69	26.61	21.64
Economic sector (%)			
Primary	2.49	3.53	1.75
Secondary	14.16	22.66	8.19
Tertiary	83.35	73.80	90.06
Occupational group (%)			
Directors and managers	3.28	5.00	2.06
Scientific and intellectual professionals	50.00	44.17	54.12
Support professionals	14.22	17.71	11.76
Accounting and administrative employees	10.00	6.25	12.65
Catering and vendors	13.53	11.04	15.29
Other lower-skilled workers	8.97	15.83	4.12
Years of work experience (average)	19.59	20.65	18.85
Income (%)			
Low level	27.66	20.92	32.40
Medium level	40.19	40.38	40.06
High level	32.15	38.70	27.54
Restrictions during confinement (%)			
Without restrictions	3.09	4.37	2.19
Medium level of restrictions	0.34	0.21	0.44
High level of restrictions	96.57	95.43	97.37
Confinement in Spain			
Yes	90.13	88.36	91.37
No	9.87	11.64	8.63
Age (average)	44.37	44.32	44.40
Educational level (%)			
Low level	7.12	11.85	3.80
Medium level	24.55	29.73	20.91
High level	68.33	58.42	75.29
Disability (%)	3.10	3.13	3.08
Marital status (%)			
Married	50.17	54.58	47.07
Separated or divorced	10.50	10.00	10.85
Single	38.38	34.58	41.06
Widowed	0.95	0.83	1.03
Household members at risk of COVID-19 (%)			
Yes	33.91	32.85	34.65
No	66.09	67.15	65.35
Spain as country of birth (%)			
Yes	88.76	87.53	89.62
No	11.24	12.47	10.38
Number of people confined in the household (avg.)	2.68	2.77	2.62
Minors in the household (%)			
Yes	38.20	41.58	35.82
No	61.80	58.42	64.18
Dwelling with a patio (%)			
Yes	20.84	20.71	20.94
No	79.16	79.29	79.06
M^2 per capita in dwelling (average)	37.46	37.53	37.41

Table 4.3 includes the distribution of all variables in the analysis by gender. The most noticeable differences between men and women are found with regard to educational levels (women are more educated than men), income (men make more money than women) and the economic sector to which the current or last job pertains (there are more women than men in the service sector, and fewer in the primary and secondary sectors). Employment situation differences by gender are statistically significant with respect to "working in the usual workplace" (Diff: 0.05; p=0.049; CI: -0.0004, 0.0999) and, to a lesser extent, "on leave for other reasons" (Diff: -0.019; p=0.088; CI: -0.0396, 0.0018). The remaining employment situation differences by gender are not statistically different from zero.

In line with what has been explained in section 4, the second analysis uses ordered probit models to examine the relationship between the varying work situations during the lockdown and risks of suffering a PWB problem. Results are presented in Table 4.4, which shows results for the whole sample, as well as separate analyses for men and women. Regarding the full sample results, the work-related situation variable seems to be related to PWB. The three situations that reflect labour market disruption due to COVID-19 show positive coefficients significantly different from zero. Teleworking, being furloughed, and especially being unemployed due to the lockdown are associated with greater risk of suffering from a psychological problem when compared with the reference situation of working in the usual workplace. This result is also observed in the analyses carried out separately for men and women. Having been unemployed before the lockdown also shows a significant positive coefficient, but for men only. In all three models the highest risk corresponds to those working before lockdowns who became jobless due to the disruption.

The results assigning the lowest risk to the reference category stand out. Continuing to carry out the job in the usual workplace implies some risks due to potential exposure to COVID-19 during work and/or commutes. However, and although there is no information available on the health and safety measures that firms may have introduced to mitigate the pandemic, when compared to the PWB of people in alternative situations, a clear picture emerges that business-as-usual is the least harmful situation.

The probit models show interesting results in the three spheres of the world of work, confinement conditions and personal and family circumstances. Firstly, regarding work-

related variables, the economic sector matters for men, but appears to be not significant for women. Furthermore, men in the primary and tertiary sectors show lower risk than those in the secondary sector. The primary sector reduces risks for the whole sample, perhaps due to limited impact of restrictions on its activities. Notably, occupational group matters for the whole sample and for women but is not significant for men. Thus, women who work as professionals or administrative employees have a reduced risk when compared to women who are directors or managers. Work experience reduces risks for the whole sample and for women in particular but is not significant for men. Additionally, income does not make a difference.

Secondly, in regard to the sphere of confinement conditions, a medium level of restrictions increases the probability of suffering poor PWB when compared with the absence of restrictions, but this result is valid for men only. Curiously enough, a high level of restrictions reduces the risk of worse PWB, but this result is valid only for women. Therefore, the models suggest that limits imposed by authorities in order to mitigate the pandemic benefit the PWB of women, while at the same time reducing that of men.

Thirdly, in the sphere of personal and family circumstances, the most noticeable results have to do with marital status and household composition. With respect to marital status, people who are single show a reduced risk of PWB distress when compared to married respondents. Furthermore, being divorced reduces the risk for women, but not for men. With regard to household composition, the number of people confined in the household is clearly a significant factor. The higher the number of cohabitants, the lower the associated risk of distress, with people living alone suffering the highest risk. Additionally, the presence of minors in the household appears to have differing influences on men and women. While minors reduce the probability of PWB distress for men, they have the opposite effect on women. Finally, the company of someone at risk of COVID-19 negatively affects women but not men.

TABLE 4.4. Ordered Probit Model Results

	Total Sample		Men		Women	
	Coef.	**P>|t|**	**Coef.**	**P>|t|**	**Coef.**	**P>|t|**
Working situation (ref: working in the usual workplace)						
Unemployed (out of work before the lockdown)	0.355	0.163	0.912 ***	0.004	-0.196	0.474
Becoming unemployed (out of work during the lockdown)	1.625 ***	0.000	1.058 ***	0.006	2.604 ***	0.000
Furloughed due to the lockdown	0.882 ***	0.000	1.028 ***	0.000	0.452 *	0.071
On leave for other reasons	0.197	0.626	0.589	0.264	-0.324	0.521
Teleworking	0.727 ***	0.003	0.389 *	0.088	0.679 ***	0.008
Economic sector (ref: secondary)						
Primary	-1.106 **	0.014	-1.458 ***	0.004	0.037	0.949
Tertiary	-0.320	0.155	-0.546 ***	0.010	0.202	0.643
Occupational group (ref: Directors and managers)						
Scientific and intellectual professionals	-0.713 ***	0.007	-0.328	0.317	-0.970 **	0.012
Support professionals	-0.630 **	0.026	-0.245	0.479	-1.119 **	0.012
Accounting and administrative employees	-0.675 **	0.032	-0.101	0.765	-0.922 **	0.039
Catering and vendors	-0.288	0.347	-0.489	0.218	-0.304	0.475
Other lower-skilled workers	-0.334	0.305	-0.414	0.262	-0.971	0.109
Years of work experience (log continuous var.)	-0.309 **	0.050	0.193	0.401	-0.499 **	0.013
Income (ref: low level)						
Medium level	-0.076	0.692	-0.367	0.123	0.324	0.173
High level	-0.050	0.834	-0.414	0.165	0.364	0.159
Restrictions during confinement (ref: without restrictions)						
Medium level of restrictions	-0.582	0.424	1.493 ***	0.001	-1.387	0.172
High level of restrictions	-0.311	0.446	0.383	0.412	-1.192 *	0.095
Confinement in Spain (ref: no)	-0.072	0.824	-0.086	0.849	-0.114	0.749
Gender (ref: men)						
Women	0.381 **	0.014				
Age	-0.023 *	0.051	-0.039 **	0.024	-0.024	0.125
Education level (ref: low level)						
Medium level	-0.058	0.753	-0.125	0.559	-0.227	0.361
High level	-0.121	0.554	-0.024	0.927	-0.618 **	0.023
Disability (ref: no)	0.363	0.309	0.596	0.383	0.212	0.393
Marital status (ref: married)						
Separated or divorced	-0.201	0.535	0.396	0.223	-0.693 **	0.039
Single	-1.124 ***	0.000	-0.958 ***	0.000	-0.934 ***	0.000
Widowed	-0.641	0.429	-1.309	0.298	0.399	0.305
Household members at risk of COVID-19 (ref: No)	0.156	0.308	-0.094	0.612	0.520 **	0.012
Spain as country of birth (ref: no)	0.163	0.605	-0.324	0.380	0.709 **	0.047
Number of people confined in the household (ref: person living alone)						
Two people	-0.970 ***	0.001	-0.462	0.180	-1.154 ***	0.001
Three people	-0.929 **	0.019	0.420	0.325	-1.680 ***	0.001
Four people	-0.826 **	0.026	0.275	0.559	-1.381 ***	0.002
Five or more	-1.011 **	0.045	0.365	0.546	-2.023 ***	0.000
Minors in the household (ref: no)	-0.209	0.381	-0.746 ***	0.007	0.472 **	0.027
Dwelling with a patio (ref: no)	-0.244	0.167	-0.316	0.152	-0.061	0.777
M2 per capita in dwelling (continuous variable)	-0.010 *	0.090	0.001	0.936	-0.013	0.123
Cut1	-4.577 ***	0.000	-2.850 ***	0.002	-6.156 ***	0.000
Cut2	-2.511 ***	0.003	-0.768	0.404	-3.747 ***	0.003

*** Statistical significance: 1%; ** Statistical significance: 5%; * Statistical significance: 10%

The third and final type of results comes from estimating marginal effects of the ordered probit models. Marginal effects shown in Table 4.5 represent changes in the probability of obtaining a point score compatible with a low, medium or high risk of reduction in PWB. With the aim of this study in mind, these effects are shown with regard to work-related situations. The results indicate that transition from employment into joblessness stands out as the change with the worst consequences for the PWB of men and women. Job loss significantly reduces the probability of men and women belonging to the low-risk population, by 30.5% and 34.1% respectively. Likewise, becoming unemployed due to lockdown constraints increases the probability of being in the high-risk group by 14.7% for men and 63.6% for women.

TABLE 4.5: Marginal effects by work-related situations

	Total Sample			Men			Women		
	Coef.		P>|t|	Coef.		P>|t|	Coef.		P>|t|
Unemployed (out of work before the lockdown)									
Low Risk	-0.115		0.160	-0.270	***	0.002	0.056		0.475
Medium Risk	0.077		0.159	0.154	***	0.001	-0.037		0.470
High Risk	0.038		0.190	0.116	**	0.033	-0.018		0.495
Becoming unemployed due to the lockdown									
Low Risk	-0.394	***	0.000	-0.305	***	0.001	-0.341	***	0.000
Medium Risk	0.060		0.457	0.159	***	0.000	-0.294	**	0.011
High Risk	0.334	***	0.001	0.147	*	0.058	0.636	***	0.000
Furloughed due to the lockdown									
Low Risk	-0.261	***	0.000	-0.298	***	0.000	-0.115	*	0.070
Medium Risk	0.131	***	0.003	0.158	***	0.000	0.053		0.118
High Risk	0.130	***	0.001	0.140	***	0.005	0.062	*	0.085
On leave for other reasons									
Low Risk	-0.065		0.622	-0.183		0.237	0.093		0.530
Medium Risk	0.046		0.609	0.121		0.161	-0.065		0.560
High Risk	0.019		0.654	0.061		0.388	-0.028		0.464
Teleworking									
Low Risk	-0.222	***	0.002	-0.123	*	0.085	-0.164	***	0.005
Medium Risk	0.124	***	0.006	0.088	*	0.087	0.059	*	0.079
High Risk	0.098	***	0.005	0.035		0.117	0.105	***	0.009

(ref: working in the usual workplace)
*** Statistical significance: 1%; ** Statistical significance: 5%; * Statistical significance: 10%

The marginal effects of being furloughed due to the pandemic are lower though significant. This transition reduces the probability of being at low-risk, more so for men than for women (29.8% vs. 11.5%) and increases the likelihood of being at medium and

high-risk for both men and women. Specifically, this probability is more than double for men in the case of those at high-risk (14% versus 6.2%).

Transitioning to teleworking also makes a difference to PWB. Again, it reduces the chances of being at low-risk by 12.3% and 16.4% for men and women respectively, while increasing the possibilities of being at high-risk. In this case, women are particularly affected (the probability of having a high risk of worse PWB being 10.5% for women versus 3.5% for men).

Finally, a transition that is not directly linked with the pandemic, but relevant nonetheless, is that of transition from employment into unemployment taking place before the lockdown. This transition negatively affects men's PWB, with no significant effects for either women or the sample as a whole. The margins values are slightly smaller than those for lockdown-related joblessness.

6. Conclusion and discussion

The analyses carried out in this research had their roots in interest in the potential effects that sudden, unexpected changes in employment may have on psychological well-being. The main advantage of this approach is that the suddenness of these changes reduces the possibility of bidirectional influence between work-related transitions and psychological states. Probably the most important takeaways from the research concern transitions from employment into joblessness. The fact that it was possible to distinguish between unemployment transitions before the pandemic took place and those resulting from the lockdowns is worth highlighting. The reason why this is noteworthy lies in the possibility that said bidirectional influence might be present in the pre-pandemic transitions, which occurred at any time during the 12 months before the lockdowns, but not in the COVID transitions, which originated from a sudden shock. Comparing the marginal effects of these two unemployment transitions vis-à-vis maintaining employment in the workplace, we see that the results for men are rather similar and increase the risk of PWB problems. However, results for women are quite different, with no significant effects of pre-pandemic unemployment transitions on PWB. Thus, the takeaway is that both men and

women share similar marginal effects in pandemic unemployment transitions, confirming the negative effect of joblessness on PWB.[25]

The difference in the effects of pandemic unemployment transitions on men and women deserves further discussion. Firstly, there is ample evidence of the greater psychological vulnerability of women compared to men during the COVID pandemic, and different authors have stressed the role played by different factors: an overload of care tasks in a context of unequal distribution of family duties and chores including childcare (Adams-Prassl et al., 2020; Sevilla & Smith, 2020), a greater fear of contagion (Oreffice & Quintana-Domeque, 2021), concerns regarding domestic violence and family stress from confinement (Béland et al., 2021) or the impact of reduced social interaction (Etheridge & Spantig, 2020). The conclusions of this research support this idea. Results from the ordered probit models by gender conclude that the presence in the household of people more likely to need a greater degree of care (people at special risk from COVID-19 or minors) is associated with a worsening of PWB in women, but not men. The probit model carried out for the whole sample shows that, all things considered, women still bore a greater PWB burden during the lockdown, which fits with the available evidence on the added exhaustion of women, irrespective of whether they work from home (see Meyer et al. (2021) for an analysis in Germany) or in the workplace (see Rodríguez-López et al. (2021) for a sectoral case in Spain). Thus, our results coincide with the general conclusions found in the literature which highlight the negative differential for women in terms of pandemic PWB effects.

Secondly, the results obtained regarding work transitions into furloughs and teleworking are noteworthy, and gender differences stand out. For those involved in both types of transition there are increased risks of worsening PWB when compared with those maintaining their jobs in the usual workplace. Being furloughed has less of a negative impact on PWB than becoming unemployed, a result that is consistent in all of the models. Teleworking also presents negative impacts that are less severe than either becoming unemployed or being on furlough. However, when the analysis is carried out for women only, the estimations of marginal effects show that teleworking produces a greater negative effect on PWB than being on furlough (a 10.5% vs. 6.2% increased probability of becoming at high-risk). This result would be striking during labour market disruption

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[25] If we were to assume bidirectional effects between PWB and work-related transitions, these would pertain to men only.

different to that caused by COVID-19. What makes the pandemic unique, among many other factors, is the combination of work disruptions and increased family duties. Thus, our results are in keeping with the analyses carried out in Japan, where mothers have shouldered the burden of working remotely as well as taking responsibility for most of the care of small children at home (Yamamura & Tsustsui, 2021). They also coincide with the German study by Meyer et al. (2021) which highlights the exhaustion of women who work from home when childcare is unavailable. School closures during the lockdowns have thus contributed to the labour market effects of the crisis in PWB, a point made also by Farre et al. (2021) for Spain, thus contributing to the more severe effects on women than men.

Thirdly, while results for men confirmed the expected patterns regarding the unhealthy effects of restrictive confinements, results for women do not. The probit model corresponding to women shows that living in countries with more stringent restrictions is associated with a reduced probability of worsening PWB when compared to residing in areas without restrictions. These results could be related to a greater fear of contagion, and thus better PWB in the presence of restrictive measures which could reduce the probability of infection. Another possible explanation for this could be that since women are especially concerned about people at risk of COVID-19 and minors in their homes, it may be reasonable to conclude that, in this pandemic situation, they sacrifice freedom of movement as long as the confinement situation protects their at-risk relatives.

In summary, it appears that the COVID-19 pandemic and the measures to control it have worsened the PWB of women to a much greater extent than that of men. Regarding employment transitions, this greater susceptibility is most notable among women who have become unemployed since the pandemic started and those who telework. Furthermore, in view of the results contained in this work and the reviewed bibliography, these differences seem to be related to the concurrence of labour market disruption and increased family duties, which are born less by men than women.

This research is not, however, without limitations. First, although the exogenous shock created by confinement made it possible to minimize the bidirectionality between the variables of employment situation and PWB, that is, the probability that a person is unemployed, furloughed or teleworking due to a specific PWB state, the nature of the variables does not allow us to rule out the possibility of bidirectionality entirely.

Furthermore, the way of obtaining the data, through an online survey, could have introduced some bias such as, for example, absence or scarcity in the sample of people without access to technology, or those unfamiliar with this type of data collection method.

Regarding future research, it is expected that the availability of longitudinal data will allow us to exploit additional records about employment transitions and PWB, thus permitting a greater reduction in the aforementioned endogeneity of employment situation variables.

Capítulo 5. Effects of Precarious Work on Psychological Well-Being: Evidence from Spain

Abstract

Given that a relationship has been established between employment status and psychological well-being, the deepening segmentation of the Spanish labour market may be putting the psychological well-being of part of the population at risk. However, the relationship between work and well-being could be influenced by unobservable subjective characteristics and, consequently, two people with the same job characteristics could be affected differently by precariousness. This research tackles the problem of the unobserved heterogeneity resulting from subjective variables related to work satisfaction. A finite mixed model is applied to analyse, firstly, how jobs characterized by greater instability may affect well-being and, secondly, to study how the way in which well-being is affected could depend on how the person evaluates their job satisfaction. Data from the National Health Survey of Spain have been used to perform the analysis. We conclude that, when compared to short-term temporary contracts, self-employed and atypical situations, the stability of permanent work contracts provides greater well-being if some previous conditions of job satisfaction are met. When these conditions are not met, the protective factor provided by permanent contracts is somehow diluted, and only tenured civil servants show advantages vis-à-vis the rest of work situations.

1. Introduction

During recent decades, working conditions in Europe have undergone significant changes aimed at achieving greater labour market flexibility (Cottini & Lucifora, 2013). These changes have included the growth of work contracts characterized by worse wage conditions and, in general, more precarious forms of employment (Pirani & Salvini, 2015). Precarious work has been reinforced by the increase in unemployment rates during the Great Recession of 2008 (Benach et al., 2016), and this phenomenon will surely continue to increase due to the economic crisis created by COVID-19, particularly in the sectors most affected by economic restrictions. All of the above has caused, for a significant part of the population, a substantive worsening of their working conditions, with an increase in job uncertainty and progressive loss of people's control over their working careers. This job insecurity (understood not only as job uncertainty but also discontinuity in the job or lack of social protection) has been related to worsening PWB (Matilla-Santander et al., 2020; Otterbach & Sousa-Poza, 2016; Vancea & Utzet, 2017; Vives et al., 2013). Not surprisingly, empirical evidence points to an increase in anxiety and depression rates across the world (World Health Organization, 2017). In the realm of work, almost 5.5 percent of the world population of working age may be suffering from severe mental health problems and 15 percent suffering from some type of problem, although less serious (OECD, 2014).

This chapter analyses the impact of precarious work on PWB. However, when analysing self-reported well-being, the possibility of unobservable subjective characteristics of individuals having an influence should be taken into account (Greene et al., 2015). In other words, it is possible that not all individuals are affected in the same way by the same work situation because (subjective) perception of the labour precariousness may differs from the reality (Watson & Osberg, 2018). If this is so, and it is not taken into account in the analysis, the results could be biased. Therefore, it is essential to take into account the fact that different individuals may have different responses to the same work situation, affecting their PWB in different ways.

In order to tackle this unobservable heterogeneity of the individuals, a finite mixture model (FMM) is proposed, allowing classification of the observations into groups and purging the estimated coefficients of the influence of unobservable heterogeneity (Llorca et al., 2020). The application of this methodology is expected to permit estimating the

effect of job insecurity on PWB among groups of people whose responses to job insecurity may be different, thus controlling the subjectivity with which each person perceives their situation. The central idea of this chapter is that this response to precarious work depends on the way in which the person perceives and interprets their work situation. The proposed empirical model has already been applied in studies that address the complex relationship between job loss and well-being issues like being overweight and drinking, while trying to control the influence of unobservable heterogeneity (Deb et al., 2011).

The proposed analysis is carried out for a large sample of workers in Spain. According to Eurostat,[26] Spain's temporary employment rate is currently the highest of all the countries considered, at 25.1 percent well above the temporary employment rate of neighbouring countries such as France (15.6 percent), Italy (15.7 percent) or, to a lesser extent, Portugal (19.0 percent). Thus, given the relationship between temporary employment and precariousness, it should not be surprising that precarious work in Spain has increased significantly in recent years (García-Pérez et al., 2020). These data and references justify the relevance of analysing the relationship between PWB and precarious work in Spain. They also make this chapter especially timely and policy relevant. Besides, to the best of our knowledge, this is the first research that addresses the objective of analysing the unobserved heterogeneity from subjective variables related to work satisfaction in the relationship between employment status and PWB.

2. Literature review

The great diversity of work situations and contracts generates different employment statuses and conditions. In previous research the relationship between different working conditions and psychological performance has been studied. Some of the evidence available highlights the relationship that exists between poor employment conditions and poorer psychological health. Inversely, people with permanent contracts and strong labour market attachment show better psychological health data (Waenerlund et al., 2014).

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[26] https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsq_etpga&lang=en.

In a review of 46 papers (Vancea & Utzet, 2017), it is concluded that there is clear evidence of psychological vulnerability amongst people who work under precarious working conditions. This vulnerability may manifest itself in multiple psychological variables such as greater propensity towards suicidal thoughts among precarious workers when compared to non-precarious workers (Min et al., 2015).

It is generally assumed that precarious work is associated with work discontinuity that makes it impossible for the person to maintain adequate standards of living. However, some authors (Rodgers & Rodgers, 1989) have shown that job insecurity includes, in addition to inability to maintain employment over time, a lack of control over working conditions and a lack of legislation that protects workers as well as low wages. Each of these factors separately does not necessarily lead to precarious work; it is the combination of all these factors that leads the person into precariousness. Therefore, precarious work includes different concepts such as job insecurity, job discontinuity or lack of social protection (Benach et al., 2014; Pirani & Salvini, 2015). Even so, recent studies (García-Pérez et al., 2020; Schneider & Harknett, 2019) highlight the discontinuous time component as one of the dimensions most associated with the degree of worker satisfaction, even more so than the wage component. Not surprisingly, the available empirical data support the negative impact of both temporary and informal employment on well-being in an analysis across Europe (Karabchuk & Soboleva, 2020).

Regarding temporary employment, Moscone et al. (2016) conclude that the probability of prescription of drugs for mental health is higher for temporary workers. In addition, this probability is directly proportional to the number of days of work under a temporary contract and to changes from one temporary contract to another. They also find that changing from a permanent contract to a temporary one increases the risk of psychological deterioration and, conversely, changing a temporary contract to a permanent one reduces the risk of presenting poor PWB.

However, temporality has not been the only dimension of precariousness that has been studied in its relationship with psychological well-being. Phenomena such as job insecurity or lack of routine in working hours have been associated with the presence of worse PWB. First, job insecurity is defined as exposure to fear of job loss and has been studied as a factor related to poorer PWB using data from the United Kingdom (Ferrie et al., 2005), the United States (Burgard et al., 2009) and Korea (M. S. Kim et al., 2017).

All of these studies have produced empirical evidence of the relationship between job insecurity and self-reported poor health, as well as a higher degree of symptoms of depression. According to recent research (T. J. Kim & von dem Knesebeck, 2016), there is a significant association between such perceived job insecurity and unemployment and symptoms of depression. Specifically, individuals exposed to job insecurity have a 29% higher risk of suffering from symptoms of depression when compared to those who claimed to have job security.

Secondly, exposure to variable working hours, shifts or night work is also an important dimension of job insecurity. Some studies (Schneider & Harknett, 2019) conclude that a lack of routine in employment is associated with psychological problems, sleep problems and unhappiness. By sex, men seem more vulnerable to the consequences of night work and women to shift work (Bara & Arber, 2009).

Third, objective features that are traditionally considered to affect life satisfaction and concerns about job insecurity, like the type of work contract, seem to be losing importance. Subjective concerns about job security, especially among the young, are affecting life satisfaction trajectories with gloomy consequences for young workers' lives (Helbling & Kanji, 2018). However, the pernicious effect of certain work situations appears to be mitigated in areas with high unemployment rates, showing that people's perceptions adapt to the harmful consequences of joblessness (Gathergood, 2013).

In this regard, an analysis with a British longitudinal sample (Robone et al., 2011) concluded that PWB effects as a result of differing types of work contract are not significant. The only exception is men working part-time, who are less likely to have psychological problems. However, when factors other than the contract and related to the degree of job satisfaction are taken into account, work contract variables start to become more significant, and the results are even reversed. Which is to say that the way in which work situation affects PWB may depend on subjective variables inherent to each individual. This is why the method applied in this chapter tries to tackle unobservable heterogeneity by grouping individuals with common behaviour patterns.

Thus, according to the literature analysed and included in this section, the following hypotheses are proposed:

H1: People who carry out their work in conditions associated with job insecurity will have a higher risk of developing PWB problems.

H2: The effect of the work situation on PWB depends on different subjective factors for each individual. Controlling these effects is necessary to obtain unbiased results.

3. Method

As already explained, the main aim of this work is to analyse how PWB may be influenced by precarious work, among other variables. Given that the dependent variable (self-reported PWB) is categorical, taking values 0 or 1, a probit model is proposed.

However, since we are working with heterogeneous individuals, it is crucial to consider the possibility that there are different profiles of individuals. In order to identify these profiles, a finite mixture model (FMM) (McLachlan & Peel, 2000), also known as a latent class model, is used. It consists of modelling the underlying relationships between the observed variables, assuming that the structure of these relationships can be explained by a discrete latent variable that classifies individuals into different groups or classes according to their probability of having a given response pattern. Thus, each class includes individuals with a high probability of having a similar response pattern.

In the FMM model both intercepts and slopes are allowed to vary across groups of individuals, which implies that individuals belonging to different classes may have different coefficients and, therefore, different marginal effects for each variable. Therefore, an FMM model differs from a standard probit model, where the slope is the same for different individuals, which means that it is not possible to capture heterogeneity in individual responses, that is to say, marginal effects are the same for all individuals. An FMM solves this issue by allowing the obtaining of different parameters for individuals belonging to classes with different characteristics (the model is explained in Annex 3).

The application of this methodology is expected to consistently estimate the effect of precarious work on PWB among different groups of workers. The central assumption of this chapter is that the effect of precarious work on well-being may depend on certain subjective factors of individuals, especially if we take into account the fact that the

dependent variable is self-reported PWB. Unobservable subjectivity thus results from different precarious work effects on PWB for different personalities. To control for this unobservable subjectivity, this chapter proposes introducing into the model variables separating class membership probabilities (class determinants) in order to allocate the individuals to classes. As we explain below, these class determinants will include self-reported variables (which may be correlated with the subjective variable of self-reported health), thus allowing us to purge the effect of precarious work on self-assessed health (Llorca et al., 2020).

Although the application of a latent class model in which class membership is estimated from subjective variables is novel in the study of the relationship between job characteristics and psychological well-being, there are precedents that have applied this same procedure, although in other areas. For example, Fernandez-Blanco et al. (2009) propose two latent class models for estimating a demand function for the consumption of first-run movies in commercial theatres. The first of these models includes sociodemographic variables such as age, gender and educational level; the second model includes, in addition to those named above, subjective variables of preferences for film releases. Since the demand functions are based on individual preferences, an estimation that allows distinguishing the sample based on these preferences makes it possible to control unobserved individual heterogeneity and avoids bias in the estimation.

The subjective variables included in the latent class model show greater predictive capacity with respect to the standard probit model. Furthermore, this predictive capacity is even greater when subjective preference variables are included to obtain the probability of belonging to classes. The coefficients of these subjective variables are statistically significant, so their inclusion "provides useful information for identifying different consumer profiles and they should be included in the estimations" (Fernandez-Blanco et al., 2009, p. 628). Therefore, the non-inclusion of these variables could lead to biased estimates.

Similar conclusions have been reached in the aforementioned work by Llorca et al. (2020). These authors compare the effects of energy poverty on self-reported health status and conclude that the impact is greater when unobserved heterogeneity is controlled with the estimation of the probability of belonging to classes from subjective variables of energy poverty. Again, it is concluded that the latent class models provide better results

in terms of fit compared to the probit model (in this case ordered) and that is greatly improved with the introduction of subjective variables in the estimation of the probability of belonging to classes. Other recent papers benefit from latent class analysis to model the satisfaction with work-life balance of employees who remain available for work outside regular work hours (Brauner et al., 2021) or the mental and physical health effects of internal migration for Italian men and women (Atella et al., 2019).

4. Data

This research uses a data set that results from merging the last three editions of the Spanish National Health Survey (in Spanish, ENSE) corresponding to the years 2006, 2011 and 2017. The possibility of having three editions of the National Health Survey allows us to analyse how the relationship between job insecurity and PWB could have been affected by the Great Recession. This is possible thanks to the ENSE edition carried out in 2011, in the midst of the long crisis in the Spanish economy (2008-2013), which adds to the pre-crisis edition (2006) and the post crisis one (2017).

The large samples of this survey and the information regarding working conditions make it an adequate instrument to address the relationship between working conditions and health. The way to collect the information in this survey is similar in the three editions. Another advantage of these surveys is the integration of the General Health Questionnaire (Bara & Arber, 2009) (GHQ-12), a 12-item psychometric test that has been validated for the Spanish population and that serves as the basis for the dependent variable. There is ample evidence of the use of this psychometric test to evaluate the relationship between well-being and certain work conditions such as the participation in the labour market of vulnerable groups (Harkness, 2016) or the enrolment in Active Labour Market Polices (Sage, 2015).

In order to operationalize the dependent variable and following the correction instructions in the questionnaire manual (Lobo & Muñoz, 1996), the GHQ-12 scores have been dichotomized, assigning a 0 to responses that indicate an absence of risk relating to suffering PWB problems, and a 1 to responses associated with an increased risk (high-risk punctuation).

The final variable is calculated by adding each of these dichotomized scores. The total result of each person ranges between a maximum score of 12 and a minimum score of 0. According to the aforementioned GHQ-12 administration manual for the Spanish population, the threshold is between two and three. Following previous research also performed with Spanish population (Artazcoz et al., 2004; Urbanos-Garrido & Lopez-Valcarcel, 2015), in this research, a score equal to or greater than three is used as a cut-off point. The main explanatory variables of this research, on which the hypotheses included in the previous section rest, are work situation and type of workday.

Work situations are classified in the following categories: civil servant, salaried employee with permanent contract, salaried employee with short-term temporary contract (less than or equal to one year), salaried employee with long-term temporary contract (more than one year), business owner, self-employed and atypical situations. Type of workday is divided into split shift, continuous shift and rotating shifts.[27] In addition, different control variables related to individual and socioeconomic characteristics have been included in the analysis: sex, age, education, possession of Spanish nationality, size of municipality (population), region of residence[28], the year of the ENSE edition, self-assessment of general health status[29], occupation and the economic sector of the company where the person works.

Finally, as already described, to identify the different types of people and minimize self-evaluation bias, the model includes class membership determinants, which can help explain the different groups of individuals. Specifically, the variables used as class determinants are levels of self-reported job satisfaction and work stress. These determinants are, like the dependent variable, self-reported variables, as respondents score both their satisfaction and their stress on two scales ranging from 1 to 7. Thus, it seems reasonable to assume that they are related to the (subjective) responses of the individuals. As stated above, class determinants try to control bias due to the potential subjectivity which influences how individuals respond when asked about their PWB. It

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[27] Typically, a continuous shift in Spain takes place during the morning and early afternoon; a split shift means a long, "Mediterranean" lunch break and ends around 7pm; and a rotating shift includes day shifts or night shifts depending on the week.

[28] For reasons of model convergence regions have been grouped into seven zones following a geographical criterion: Northern zone (Galicia, Asturias, Cantabria. Basque Country); Central zone (Castilla – La Mancha, Castilla y León, Aragon, Extremadura, Navarra, La Rioja); Mediterranean zone (Catalonia, Valencia, Murcia); Islands (Canary and Balearic Islands); Andalusia; Madrid; and Ceuta and Melilla.

[29] Given the possible influence of wages on psychological well-being, alternative models have been estimated by introducing family income into the equation. However, this variable has about 2,000 missing values, which means a total sample loss of about 7%. Besides this loss of sample, the introduction of this variable makes convergence of the estimated model impossible. Despite this, it is expected that both education and occupation can function as proxy variables for wages.

seems reasonable to assume that both variables are closely related to self-assessment of PWB. Thus, these determinants can serve to control subjectivity and thus reveal the true effect of precarious work on PWB.

5. Results

Descriptive statistics of the variables are presented in Table 5.1, which shows the percentage of scores compatible with a higher risk of worsening of PWB among the rest of the variables.

TABLE 5.1. PWB risk scores

Total PWB risk score	14.95
Sex	
Men	11.07
Women	19.14
Age	
16-35 years old	14.87
36 and over	14.99
Education level	
Primary	16.97
Middle School/high school	16.04
Vocational Training (Middle and superior)	14.03
University	13.07
Nationality	
Spanish	14.60
Non-Spanish	18.60
Municipality size (population)	
>500.000	16.02
Provincial capital	15.32
>100.000	14.85
50.000-100.000	15.88
20.000-50.000	15.74
10.000-20.000	13.73
<10.000	13.85
Year of the ENSE edition	
2006	16.20
2011	16.02
2017	12.43
General Health self-assessment	
Very good	6.39
Good	11.40
Fair	30.56
Bad	54.64

TABLE 5.1. PWB risk scores (cont.)

Work situation	
Civil servant	11.91
Permanent contract	14.16
Temporary contract (one year or less)	17.41
Temporary contract (more than a year)	15.41
Business owner (with workers)	15.43
Self-employed	15.58
Atypical situations	23.18
Workday	
Split shift	13.51
Continuous shift	16.32
Rotating shifts	15.43
Occupational status[30]	
1	12.39
2	14.23
3	15.00
4	13.37
5	15.66
6	18.71
Economic sector	
Primary	14.43
Secondary	12.77
Tertiary	15.70

Regarding work situation, the category that groups together atypical work[31] situations (wage earners with a verbal contract, wage earners without a contract, contributing family workers) shows the highest percentage of people at risk (23.18 percent). On the other hand, among civil servants, the percentage of individuals at risk is less than half (11.91 percent). Regarding workday, the highest percentage is among people who work continuous shifts. By sex, women show a higher percentage of risk scores than men. Higher percentages are registered also by the groups with lower education, people with a nationality other than Spanish and, with regard to the size of the municipalities of residence, people who live in cities with more than half a million inhabitants, people of low-level occupation and those working in the services sector.

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[30] 1-directors of entities with 10 or more employees, 2nd and 3rd cycle degrees; 2-Directors of entities with less than 10 employees; 1st cycle degrees; 3-Administrative employees and support professionals, security services and self-employed; 4-Skilled manual workers; 5-Semi-skilled manual workers; 6-Unqualified workers.

[31] Following the European Foundation for the Improvement of Living and Working Conditions, the term atypical work is used to define employment relationships that do not conform to the standard or 'typical' model of full-time, regular, open-ended employment with a single employer over a long-time span. (https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/atypical-work).

A second table with descriptive data (Table 5.2) shows the distributions of the different variables used in relation to work situation, the variable most used when describing precarious work.

TABLE 5.2. Distribution of variables with regard to the work situation

	Civil servant	Permanent contract	Temporary contract (≤ a year)	Temporary contract (> a year)	Business owner (with workers)	Self-employed	Atypical work situations	Total
Sample	3,208	15,560	2,901	2,239	2,632	3,061	1,307	30,908
Distribution by sex (%)								
Men	46.85	52.90	43.64	50.96	59.00	62.30	32.90	51.87
Women	53.15	47.10	56.36	49.04	41.00	37.70	67.10	48.13
Distribution by age (average)								
	46.16	42.38	36.21	38.03	46.16	46.10	39.78	42.46
Distribution by level of education (%)								
Primary	3.15	14.83	19.75	20.50	29.90	18.00	27.54	16.62
Middle and high school	16.74	35.54	42.71	34.61	31.76	38.61	41.32	34.42
Vocational Training (Middle and superior)	19.70	24.66	20.03	21.97	18.73	22.35	16.60	22.44
University	60.41	24.97	17.51	22.91	19.60	21.04	14.54	26.51
Nationality (%)								
Spanish	99.44	92.96	81.35	81.87	93.77	93.76	75.36	91.14
Non-Spanish	0.56	7.04	18.65	18.13	6.23	6.24	24.64	8.86
Municipality size (%)								
>500.000	15.06	20.20	21.99	21.44	35.94	32.77	23.26	22.64
Provincial capital	10.16	11.68	13.24	12.59	12.73	13.62	12.17	12.04
>100.000	13.50	15.67	19.44	18.36	13.60	15.29	16.37	15.81
50.000-100.000	7.42	8.39	8.76	7.68	7.48	7.09	8.42	8.07
20.000-50.000	6.05	8.71	7.55	7.68	5.24	5.36	7.73	7.58
10.000-20.000	34.48	21.79	19.44	22.55	16.22	17.77	20.73	22.03
<10.000	13.34	13.55	9.58	9.69	8.78	8.10	11.32	11.84
Year (%)								
2006	39.81	37.47	43.61	50.16	62.92	26.00	47.13	40.65
2011	25.78	28.91	22.85	24.39	16.26	34.99	40.24	27.70
2017	34.41	33.61	33.54	25.46	20.82	39.01	12.62	31.66
Perceived health (%)								
Very good	23.57	22.48	22.20	22.38	20.52	22.61	19.43	22.28
Good	57.82	58.61	58.22	57.08	55.70	57.01	53.79	57.77
Fair	15.37	15.60	17.03	17.11	19.45	15.88	21.65	16.43
Bad	3.24	3.31	2.55	3.44	4.33	4.51	5.13	3.52
Job satisfaction (average)								
	5.48	5.27	5.21	5.20	5.42	5.57	5.12	5.32
Job stress (average)								
	4.29	4.36	3.93	4.03	4.27	4.34	3.76	4.25

TABLE 5.2. Distribution of variables with regard to the work situation (cont.)

	Civil servant	Permanent contract	Temporary contract (≤ a year)	Temporary contract (> a year)	Business owner (with workers)	Self-employed	Atypical work situations	Total
Workday (%)								
Split shift	14.56	41.48	32.33	36.00	53.72	56.78	28.08	39.42
Continuous shift	61.69	31.48	37.50	34.79	11.17	10.91	30.60	31.62
Rotating shifts	23.75	27.04	30.16	29.21	35.11	32.31	41.32	28.96
Occupation[32] (%)								
1	28.62	12.11	5.65	8.04	15.69	12.90	6.81	13.08
2	21.38	8.80	6.38	9.16	13.49	16.92	5.28	10.96
3	35.88	22.54	13.13	15.01	36.32	26.66	8.72	23.49
4	3.43	17.22	15.89	19.52	17.36	14.83	14.00	15.47
5	7.61	26.59	33.99	27.20	12.01	26.17	29.61	24.20
6	3.09	12.75	24.96	21.08	5.13	2.52	35.58	12.80
Economic Sector (%)								
Primary	0.12	2.38	8.45	5.63	15.24	11.56	6.12	5.11
Secondary	0.84	28.77	21.10	30.59	20.55	21.01	16.07	23.28
Tertiary	99.03	68.86	70.46	63.78	64.21	67.43	77.81	71.61

First, the high disparity between men and women within atypical work situations, with a predominance of women, as well as in the group of business owners and self-employed, among whom the percentage of men is much higher, can be seen. Regarding education, the significant presence of university graduates among civil servants stands out. A high average age is found among business owners, self-employed and civil servants, while workers with both time-term temporary contracts are the youngest. Regarding nationality, the proportion of non-Spanish nationals working in atypical situations almost triples the weight of this group in the survey. A significant difference between civil servants on the one hand and business owners and self-employed on the other, is that the former shows the highest incidence of continuous shift work and the lowest of split shift work, while the reverse situation occurs among the latter. Self-employed and civil servants present the highest average scores of job satisfaction, while people in atypical situations seem to have the lowest stress score. Satisfaction averages are greater than stress averages for all groups. Regarding occupation, civil servants present the highest percentage of high-level occupation (1-3) and temporary and atypical work situation workers abound in low-level occupations (5-6). Finally, as regards the economic sector, civil servants present the

[32] 1-directors of entities with 10 or more employees, 2nd and 3rd cycle degrees; 2-Directors of entities with less than 10 employees; 1st cycle degrees; 3-Administrative employees and support professionals, security services and self-employed; 4-Skilled manual workers; 5-Semi-skilled manual workers; 6-Unqualified workers

highest percentage of tertiary sector jobs and the lowest percentage of secondary and primary ones.

Table 5.3 presents the results obtained from the estimation of a standard probit (Model 1, columns 1 and 2). Regarding work situations working on a short-term temporary contract, being a business owner, self-employed and working in an atypical job show a greater probability of PWB risk than working on a permanent contract. Civil servants have a lower probability of mental disorder. In terms of workdays, people who work rotating shifts have a greater tendency to report worse PWB than those who work split shifts. Gender, age and nationality follow rather standard patterns, as reported in the literature: women, older people and people with nationalities other than Spanish are at higher risk of suffering a worsening of PWB (Blanchflower & Oswald, 2008; Paul & Moser, 2009; Rocha et al., 2010). Regarding municipality size, people living in small areas (10,000 to 20,000 inhabitants) are at greater risk than those living in large ones.

The region of residence of the person has also been introduced as a control variable. In this sense, there seems to be a separation between the northern and southern regions. Specifically, people living in Galicia, Asturias, Cantabria and the Basque Country (1) have a lower probability of having a psychological risk score compared to the rest of the regions except for the regions of the central zone (2) and Ceuta and Melilla (8), categories for which the coefficients are not significant.

This division between northern and southern Spain could be explained, among other causes, by differing health expenditure levels. According to the latest report "Statistics on Public Health Expenditure" (2022), the two autonomous communities with the highest health expenditure per inhabitant are Asturias and the Basque Country, which belong to the northern zone. The other two regions, Galicia and Cantabria, without reaching the levels of the former two, have expenditure levels per capita above the national average.

As regards the year of the ENSE edition, a direct relationship is observed between belonging to the 2011 sample and having worse PWB, as compared to 2006. In 2017 an improvement in psychological state was observed compared to the reference year. Lastly, a relationship between a better general health self-perception and a lower risk of suffering from distress is observed.

TABLE 5.3. Estimated parameters Model I and Model III

| | Model I | | Model III | | | |
| | PROBIT | | CLASS 1 | | CLASS 2 | |
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
GHQ-12 high risk punctuation						
Gender (ref: women)						
Men	-.2794***	.0200	-.4189***	.0443	-.1002	.0673
Age (log)	-.2155***	.0380	-.1007	.0676	-.4661***	.1322
Education level (ref: university)						
Primary	-.0157	.0365	.0134	.0660	-.0309	.1196
Middle School/high school	.0484	.0296	.1212**	.0555	-.0558	.0980
Vocational Training (Middle and superior)	.0003	.0303	.1589***	.0591	-.2970***	.1055
Spanish nationality	-.0892***	.0330	-.1986***	.0540	.0728	.1179
Municipality size (>500.000)						
Provincial capital	-.0394	.0342	-.0545	.0611	-.0640	.1129
>100.000	.0248	.0319	.0601	.0552	-.1251	.1100
50.000-100.000	.0332	.0395	.0424	.0706	-.1124	.1336
20.000-50.000	-.0554	.0421	-.0574	.0765	-.2135	.1322
10.000-20.000	.0772***	.0295	.1344***	.0513	-.1158	.1024
<10.000	.0388	.0373	.0453	.0677	-.1070	.1207
Region (ref: 1)						
2	.0023	.0285	-.0679	.0508	.1789*	.0983
3	.1353***	.0296	.1180**	.0521	.2008**	.1020
4	.1444***	.0358	.0618	.0610	.3816***	.1266
5	.1257***	.0374	.0395	.0672	.2459**	.1227
6	.1741***	.0412	.0106	.0792	.5609***	.1410
7	-.1219	.0792	-.1981	.1309	-.0712	.2200
Year (ref: 2006)						
2011	.0731***	.0236	.0651	.0428	.1659*	.0862
2017	-.1282***	.0241	-.1872***	.0432	.0070	.0801
Perceived health (ref: very good)						
Good	.3481***	.0273	.3716***	.0544	.3583***	.0849
Fair	1.0431***	.0313	1.0358***	.0605	1.1778***	.1137
Bad	1.6904***	.0462	1.7275***	.0798	1.6946***	.1728
Work situation (ref: permanent contract)						
Civil servant	-.1264***	.0358	.0109	.0652	-.3434**	.1330
Temporary contract (one year or less)	.0748**	.0331	.1386**	.0558	.0564	.1183
Temporary contract (more than a year)	.0123	.0370	.0431	.0635	.0430	.1231
Business owner (with workers)	.0718**	.0361	.0896	.0693	.1431	.1262
Self-employed	.1167***	.0333	.2042***	.0583	.0329	.1121
Atypical situations	.1615***	.0440	.1899***	.0685	.2793	.1710
Workday (ref: Rotating shifts)						
Split shift	-.0393*	.0233	-.1017**	.0424	.1094	.0789
Continuous shift	.0349	.0243	.0371	.0417	.1300	.0834
Occupation (ref: directors of entities with 10 or more employees, 2nd and 3rd cycle degrees)						
Directors of entities with less than 10 employees; 1st cycle degrees	.0091	.0393	.1402*	.0812	-.1527	.1348
Administrative employees and support professionals, security services and self-employed.	.0119	.0356	.1215*	.0734	-.1336	.1157
Skilled manual workers	-.0460	.0416	.0653	.0846	-.1872	.1313
Semi-skilled manual workers	-.0200	.0386	.0956	.0779	-.1981	.1259
Unqualified workers	-.0151	.0436	.2178**	.0887	-.5077***	.1566
Economic sector (ref: primary)						
Secondary	.0214	.0488	.0644	.0893	-.2243	.1659
Tertiary	.0352	.0459	.0987	.0837	-.2021	.1594
Cons	-.6656***	.3013	-1.4139***	.3013	1.1017**	.5532

Levels of significance: * p < .05; ** p < .01; *** p < .001.
Region categories. 1: Northern zone (Galicia, Asturias, Cantabria. Basque Country); 2: Central zone (Castilla–La Mancha, Castilla y León, Aragon, Extremadura, Navarra, La Rioja); 3: Mediterranean zone (Catalonia, Valencia, Murcia); 4: Islands (Canary and Balearic Islands); 5: Andalusia; 6: Madrid; 7: Ceuta and Melilla.

However, a standard probit model does not take into account possible differences between workers that could be latent and that could be biasing the results obtained with the probit models. Therefore, in what follows, different alternative FMM models are presented that use the same explanatory variables as the standard probit one, but which start with the advantage of classifying the sample into groups or classes, taking into account the potential unobservable heterogeneity among workers. In addition, the introduction of two subjective variables (stress and job satisfaction) as class determinant or separating variables is explored.[33]

We have analysed several alternative models. As stated above, Model I is a standard probit model. Model II is a FMM with two classes and with job stress as a class determinant. Finally, Model III includes the two separating class variables (job satisfaction and job stress) in the two-class model. According to the results shown in Table 5.4, the two information theoretical criteria used - the Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) indicate that when we model two classes, the criteria for the comparison of the models improves when compared with a standard probit (Model I). Also, both indicators improve when we use two class determinants instead of only one. In summary, results show an improvement in the goodness of fit of the estimates when unobserved heterogeneity is addressed in a model with two classes including two class determinants (Model III).[34]

TABLE 5.4. Comparison of the models

Model	LF	K	AIC	BIC
Model I (Standard probit)	-11560.36	39	23,198.72	23,523.93
Model II	-11,326.16	85	22,822.32	23,531.11
Model III	-11,231.92	91	22,645.84	23,404.67

Notes: number of observations: 31 040, k= number of parameters.
Model II: FMM, 2 classes, 1 separating variable (stress); Model III: FMM, 2 classes, 2 separating variables (stress and labour satisfaction).

Therefore, from now on the results obtained according to model III are analysed. Regarding class determinants, Table 5.5 shows that job satisfaction and high stress at work are highly significant in explaining classes and therefore provide relevant information when it comes to identifying different types of individuals. Specifically, people belonging to Class 2 tend to suffer high levels of stress and low levels of

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[33] The FMM model was estimated using Stata 16 that uses the EM algorithm.
[34] We have tried to estimate a two classes-model with job satisfaction as class determinant and another one with three classes. However, neither of these alternative models converge.

satisfaction in their work when compared with people in Class 1, which is used as the reference.

TABLE 5.5. Class determinants

	Coef.	Z
Class 1 (ref)		
Class 2		
Stress level 2	-.4876	.4803
Stress level 3	-.4188	.4427
Stress level 4	-.1243	.4077
Stress level 5	.8413*	.4428
Stress level 6	1.5443 ***	.4863
Stress level 7	2.6924***	.5793
Satisfaction level 2	-.6335	.4222
Satisfaction level 3	-1.2106***	.3939
Satisfaction level 4	-2.0296***	.4231
Satisfaction level 5	-2.4786***	.4558
Satisfaction level 6	-2.7715***	.4615
Satisfaction level 7	-3.1736***	.5675
Cons	-.0480	.5013

To assign workers to each class, the highest posterior probability of belonging to each class is taken into account according to Equation (5) included in Annex 3.

In Table 5.6 some characteristics of each class are specified. Class 1 is the largest with 82.6 percent of the sample. The remaining 17.4 percent have been classified within Class 2. Regarding the GHQ-12 index (a dichotomous variable that, as indicated above, takes values between 1 and 0, the unit indicating the highest risk of suffering from a mental disorder), the results of Table 5.6 indicate that the individuals in Class 2 have an average score of 0.362 in the GHQ-12 index while the average for those belonging to Class 1 hardly reach 0.1. That is to say, the minority group (Class 2) is that with worse PWB.

TABLE 5.6. Class information

Marginal predicted means of the outcome (GHQ-12 Index)	Mean	Std. Dev.	Min	Max
Class 1	.103	.006	.092	.116
Class 2	.362	.027	.310	.417
Marginal predicted latent class probabilities	Mean	Std. Dev.	Min	Max
Class 1	.826	.022	.779	.866
Class 2	.174	.022	.134	.221

Table 5.7 shows the distribution of the explanatory variables between the two estimated classes: Class 1, with a lower mean in the GHQ-12 (see Table 5.6) and with a lower level of stress and higher satisfaction (see Table 5.5); and Class 2, with a higher mean in the psychometric test, a higher level of stress and a lower job satisfaction. Based on subsequent probabilities, individuals in Class 1 have, on average, an 88.3% percent probability of belonging to that class, and individuals in Class 2 have a 72.5% percent probability of being classified within Class 2 (postestimation probabilities).

Regarding the distribution of the employment situation between the two classes, Class 1 has a higher percentage of civil servants, short-term temporary contracts, business owners, self-employed and atypical situations than Class 2, and a lower percentage of permanent and long-term temporary contracts. Regarding workday, Class 1 has a higher percentage of split and continuous shifts and a lower percentage of rotating shifts.

TABLE 5.7. Characteristics of the classes (Post-estimation)

	Total Sample	Class 1	Class 2
N	30,908	28,040	2,868
		88.3%	72.5%
Work situation			
Civil servant	10.38	10.62	8.05
Permanent contract	50.34	49.93	54.36
Temporary contract (one year or less)	9.39	9.42	9.07
Temporary contract (more than a year)	7.24	7.21	7.53
Business owner (with workers)	8.52	8.55	8.16
Self-employed	9.90	9.99	9.07
Atypical situations	4.23	4.28	3.77
Workday			
Split shift	39.42	39.59	37.83
Continuous shift	31.62	31.73	30.47
Rotating shifts	28.96	28.68	31.69
Sex			
Women	48.13	48.11	48.36
Men	51.87	51.89	51.64
Age (average)	42.46	42.52	41.83
Job satisfaction (average)	5.32	5.49	3.63
Job stress (average)	4.25	4.06	6.16
Education level			
Primary	16.62	16.44	18.41
Middle School/high school	34.42	34.18	36.82
Vocational Training (Middle and superior)	22.44	22.87	18.24
University	26.51	26.51	26.53
Nationality			
Non-Spanish	8.86	8.94	8.02
Spanish	91.14	91.06	91.98
Municipality size			
>500.000	22.64	22.99	19.25
Provincial capital	12.04	12.16	10.84
>100.000	15.81	15.78	16.11
50.000-100.000	8.07	7.96	9.07
20.000-50.000	7.58	7.45	8.89
10.000-20.000	22.03	21.99	22.38
<10.000	11.84	11.67	13.46
Occupational status[35]			
1	13.08	13.03	13.60
2	10.96	11.09	9.69
3	23.49	23.62	22.28
4	15.47	15.45	15.69
5	24.20	24.08	25.35
6	12.80	12.74	13.39
Perceived health			
Very good	22.28	22.97	15.45
Good	57.77	58.53	50.38
Fair	16.43	15.47	25.80
Bad	3.52	3.03	8.37
Sector			
Primary	5.11	5.17	4.50
Secondary	23.28	23.17	24.27
Tertiary	71.61	71.65	71.23
Year			
2006	40.65	40.35	43.62
2011	27.70	27.80	26.64
2017	31.66	31.85	29.74

Note: the assignment of the sample to Classes 1 and 2 is calculated from those observations with a probability of belonging >.5

[35] 1-directors of entities with 10 or more employees, 2nd and 3rd cycle degrees; 2-Directors of entities with less than 10 employees; 1st cycle degrees; 3-Administrative employees and support professionals, security services and self-employed; 4-Skilled manual workers; 5-Semi-skilled manual workers; 6-Unqualified workers.

On the other hand, columns 3-6 of Table 5.3 show the estimated parameters according to Model III. Comparing these with Model I (a standard probit model) it is observed that the results corresponding to Class 1 are similar: workers with a permanent contract have a greater probability of reporting better PWB when compared with those on less stable contracts. When compared with civil servants, however, the differences in coefficients are not significant. The results regarding the type of workday follow the same trend as in the standard probit model: the split shift seems to protect workers from risk of poor PWB. Finally, the parameters related to the control variables, with the exception of age and occupation status, also follow a similar pattern as in Model I.

However, if we analyse the results for Class 2, it is observed that there are less significant coefficients among the control variables. Changes are also observed with respect to work situations: people with greater job stability, that is, civil servants, are less likely to suffer consequences for their PWB than people with permanent contracts. This effect, despite appearing in the standard probit model, is not reported among people in Class 1. In summary, for people with poorer occupational health, that is, those with greater stress and less job satisfaction, there is no difference between holding an open-ended, temporary or verbal work contract. Only the category of civil servants presents statistically significant results.

The analysis, then, concludes that permanent contracts improve PWB when compared with less stable contracts (temporary and verbal ones) as long as preconditions of job satisfaction are met (Class 1). When these minimum preconditions are not met and workers are more vulnerable to higher stress or lower job satisfaction (Class 2), having a stable category such as a permanent contract does not seem to influence self-reported PWB. This comes from comparing these individuals with others in more precarious work situations. The protection of permanent contracts when compared with less stable work contracts that is observed among individuals in Class 1 seems to be transferred to the civil servant category. This may be indicating a similar pattern of responses, in which Class 2 workers (that is, those in unfavourable work situations) have poorer PWB regardless of whether the contract is temporary, permanent or atypical.

Regarding the type of workday, results indicate the same pattern. If for Class 1 there were significant differences according to the type of workday, these disappear when we analyse the members of Class 2. That is, individuals in an unsatisfactory work situation or with

high levels of stress will tend to report poor PWB regardless of the type of workday. This may be indicating that there is a latent variable (not being satisfied with their work situation) affecting the responses of workers about their PWB regardless of the objective conditions (type of contract and workday) in which they find themselves.

Consequently, when assessing the impact on PWB of certain objective working conditions, it is necessary to control for the possible subjectivity of the responses through a model that allows us to capture the possible existence of unobservable heterogeneity. Results seem to confirm that this is explained by the satisfaction of each person with their work. Thus, although individuals find themselves in objectively similar work situations, subjective issues such as the fact that a worker perceives their work to be stressful or is not satisfied in their job, can make their self-reported PWB vary when compared with other workers who, with the same type of work, are more satisfied in their jobs.

Beyond the differences found between both classes in the model with respect to employment status, it is worth pointing out the differences observed regarding educational levels, occupation and region of residence. Specifically, for people who are more satisfied with their job, vocational education increases psychological risk when compared to university education. However, among people who are dissatisfied and more stressed, the result is exactly the opposite. An analogous result appears with respect to occupation: among more satisfied people, having low-level occupations is related to worse PWB. And among dissatisfied people, low-level occupations seem to be related to better PWB when compared, paradoxically, with the highest occupational level.

Although these results for people less satisfied with their work may seem counterintuitive, perhaps they could be explained by considering different investments made by people in their careers. Given the direct and opportunity costs of studying for a university degree and reaching the highest occupational levels, people would expect to obtain high returns. Job satisfaction could be part of these returns. In terms of dissatisfaction, it seems reasonable to consider that educated people and/or those who invested in their professional careers may be more likely to report worse PWB, as compared with those who are also dissatisfied but have invested less in their training.

Finally, among people who are less satisfied with their jobs, the region of residence seems to influence their PWB in the same way as was previously shown: people residing in

northern Spain have a lower psychological risk than people from other regions. This relationship is absent among people satisfied with their work.

Finally, Table 5.8 shows the average marginal effects corresponding to the estimated coefficients of Models I and III, which indicate changes in the probability of reporting poor PWB in the event of a change in an explanatory variable. Results show that, *ceteris paribus*, Class 2 civil servants have a 10.7 percent lower probability of suffering a worsening of their PWB than those on a permanent contract, this reduction being much greater than that obtained in the standard probit model (2.4 percent). Among those more satisfied (Class 1) a permanent contract is associated with a 2.2% reduction in psychological risk when compared to a short-term temporary contract. This difference is 0.6% if compared to a long-term temporary contract, and around 3% if compared to those self-employed or in an atypical situation. These marginal effects do not differ much from those calculated in the standard probit.

TABLE 5.8. Marginal effects

	Standard Probit			Class 1			Class 2		
	Coef.	Z		Coef.	Z		Coef.	Z	
Work situation (ref: permanent contract)									
Civil servant	-.024	-3.70	***	.002	0.17		-.107	-2.74	***
Temporary contract (one year or less)	.016	2.21	**	.022	2.38	**	.019	0.47	
Temporary contract (more than a year)	.003	0.33		.006	0.67	**	.014	0.35	
Business owner (with workers)	.015	1.94	*	.014	1.23		.049	1.12	
Self-employed	.025	3.38	***	.033	3.29	***	.011	0.29	
Atypical situations	.035	3.46	***	.030	2.57	**	.097	1.59	
Workday (ref: rotating shifts)									
Split shift	-.008	-1.68	*	-.015	-2.40	**	.036	1.38	
Continuous shift	.007	1.44		.006	0.89		.043	1.55	

In other words, among people more satisfied with their work and with lower levels of work stress, the self-employed, people with atypical work situations, short-term temporary contracts and long-term temporary contracts (ranked from higher to lower psychological risk, as compared to permanent contracts) are associated with poorer PWB. These effects of unstable work relationships are not noticeable among the less satisfied. This cannot be due to having better working conditions in these four situations, but rather

to the loss of the protective role played by the work contract, a protective factor that nevertheless is observed for civil servants.

Regarding the type of work shift, rotating shifts are associated with an increase in psychological risk of 1.5% when compared to more stable shifts such as split shifts. This effect is greater among the subgroup of people more satisfied with their jobs than among the complete sample (0.8%). In fact, this result is connected to that in relation to the four work situations that was presented above since people in these situations are associated with worse PWB and, like the self-employed and workers in atypical situations, show a greater tendency to work rotating shifts. On the contrary, civil servants and open-ended salaried employees, with better PWB, tend to work split and continuous shifts, respectively.

6. Discussion and conclusions

This chapter analyses the relationship between precarious work and PWB. Its results are in keeping with an extensive corpus of literature that alerts us to the health problems associated with the rampant increase in precarious employment (for a review, see Gunn et al. (2021)) and, among them, with research that stresses negative impacts on PWB (Lewchuk, 2017). However, to the best of our knowledge, this is novel research in the study of the relationship between employment status and PWB as it is based on the estimation of different classes of people using subjective variables to calculate the probability of belonging to classes. Specifically, classes have been determined based on job satisfaction and stress. The results obtained are compatible with the idea that the way in which each person perceives their work situation influences the relationship between precarious forms of work and PWB.

Among those less satisfied with their work situation, being a civil servant protects psychological state when compared with people on permanent contracts. For the most satisfied people, the most unstable contractual terms, and therefore those more associated with precariousness, increase the probability that problems related to PWB will appear.

Being self-employed is associated with a greater risk to PWB but only among those workers satisfied with their labour situation. Given that among the self-employed it is common to find significant numbers of people who are self-employed "by necessity", this

result prompts question about the extent to which mental health distress may be linked to this type of work situation.

Regarding workday differences, people who work rotating shifts have a greater probability of obtaining a score compatible with worse psychological well-being than those who work split shifts. However, this effect is only observed among those with higher job satisfaction. Thus, in the same way that happened with the permanent contract, the split shift, when compared to irregular shifts, ceases to protect the person when they are not satisfied with their job.

Comparisons between salaried employees with permanent contracts and civil servants are noticeable. When previous conditions of adaptation to the job are fulfilled, there are no differences between having a permanent contract or being a public employee. However, when these conditions are not met, civil service appears to revalue vis-à-vis open-ended contracts in the private sector. This suggests that the protective role of permanent contracts in Spain, which has been reduced by labour market reforms, may play a different role depending on the person's satisfaction with their work. Workers who are not satisfied with their jobs may actually perceive that the permanent contract does not protect them, while satisfied permanent employees do not perceive themselves to be very different from civil servants.

Summing up, the relationship between precariousness and PWB is confirmed by the analyses carried out in this final chapter. However, it has also been concluded that when analysing this relationship, it is necessary to take into account the way in which the person interprets their work. The way in which job insecurity affects well-being depends not only on job characteristics, but also on how these conditions are perceived.

The results of this chapter expand the existing knowledge about the relationship between job insecurity and PWB, adding job satisfaction as one of the important conditioning factors. In addition, given the current trend towards labour market flexibility and the growth of precarious work, it is advisable to take into account the conclusions obtained hereby in order to improve working conditions, especially the conditions of those who work in more precarious situations. In the specific case of this work, the importance of job satisfaction should also be taken into account by companies when designing their company policies regarding employment contracts.

These results are related to research that associates workers' job satisfaction with their well-being. They are compatible with those of Satuf et al. (2018), who find a protector effect of job satisfaction on health, happiness and subjective well-being, arguing that work contributes to the development of identity and allows for active participation in society. Previous works had reviewed the research supporting both factors of the two-way relationship between a successful working life and subjective well-being (Russell, 2008), and the role of work facet satisfaction (Bowling et al., 2008), pointing out individual and collective reasons for promoting well-being at work. Our results are also compatible with specific analysis of well-being and work-life, such as that which looks at job strain on academics caused by excessive work hours, high levels of work related preoccupations, reduced physical activity and the health costs of meeting work demands (Fetherston et al., 2021). Our results also coincide with those that relate larger and nonstandard work hours to work-life balance (Albertsen et al., 2008).

We believe that these conclusions contribute to this literature by framing the analysis of job satisfaction in the context of increasing labour market and employment precariousness. Where previous research argued the advantages of promoting job satisfaction and reducing stress in order to promote workers' happiness or self-esteem and/or organizational success and workplace productivity, our analysis looks into the mediating role of job satisfaction and stress regarding the negative effects of some labour market trends that increase precarious forms of work. This chapter coincides with the findings of Dockery (2005) regarding the school-to-work transition of young people, which shows that job quality is one of the two main drivers, together with leaving unemployment, of self-reported happiness. Most of all, our research adds to the findings by Dawson et al. (2017) and Gevaert et al. (2021). The former use the British Household Panel Survey to show that a significant proportion of the difference in self-reported well-being between permanent and open-ended employees is due to differences in satisfaction with job security (Dawson et al., 2017). The latter demonstrate that employment quality is associated with PWB and self-reported general health of both the waged and the self-employed (Gevaert et al., 2021). That research coincides with ours in highlighting the disadvantaged situations of the most precarious employment arrangements. However, our contribution introduces the mediating role of satisfaction and stress in terms of the health determination of different types of employment.

Regarding the contribution of this research to evidence in the field coming from Spain, our results are compatible with those of Fernández-Puente and Sánchez-Sánchez (2021), who use the European Working Condition Survey to demonstrate that public sector workers are more satisfied than private sector employees. They also show that employees on open-ended contracts are more satisfied than those on temporary contracts. This research is especially interesting because the protective role of public sector employment is higher in labour markets where people perceive a higher likelihood of losing their jobs or a low likelihood of finding another employment similar to the one they hold. Spain is one of these labour markets. Other papers have looked at the determinants of job satisfaction in Spain (Garrido et al., 2005). Also, it is worth noting that in recent years several initiatives for improving the measurement of work precariousness have emerged in Spain (García-Pérez et al., 2017; Vives et al., 2010) that add to other international indexes (Lewchuk, 2017). The increase of precarious employment, together with its multidimensional character, leads us to expect a continuing growth of the research devoted to the causes and consequences of this phenomenon.

Finally, recent political events reveal some policy implications of the results and conclusions of this chapter. The recent labour market reform passed by the Spanish Congress in 2022, whose objective is to reduce the rate of temporary work in the Spanish labour market, prioritizes the use of open-ended contracts, trying to convert temporary contracts in residual ones. Thus, the results obtained in this research regarding the lack of a protective role of permanent contracts among those people less satisfied with their work acquire a special relevance. Assuming the growing importance of this type of contracts in the near future, the results obtained suggest the need to improve working conditions in Spain, an improvement that would be expected to improve work satisfaction and, in turn, increase the protective factor of open-ended contracts in terms of PWB. Some recent policy measures are compatible with this aim. The reduction of working hours, which is already included in the 2022 National Budget in the form of an initiative for a pilot project to implement 32-hour working weeks, representing a reduction of 8 hours per week; or the increase in the minimum wage, could contribute to reducing the risk of psychological problems among those workers who are currently most dissatisfied with their jobs.

Capítulo 6. Conclusiones y líneas futuras de investigación

1. Conclusiones

Aunque cada uno de los capítulos de esta tesis ya incluye unas conclusiones específicas, no sería conveniente terminar sin antes resumirlas en un capítulo final. Los objetivos generales de la tesis son el análisis de la forma en la que el desempleo y la precariedad laboral se relacionan con el bienestar psicológico. Estos objetivos generales se concretan, a su vez, en varios objetivos específicos. El primero de ellos es el análisis del desempleo en España a partir de bases de datos que recogen información anterior a la Gran Recesión (2006), de los años de mayores tasas de desempleo (2011/2012), y de un período de relativa recuperación económica (2017). El segundo objetivo específico propuesto es el estudio de las diferencias de género en la relación entre el desempleo y el bienestar psicológico y de las posibles variables que podrían explicar estas diferencias. En tercer lugar, se plantea el estudio del efecto del desempleo sobre el bienestar psicológico dependiendo de si la persona que ha visto afectado su bienestar es la propia persona desempleada (efecto directo del desempleo) o lo es la pareja de la persona sin empleo (efecto vicario del desempleo). El cuarto objetivo específico es determinar si las distintas situaciones laborales (empleo, desempleo, teletrabajo, ERTE…) pudieron estar modulando el bienestar psicológico durante los meses más duros de la pandemia por COVID-19. Finalmente, el quinto de los objetivos específicos trata de concretar la relación entre la precariedad y el bienestar psicológico a partir de la identificación de dos clases de personas dentro de la población ocupada: las satisfechas y las insatisfechas con sus puestos de trabajo.

Los resultados obtenidos permiten concluir un efecto causal del desempleo sobre el bienestar psicológico y un comportamiento procíclico del mismo. Este efecto, sin embargo, no es igual para hombres que para mujeres: el desempleo es más dañino para el bienestar psicológico de los hombres que para el de las mujeres. Las conclusiones del tercer capítulo, además, permiten confirmar que el hecho de ser madre estaría explicando

esta falta de evidencia respecto a la relación entre el desempleo y el bienestar psicológico en mujeres. Así, el mercado de trabajo penaliza a las mujeres que han sido madres, en forma de peores condiciones laborales, y esta penalización reduce el coste de oportunidad del desempleo. Se concluye, además, un efecto vicario del desempleo tanto para hombres como para mujeres. Es decir, en todos los casos, tener una pareja desempleada está relacionado con un peor bienestar psicológico. Sin embargo, como pasaba con el efecto directo, el efecto vicario es mayor cuando tiene su origen en el desempleo de un hombre.

Las peores condiciones laborales de las mujeres no son sino la consecuencia del rol secundario que estas desempeñan dentro del mercado de trabajo y que contrasta con el rol de sostenedor principal que le es aplicado a los hombres. Este papel secundario les *facilita* a ellas la transición hacia el desempleo, haciendo que su bienestar no se vea erosionado (o, al menos, no se vea erosionando en la misma magnitud que en el caso de los hombres) y permite que los hombres no sientan el desempleo de sus parejas femeninas como una amenaza para su bienestar psicológico.

Por otro lado, el escenario que propició la pandemia y el consiguiente confinamiento ha permitido contemplar el mercado de trabajo desde un escenario inédito. En primer lugar, porque las transiciones entre las distintas situaciones laborales han tenido un carácter claramente exógeno, lo que, en último término, ha permitido reducir el hipotético efecto del bienestar psicológico en el hecho de transitar entre una y otra situación laboral. En segundo lugar, se produjo un aumento, también inédito, del teletrabajo y de la compatibilización del empleo con las tareas domésticas y de cuidado en un mismo espacio físico, el hogar. En tercer lugar, la paralización de la economía provocó que un gran número de empresas se tuvieran que acoger a ERTES.

En este contexto se estimó la relación entre el bienestar psicológico y la transición hacia el desempleo, hacia un ERTE o hacia el teletrabajo, entre otras. Estas tres condiciones estaban relacionadas con un peor bienestar en comparación con el hecho de haber continuado trabajando en el lugar habitual, tanto para la muestra completa como para hombres y mujeres. Contrariamente a lo referido en párrafos anteriores, el tránsito desde el empleo al desempleo se relacionó con un peor bienestar en mujeres que en hombres. La literatura económica ha explicado estos resultados apelando a la sobrecarga de tareas de cuidado en mujeres y los resultados de esta tesis también parecen apoyar esta hipótesis. Así, la presencia en el hogar de personas que requieren un mayor número de cuidados

(personas consideradas de riesgo ante la COVID-19 y menores) estaba relacionada con una peor salud mental en mujeres, pero no en hombres. En cuanto al teletrabajo y los ERTE, presentaban impactos negativos en el bienestar psicológico, pero menores si los comparamos con el desempleo tanto en hombres como en mujeres.

Finalmente, el último capítulo vira desde el desempleo hacia la precariedad laboral. Los resultados permiten concluir que el grado de satisfacción laboral de cada persona estará mediando en la relación entre su situación laboral (más o menos precaria) y su mejor o peor bienestar psicológico. Entre las personas que tienen una mayor satisfacción laboral, las únicas categorías que se relacionan con un peor bienestar psicológico al compararlas con el contrato permanente son el contrato temporal de corta duración, ser trabajador autónomo y las situaciones laborales atípicas. Entre los menos satisfechos ocurre justamente al revés: ahora solo la condición de funcionario protege, y el contrato permanente aparece como perjudicial para el bienestar psicológico al compararlo con el hecho de ser funcionario/a.

Se concluye que el contrato permanente presenta un comportamiento equivalente al hecho de ser funcionario/a siempre que se cumplan unas condiciones previas de salud ocupacional. Si estas condiciones previas desaparecen y la persona presenta una peor satisfacción laboral, el contrato permanente deja de relacionarse con un mejor bienestar y la categoría de funcionario pasa a ocupar el lugar que, entre los más satisfechos, tiene el contrato permanente.

En cuanto a la jornada laboral, las personas con jornadas de trabajo irregulares o a turnos (relacionadas con una mayor inestabilidad laboral) tienen un peor bienestar psicológico que aquellas con jornadas partidas. Sin embargo, este efecto solo se observa entre aquellas personas con una mayor satisfacción laboral. Así, de la misma manera que pasaba con el contrato permanente, la jornada partida, cuando se compara con jornadas irregulares, deja de proteger a la persona cuando esta no está satisfecha con su puesto de trabajo.

En definitiva, estas conclusiones permiten columbrar un escenario en el que puede, y debe, situarse el bienestar psicológico (junto con la formación o la productividad, por poner otros ejemplos) como un componente esencial del funcionamiento de mercados de trabajo cada vez más complejos. En primer lugar, la asistencia psicológica a las personas desempleadas podría asemejarse a la función que estaría cumpliendo el subsidio por

desempleo: mantener un nivel de bienestar mínimo en la persona que se ha quedado sin empleo (atendiendo a razones de equidad) y facilitar la reinserción laboral en los términos más adecuados posibles (atendiendo a razones de eficiencia) y permitiendo el mejor ajuste entre la oferta y la demanda de empleo. En este sentido, las políticas públicas deberían centrarse muy especialmente en aquellas personas que, además de las pérdidas no pecuniarias del desempleo, no están recibiendo un subsidio de desempleo, esto es, en las personas en las que se concentran las mayores pérdidas tanto pecuniarias como no pecuniarias asociadas al desempleo.

En segundo lugar, las diferencias encontradas en el efecto directo y vicario del desempleo entre hombres y mujeres permiten confirmar el papel secundario de las mujeres en un mercado de trabajo que sigue situando a los hombres como los tenedores de los empleos principales. Lejos de identificarlo con una mayor resiliencia de las mujeres, el menor impacto psicológico del desempleo en mujeres estaría relacionado con un menor coste de oportunidad provocado por peores condiciones de empleo y que, además, aparece especialmente a partir de la maternidad. Dado que el acceso a un empleo estable y de calidad es una de las principales herramientas que existen en contra de la desigualdad, esta conclusión interpela directamente a los gobiernos y a los legisladores para seguir trabajando con el objetivo de dotar a la población activa con las mismas oportunidades de desarrollar carreras laborales estables y con salarios adecuados.

Por último, el efecto protector del contrato indefinido entre aquellos con una mayor salud ocupacional invitaría, en primer lugar, a mejorar las condiciones laborales de la población ocupada en España. En ese sentido, los Presupuestos Generales del Estado del año 2022 incluyeron una partida para la realización de un proyecto piloto de reducción de la jornada laboral. Este proyecto, que supone una partida de 10 millones de euros, tiene como objetivo comprobar *si es posible mejorar las condiciones de los trabajadores, y su conciliación, de forma que no supongan una pérdida de competitividad para las empresas.*[36] El Ministerio de Industria espera que esta norma tenga un impacto positivo en la productividad debido a la implementación de nuevas técnicas organizativas, pero también impactos en el bienestar de los/las trabajadores/as, impactos de género y de igualdad de oportunidades. En segundo lugar, el efecto protector del contrato permanente entre los más satisfechos debería ser un estímulo más en la lucha contra la temporalidad,

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[36] https://industria.gob.es/_layouts/15/HttpHandlerParticipacionPublicaAnexos.ashx?k=47224

especialmente, en aquellos países como España, con un alto porcentaje de contratos temporales y segmentación del mercado de trabajo.

2. Líneas futuras de investigación

El objetivo de la presente tesis es el análisis de la relación entre la situación laboral de una persona y su bienestar psicológico. A lo largo de los capítulos anteriores, dicho bienestar psicológico se ha aproximado a partir de un índice sintético obtenido a partir de la aplicación de una prueba psicométrica que permite identificar a las personas con un bienestar psicológico empobrecido. Sin embargo, el bienestar psicológico podría ser susceptible de descomposición.

Como se ha apuntado en el capítulo introductorio, Kahneman y Riis (2005) distinguen dos componentes dentro del bienestar subjetivo. El primero de ellos es el bienestar experimentado y el segundo el bienestar evaluado. Estos componentes no serían independientes el uno del otro, pero mientras que la evaluación del bienestar está fuertemente influida por el bienestar experimentado, este último tendrá una influencia más modesta sobre el bienestar evaluado. En último término, el componente de satisfacción con la vida requiere una evaluación más alejada del momento actual y, por ello *la recuperación y la integración temporal de las experiencias emocionales son propensas a error y, por lo tanto, la evaluación retrospectiva tiene menos autoridad que el informe de los sentimientos actuales* (Kahneman & Riis, 2005, p. 285).

Kahneman y Deaton (2010) evaluaron el efecto de la renta sobre el bienestar psicológico, concluyendo que esta tiene efectos sobre el bienestar evaluado (*evaluations of life*), pero no sobre el componente experimental (*emotional well-being*). Análogamente, Dolan et al. (2017) utilizan esta desagregación del bienestar psicológico para evaluar el impacto del desempleo y concluyen de nuevo que este afectaría al componente evaluativo, pero no al bienestar experimentado.

A partir de esta descomposición del bienestar psicológico, la primera de las líneas de investigación propuesta para el futuro sería justamente la desagregación de estos dos componentes a partir de los datos de la futura edición de la Encuesta Nacional de Salud de España y analizar cómo se relaciona el desempleo y la precariedad laboral con cada uno de estos dos componentes en el mercado de trabajo español.

Una segunda línea de investigación puede plantearse a partir de la desagregación de algunas variables de interés entre las causantes de un menor o mayor bienestar psicológico. Por una parte, las diferencias de género observadas en el conjunto de la tesis, con un mayor efecto del desempleo en hombres que en mujeres, pero con peores efectos relativos del mismo para las mujeres en el contexto de la COVID-19, sugieren que la interrelación entre situación laboral, género y bienestar psicológico está condicionada de forma expresa por un amplio conjunto de factores. Por ello, el abanico de posibilidades de investigación es muy amplio. Por ejemplo, la tasa de feminización creciente del empleo público, unida a los actuales procesos de estabilización del empleo público, puede afectar a las diferencias de género en bienestar psicológico. Por otra parte, un análisis diferente al anterior, que implica desagregación de variables dependientes, podría atender a la percepción de prestaciones por desempleo o de otro tipo. Los modelos de deprivación económica señalan que el malestar psicológico de la persona desempleada tendría su origen en la reducción de los ingresos, es decir, en las funciones pecuniarias del empleo. Por tanto, podría analizarse la relación entre el desempleo y el bienestar dependiendo del nivel de prestaciones que reciben las personas desempleadas, lo que requeriría disponer de datos sobre prestaciones y bienestar.

La tercera línea de investigación que se propone es ampliar el análisis acerca de cómo la situación laboral moduló el bienestar psicológico durante la pandemia. Para ello, se llevó a cabo una segunda encuesta a las mismas personas que habían respondido a la primera, esto es, a aquellas con la que se elaboró el cuarto capítulo de esta tesis. De esta forma podemos disponer de un panel de datos longitudinales tomados en dos momentos distintos, el primero durante la primera ola de la pandemia que coincidió con el confinamiento (abril-mayo del 2020) y el segundo durante la segunda ola de la pandemia (diciembre del 2020). La disponibilidad de datos en forma de panel permitirá observar de forma más dinámica las transiciones laborales y estimar una función de bienestar psicológico a partir de la situación laboral (entre otras variables) y reducir la endogeneidad proveniente de la causalidad inversa, es decir, de la influencia que dicho bienestar podría tener en la situación laboral.

Finalmente, y como ya se ha comentado, el Ministerio de Industria de España ha propuesto la financiación de un proyecto de reducción de la jornada laboral (con mantenimiento del salario) para pequeñas y medianas empresas industriales. Aunque el

principal objetivo es la mejora de la productividad, otro objetivo también explicitado en el proyecto es el aumento de la satisfacción laboral de las personas. Una de las conclusiones de esta tesis es que este aumento de la satisfacción laboral de los trabajadores podría ser clave para mejorar el bienestar psicológico de las personas con contratos permanentes, haciendo que las condiciones de este tipo de contratos se igualen con el hecho de ser funcionario/a. Por todo lo anterior, la cuarta de las líneas de investigación propuestas en este capítulo final es la evaluación del impacto de estas medidas de reducción de jornada en la satisfacción laboral de la población ocupada y analizar cómo esta satisfacción podría estar mediando en la relación entre el bienestar psicológico y las formas precarias de empleo.

Lejos de una declaración de (buenas) intenciones, la inclusión de las propuestas de investigación futura en una tesis justifican la propia temática de la tesis en la que se insertan. En nuestro caso, los nuevos retos a los que la sociedad ha de enfrentarse debido a crisis económicas cada vez más frecuentes, a la complejidad creciente de los mercados de trabajo o al empeoramiento de la salud psicológica de la población después de la pandemia, y muy especialmente entre la población más joven, evidencia la necesidad de seguir ampliando el conocimiento que se tiene acerca de la forma en la que la investigación en psicología se aplica al campo de la economía y viceversa. La tesis que aquí se cierra no es más que un modestísimo intento de contribuir a esta labor.

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ANEXO 1. General Health Questionaire-12

1-   Have you recently been able to concentrate on whatever you're doing?

2-   Have you recently lost much sleep over worry?

3-   Have you recently felt that you were playing a useful part in things?

4-   Have you recently felt capable of making decisions about things?

5-   Have you recently felt constantly under strain?

6-   Have you recently felt you couldn't overcome your difficulties?

7-   Have you recently been able to enjoy your normal day-to-day activities?

8-   Have you recently been able to face up to problems?

9-   Have you recently been feeling unhappy or depressed?

10- Have you recently been losing confidence in yourself?

11- Have you recently been thinking of yourself as a worthless person?

12- Have you recently been feeling reasonably happy, all things considered?

For each of the 12 items, the possibilities of response are:

More so than usual.................... 1

About the same as usual 2

Less so than usual 3

Much less than usual................. 4

ANEXO 2. Individual estimation of Equation 1 with IV (Chapter 2)

Variables	Univariate probit (dependant variable: PWB)
Being Unemployed	.45293*** (.01904)
(Ln) Provincial unemployment rate (IV)	-.02625 (.01844)
Gender (ref: Women)	
Men	-.30378*** (.01563)
Age (ref: 36-64)	
16-35	-.07971*** (.01742)
Education level (ref: University)	
Less than secondary school	.21204*** (.02558)
Medium level	.15307*** (.01983)
GDP per capita	-.00008*** (.00000)
Nationality (ref: Spanish)	-.08057*** (.02619)
Municipality size (ref: less than 10,000 inhabitants)	
From 10,000 to 20,000	.00643 (.02874)
From 20,000 to 50,000	.06033** (.02686)
From 50,000 to 100,000	.04939 (.03322)
More than 100,000	.02368 (.03633)
Province capital	.09093*** (.02520)
More than 500,000	.10784*** (.03533)
Cons.	.95865*** (.24608)

*** Statistical significance: 1%; ** Statistical significance: 5%; * Statistical significance: 10%. Standard errors in parentheses
Note: results include controls for 52 provincial dummies, which are not shown for reasons of space

ANEXO 3. Finite Mixture Model specification (Chapter 5)

If we assume a standard normal distribution to leads to a probit specification, the log-likelihood function for individual i, assuming they belong to class j, can be written as follows:

$$\ln L_{ij}(\beta_j) = y_i \ln \Phi(\beta_j' x_i) + (1 - y_i)(1 - \ln \Phi(\beta_j' x_i)) \qquad (1)$$

where β_j is a vector of parameters to be estimated; x_i is the vector of explanatory variables; y_i is a dummy variable that takes value one if the individual is at risk of suffering a mental health problem and zero otherwise; and Φ is density function of a standard normal distribution. In latent class models, the class probabilities are often parameterized as multinomial logit models. Thus, the probability of individual i belonging to class j, $P_{ij}(\delta_j)$ can be expressed as follows:

$$P_{ij}(\delta_j) = \frac{\exp(\delta_j' q_i)}{\sum_{j=1}^{J} \exp(\delta_j' q_i)}, \qquad j = 1, \dots, J, \qquad \delta_J = 0 \qquad (2)$$

where q_i is the vector of individual-specific variables or an intercept; and δ_j are parameters to be estimated. Individuals belong to only a class, therefore P_{ij} is indicating the uncertainty regarding the true partition of the sample.

Under these assumptions, the unconditional likelihood function for individual i can be expressed as follows:

$$L_i(\beta, \delta) = \sum_{j=1}^{J} L_{ij}(\beta_j) P_{ij}(\delta_j), \quad 0 \leq P_{ij} \leq 1, \quad \sum_{j=1}^{J} P_{ij}(\delta_j) = 1 \qquad (3)$$

where the weights are class probabilities. Finally, from (2) and (3) we can get the overall likelihood function:

$$\ln L(\beta, \delta) = \sum_{i=1}^{N} \ln L_i(\beta, \delta) = \sum_{i=1}^{N} \ln\left\{\sum_{j=1}^{J} L_{ij}(\beta_j) P_{ij}(\delta_j)\right\}. \qquad (4)$$

Once the beta parameters have been estimated, they can be used to obtain the conditional posterior probabilities as follows:

$$P(j|i) = \frac{L_{ij}(\hat{\beta}_j) P_{ij}(\hat{\delta}_j)}{\sum_{j=1}^{J} L_{ij}(\hat{\beta}_j) P_{ij}(\hat{\delta}_j)} \qquad (5)$$

Where $P(j|i)$ depends not only on the δ parameters estimated but also on the density values which, in turn, depend on the estimated β parameters. In this sense, FMM is able to classify the individuals into groups of individuals (classes) using the goodness of fit of each estimated probit as additional information (it is worth noting that we can get as many probits as the number of classes we have).