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PANDEMIA Y CAMBIO DE PARADIGMA: CRISIS DEL TURISMO DE MASAS Y OPORTUNIDAD PARA EL TURISMO SOSTENIBLE

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LIBERTAD MORENO LUNA

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Fdo. Rafael Robina Ramírez **Fdo.** Marcelo Sánchez-Oro Sánchez

DEDICATORIA

A mi padre, por inspirarme y ayudarme a no rendirme nunca.

A mi compañera, por sufrir mis ausencias aun estando a su lado.

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RESUMEN

El shock producido por la pandemia del COVID-19 ha interrumpido el turismo y las industrias relacionadas. Aunque aún se está evaluando el impacto de la pandemia, los primeros datos recogidos sobre el análisis de la relación entre el sector turístico y el brote pandémico en España proporciona un estudio de caso instructivo para ayudar al turismo en su proceso de recuperación. Junto a estos datos, los medios de comunicación y la investigación académica han contribuido a poner encima de la mesa un debate sobre los impactos de la pandemia en la industria del turismo. Aunque la gran mayoría de los estudios se refieren a los riesgos e impactos económicos sobre los flujos turísticos y los ingresos económicos, pocos de ellos investigan explícitamente las medidas de seguridad y salud que los gerentes de hoteles deben implementar a sus clientes. Los impactos de COVID-19 tiene un refrendo no solo en el turismo sino también en la economía en general y también en los sistemas de atención social, las relaciones humanas y, especialmente en el planteamiento de la sostenibilidad por los organismos internacionales como la Agenda 2030 y los diecisiete Objetivos de Desarrollo Sostenible (ODS). Este catálogo de medidas contribuye a acelerar las políticas de producción más respetuosas con el medio ambiente. Al mismo tiempo, estas medidas han contribuido a desarrollar nuevos planes de estudio y nuevos enfoques pedagógicos. Todos los efectos tienen también un impacto en la educación, en concreto la que se imparte en las universidades. De ahí el interés por conocer las actuales políticas de sostenibilidad en la Universidad y proponer un nuevo modelo que contribuya a aumentar la conciencia medioambiental de los estudiantes de la Universidad, en las áreas de economía y empresa.

Palabras clave: Sostenibilidad, Turismo, Desarrollo Sostenible, Covid-19, Universidad, Enseñanza, Turismo Sostenible.

ABSTRACT

The COVID-19 outbreak has disrupted tourism and related industries. Although the impact of the pandemic is still being evaluated, the first data collected from the analysis of the relationship between the tourism sector and the pandemic in Spain provides an instructive case study to help tourism in its recovery process. Together with these data, the media and academic research have contributed to putting on the table a debate on the impacts of the pandemic on the tourism industry. Although the vast majority of studies refer to economic risks and impacts on tourist flows and economic income, few of them explicitly investigate the health and safety measures that hotel managers must implement for their clients. The impacts of COVID-19 have an endorsement not only in tourism but also in the economy in general, social care systems, human relations and, especially in the approach to sustainability by international agencies, such as Agenda 2030 and the 17 Sustainable Development Goals (SDGs). These measures help to accelerate production policies that are more respectful of the environment. At the same time, these measures have contributed to the development of new curricula and new pedagogical approaches. All effects also have an impact on education, especially at universities. Hence the interest in learning about current sustainability policies at the University and proposing a new model that contributes to increase the students' environmental awareness in the areas of economics and business.

Keywords: Sustainability, Tourism, Sustainable Development, Covid-19, University, Teaching, Sustainable Tourism.

INDICE

1. TESIS PRESENTADA POR COMPENDIO DE PUBLICACIONES

La presente Tesis Doctoral se redacta a partir del contenido de seis artículos previamente publicados en revistas de impacto que abordan la temática relacionada con la sostenibilidad, su enseñanza en las universidades y su análisis y aplicación en temas de importante actualidad, como el turismo y la pandemia del SARS-CoV2-2019, conocida comúnmente como COVID-19.

Esta investigación se ha desarrollado fundamentalmente en tres etapas:

En una etapa inicial con la publicación de dos artículos, el primero se centra en la introducción del comercio electrónico para el avance de la agroecología (tecnologías y productos ecológicos) en España y las actitudes responsables de los productores y consumidores con respecto al medioambiente; el segundo artículo realiza un estudio sobre el papel de la sostenibilidad en las universidades, en particular en la Universidad de Extremadura, como conclusión se detectan las debilidades y por tanto propuestas de mejora que permitan desarrollar una mayor conciencia medioambiental en los estudiantes.

En la siguiente etapa destaca claramente la irrupción de la pandemia a nivel mundial y su impacto en la sostenibilidad y en el turismo, con preferencia a la situación en España y como conclusión algunas respuestas a la crisis sanitaria, ambiental, social y económica en la que nos hemos visto inmersos. Esta etapa, aunque no acabada, si provoca un gran giro en esta investigación, pasando a realizar un estudio exhaustivo del shock que provoca la pandemia en las principales áreas de la sostenibilidad, y en especial cómo afecta al turismo, fenómeno de naturaleza social y que naturalmente implica movilidad, que ha sido absolutamente limitada desde el momento en que se confirmó la gravedad de la nueva situación.

En esta etapa, el tercer artículo, muestra un estudio sobre los servicios hoteleros en España y qué medidas está adoptando el sector para afrontar la crisis y qué soluciones pueden tomarse para una evolución segura a nivel sociosanitario para trabajadores y turistas, al tiempo que se puedan incrementar las visitas y una recuperación paulatina pero segura del turismo. La cuarta publicación se centra en la sostenibilidad del turismo en general y cómo se ha visto afectado el sector a nivel mundial, y en particular el caso de España, siendo un país altamente vulnerable a este tipo de crisis que afecta a la movilidad de las personas, ya que algunas de las Comunidades Autónomas son muy dependientes de los flujos turísticos para su economía y desarrollo, volviéndose altamente vulnerables

ante la evolución de la pandemia. Una quinta publicación analiza las consecuencias que ha tenido la pandemia sobre la población y las desigualdades sociales y económicas que ha puesto de manifiesto la pandemia a nivel mundial, incluyendo algunas propuestas para una mejora en el desarrollo sostenible de nuestra sociedad.

Por último, en una tercera etapa, que no termina si no que da pie al comienzo de un nuevo camino y nuevas líneas de investigación, recoge una temática con la que se comenzó esta Tesis sobre Sostenibilidad en la Universidad. El artículo publicado más recientemente incluye un estudio sobre la enseñanza de la sostenibilidad en las Universidades españolas y en particular, en los Grados en Turismo.

Debido a la importancia que representa la demanda del turismo para la economía española y el modelo de turismo de masas que se ha alimentado en las últimas décadas, se ha realizado un estudio sobre la enseñanza de sostenibilidad en el turismo y se han propuesto algunas recomendaciones para que los estudiantes sepan colaborar hacia un desarrollo de la sociedad más sostenible.

A continuación, se presentan las referencias completas de las revistas en que fueron publicados dichos artículos:

Artículo 1. Moreno-Luna, L., Robina-Ramírez, R., Sánchez-Oro, M., Serrano, J.C. (2021). Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities. Land, 10, 939. DOI: 10.3390/land10090939

Artículo 2. Moreno-Luna, L., Robina-Ramírez, R., Sánchez, M.S.-O., Castro-Serrano, J. (2021). Tourism and Sustainability in Times of COVID-19: The Case of Spain. International Journal of Environmental Research and Public Health, 18, 1859. DOI: 10.3390/ijerph18041859

Artículo 3. Robina-Ramírez, R., Chamorro-Mera, A. and Moreno-Luna, L. (2020). Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain. Electronic Commerce Research and Applications, 42, 100992. DOI: 10.1016/j.elerap.2020.100992

Artículo 4. Robina-Ramírez, R., Medina-Merodio, J.-A., Moreno-Luna, L., Jiménez-Naranjo, H.V. and Sánchez-Oro, M. (2021). Safety and Health Measures for COVID-19

Transition Period in the Hotel Industry in Spain. International Journal of Environmental Research and Public Health, 8, 718. DOI: 10.3390/ijerph18020718

Artículo 5. Clemente-Suárez, V.J., Navarro-Jiménez, E.; Moreno-Luna, L., Saavedra-Serrano, M.C.; Jiménez, M.; Simón, J.A.; Tornero-Aguilera, J.F. (2021). The Impact of the COVID-19 Pandemic on Social, Health, and Economy. Sustainability, 13, 6314. DOI: 10.3390/su13116314

Artículo 6. Robina-Ramírez, R.; Moreno-Luna, L.M. (2020). Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura. Revista Internacional de Organizaciones, 24, 63–90. DOI: 10.17345/rio24.63-90

2. INTRODUCCIÓN GENERAL

2.1 Un punto de partida: El desarrollo sostenible

La publicación de "Nuestro futuro común" en 1987 marcó un hito en el pensamiento sobre el medio ambiente, el desarrollo y la gobernanza.

La Comisión Mundial de Medio Ambiente y Desarrollo (WCED) patrocinada por la ONU, dirigida por Gro Harlem Brundtland, hizo un llamamiento audaz para recalibrar los mecanismos institucionales a nivel global, nacional y local para promover el desarrollo económico que garantizaría "la seguridad, el bienestar, y la misma supervivencia del planeta" (WCED, 1987, p. 23).

La llamada al desarrollo sostenible fue una respuesta pragmática a los problemas de la época. Si bien los objetivos generales fueron ampliamente adoptados, los críticos argumentaron que se frustrarían los pasos hacia su implementación; en primer lugar, por contradicciones fundamentales entre el renovado llamamiento al crecimiento económico en los países en desarrollo y mayores niveles de concienciación ecológica mundial; y, en segundo lugar, por la falta de atención a las relaciones de poder entre los actores e instituciones locales y globales que apoyaron el desarrollo insostenible (Lélé, 1991). Dieciocho años después, el régimen cooperativo de gobernanza ambiental global previsto en la Cumbre de la Tierra de 1992 en Río, todavía se encuentra en una incubadora institucional, mientras que la globalización económica se ha vuelto completamente operativa (Haque, 1999), aumentando drásticamente las desigualdades en el acceso a las oportunidades económicas dentro y entre la mayoría de las sociedades, lo que hace que la gobernanza pragmática hacia los objetivos sociales y ambientales sea cada vez más difícil.

En primer lugar, "Nuestro futuro común" se centró en las cuestiones críticas de la equidad y el medio ambiente y planteó importantes consideraciones éticas con respecto a las relaciones entre el ser humano y el medio ambiente (Langhelle, 1999), que siguen siendo de gran relevancia. El declive en la equidad y la calidad ambiental desde este informe ciertamente debería hacer reflexionar tanto a los proponentes como a los críticos sobre el futuro del desarrollo sostenible.

El concepto y la práctica del desarrollo sostenible (DS) sigue siendo relevante para enfrentar los múltiples desafíos de nuestro nuevo contexto global. La sostenibilidad aún puede ser posible si un número suficiente de académicos, profesionales y actores políticos adoptan una pluralidad de enfoques y perspectivas sobre la sostenibilidad, aceptan

múltiples interpretaciones y prácticas asociadas con un concepto en evolución de "desarrollo" y apoyan una mayor apertura de los enfoques locales a espacios públicos globales para debatir y promulgar una política de sostenibilidad. La economía ecológica y otros modos transdisciplinarios de producción de conocimiento son vitales para tales esfuerzos.

Tras el paso de los años todavía es necesario un enfoque renovado en el desarrollo sostenible como un discurso importante que aún puede ayudarnos a resolver los viejos dilemas del medioambiente y el desarrollo de hoy. En este sentido se han ido desarrollando cada uno de los artículos.

En cada uno de ellos se ha tratado el desarrollo sostenible desde puntos de vista relacionados pero divergentes. Así en "Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities" y en "Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura" se ha realizado una aproximación al desarrollo sostenible desde los Grados de Turismo, aportando soluciones y medidas concretas para respetar el medio ambiente y promover unos estudios más comprometidos con la sociedad y la defensa de la naturaleza en los destinos turísticos.

En el tercer trabajo "Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain" se promueve un acercamiento al desarrollo sostenible a partir del estudio del mercado de productos agroalimentarios ecológicos. Extremadura es uno de los líderes a nivel nacional en número de hectáreas producción agrícola ecológica, de ahí el interés por analizar cuáles son los factores que llevan a comprar y vender estos productos desde un enfoque sostenible.

La presente pandemia en la que nos encontramos me ha llevado a profundizar en las consecuencias que tiene en el desarrollo sostenible. Y en concreto en el turismo y en la economía en general. Así, los artículos segundo "Tourism and Sustainability in Times of COVID-19: The Case of Spain", cuarto "Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain" y quinto "The Impact of the COVID-19 Pandemic on Social, Health, and Economy. Sustainability", profundizan en ambas temáticas.

2.2 El futuro del desarrollo sostenible. La Agenda 2030 y los ODS en el contexto español

De acuerdo con Moreno-Luna et al. (2021), el concepto de sostenibilidad ha atraído en las últimas décadas cada vez más a académicos y profesionales de todo el mundo.

Para poner en práctica la esencia de la sostenibilidad, la Asamblea General de las Naciones Unidas (ONU) lanzó la Agenda 2030 para el Desarrollo Sostenible en septiembre de 2015 como un esquema compartido de la sostenibilidad. Esta Agenda presenta 17 Objetivos de Desarrollo Sostenible (ODS) y hace un llamamiento a todos los gobiernos y empresas privadas para que apoyen el logro de los ODS especificados (Van der Waal y Thijssens, 2020). Siguiendo los ejemplos de otros estudios nacionales (Ravindra et al., 2021), se construye el marco de estudio que ha servido para encuadrar los trabajos publicados a lo largo de los dos últimos años.

Desde este enfoque, en septiembre de 2015, los Jefes de Estado y de Gobierno de 193 países, reunidos en la 70 Asamblea General de las Naciones Unidas (ONU), acordaron la Agenda 2030 para el Desarrollo Sostenible. Es un plan de acción para las personas, el planeta y la prosperidad que busca erradicar la pobreza y el hambre en todas partes; combatir las desigualdades dentro y entre países; construir sociedades pacíficas, justas e inclusivas; proteger los derechos humanos y promover la igualdad de género y el empoderamiento de mujeres y niñas; y garantizar la protección duradera del planeta y sus recursos naturales (United Nations Resolution 70/1, 2019).

La propia Agenda 2030 incluye una Declaración política y un conjunto de 17 Objetivos de Desarrollo Sostenible (ODS) y 169 metas. No obstante, es indivisible y debe aplicarse en su conjunto, de manera integrada y no fragmentada, ya que los diferentes objetivos y metas están estrechamente interrelacionados (European Commission, 2019). De hecho, algunos estudios han explorado las relaciones causales dentro de los ODS (Dörgo, Sebestyén; Abonyi, 2018).

La Agenda no solo contiene objetivos y metas, sino que también aborda el desafío de la implementación y, finalmente, pero lo que es más importante, un marco para el seguimiento y la revisión. Esto es crucial y requiere estudios personalizados, ya que los índices generales no siempre parecen ser los mejores indicadores para medir el progreso real de los objetivos (Diaz-Sarachaga et al., 2019).

En realidad, se necesitan estudios de base nacional para explorar la coherencia de las políticas públicas con la Agenda 2030 (Fourie, 2018). La Resolución de la ONU establece que, a pesar del apoyo y la ayuda de organizaciones internacionales, la finalización exitosa del ODS es una responsabilidad nacional. Como actor de cohesión, la Unión Europea (UE) ha desempeñado un papel activo en la implementación de los ODS, especialmente en la cooperación para el desarrollo con los países socios y proporciona estadísticas e indicadores relevantes que se pueden utilizar, como lo hace este estudio, para evaluar y predecir la medida en la que un país puede alcanzar estos objetivos y su posición relativa dentro de un marco internacional.

Desde el punto de vista institucional, España apuesta por la Agenda 2030 al más alto nivel. El compromiso político se ha materializado, entre otros, en el "Plan de implementación de la Agenda 2030" del Gabinete, aprobado en junio de 2018 (Consejo de Ministros de España, 2019) y en la creación del "Consejo de Desarrollo Sostenible" en febrero de 2019 (Ministerio de la Presidencia, 2019).

España formó parte de la revisión nacional voluntaria de 2018 sobre desarrollo sostenible, identificando la Agenda 2030 no solo como un nuevo contrato social obligatorio sino también como una gran oportunidad para el país. De hecho, el informe muestra cómo el análisis de la crisis económica y de sus persistentes consecuencias pone en evidencia lecciones relevantes. Es necesario modificar los patrones de fabricación; unirse a una profunda transformación ambiental ecológica; asegurar que los beneficios del crecimiento económico contribuyan a reducir la pobreza y mejorar la igualdad; y proteger los derechos humanos y el estado social (Gobierno de España, 2019). El 25 de septiembre de 2019, el presidente en funciones español habló durante la Cumbre de los ODS celebrada en la Sede de la ONU en Nueva York, definiendo los ODS como la hoja de ruta del Gobierno (Sánchez Pérez-Castejón, 2019). De hecho, en España la política de desarrollo sostenible se lleva a cabo apoyándose en documentos estratégicos como la Estrategia Nacional de Lucha contra la Pobreza 2019-2023 (Gobierno de España, 2019a), la Guía Estratégica de Energía y Clima, que incluye un Anteproyecto de Ley de Cambio Climático y Transición Energética, una Estrategia de Transición Justa y un Plan Nacional de Energía y Clima para el período 2021-2030 (Gobierno de España, 2019b), o la nueva Agenda Urbana con perspectiva 2030 (Gobierno de España, 2019c).

A pesar de esa fuerte apuesta institucional, el grado en el que la sociedad está realmente comprometida con la sostenibilidad sigue siendo incierto. Actualmente existen

perspectivas de implementación real de los ODS en España, de hecho, en otoño de 2019, se lanzó una campaña oficial denominada #ODSéate para que la población conociera plenamente los ODS. Desde entonces, cualquier comunicación institucional del gobierno, redes sociales incluidas, se representa con el logo de los ODS y la emblemática rueda de colores (Gobierno de España, 2019d). La campaña es una de las medidas contempladas por el Plan mencionado anteriormente, y su propia necesidad demuestra que la ciudadanía aún no conoce adecuadamente la existencia de la Agenda 2030.

Desde la aprobación del mencionado Plan de Acción para la implementación de la Agenda 2030 (Consejo de Ministros de España, 2019), el avance ha sido limitado principalmente por la fragmentación e inestabilidad política que ha dado lugar a dos procesos electorales, primero en abril y luego en noviembre 2019. El nuevo gobierno de coalición formado en enero de 2020, que no tiene mayoría parlamentaria, parece estar profundamente preocupado por la situación. Por ello, se ha adoptado una Declaración ante la Emergencia Climática y Ambiental en España, así como el compromiso de implementar 30 líneas de actuación para abordarla. Entre otros propósitos de investigación, este trabajo también tiene como objetivo contribuir a concienciar sobre los profundos cambios que implican los ODS y reflexionar sobre la efectividad de las políticas y regulaciones ambientales actuales desde un enfoque multidisciplinario (Prieur, 2018).

2.3 COVID-19 impacto en los tres pilares del desarrollo sostenible

Con la incorporación de los tres pilares interconectados (Ranjbari et al., 2019), la sostenibilidad se ocupa de una integración equilibrada del desempeño social, ambiental y económico de las vidas humanas dentro de la sociedad, el medio ambiente y la economía en beneficio de las generaciones actuales y futuras (Geissdoerfer et al., 2017). Dada la naturaleza ambigua y desafiante de la sostenibilidad para las organizaciones, Elkington (1998) propuso el concepto de triple resultado (TBL) para apoyar y hacer operativa la implementación del desarrollo sostenible, donde emplea y equilibra simultáneamente los tres pilares de la sostenibilidad (Giménez et al., 2012).

La nueva enfermedad infecciosa causada por el coronavirus 2019 (COVID-19) surgió por primera vez en diciembre de 2019 en China y se extendió por todo el mundo de tal manera que la Organización Mundial de la Salud (OMS) la anunció como una pandemia en marzo de 2020 (OMS, 2020a). A 25 de enero de 2021, la OMS había

registrado un número total de 98.794.942 casos confirmados de COVID-19, incluidas 2.124.193 muertes en 235 países, áreas y territorios (OMS, 2021). La magnitud de la crisis ha marcado la pandemia de COVID-19 como la catástrofe sanitaria más grave de este siglo (Chakraborty y Maity, 2020).

La crisis del COVID-19 ha impuesto una inmensa presión sobre la economía mundial y las actividades comerciales con importantes consecuencias financieras adversas, una mayor pérdida del PIB de los países y ha aumentado la pobreza y el hambre en todo el mundo (Iwuoha y Jude-Iwuoha, 2020). Como resultado, la crisis de salud global causada por esta pandemia frena enormemente el progreso de la comunidad internacional hacia la sostenibilidad (Lee et al., 2020). Barbier y Burgess (2020) argumentaron que los impactos adversos de COVID-19 podrían comprometer nuestra capacidad para lograr 12 de los 17 objetivos de la Agenda 2030 para el Desarrollo Sostenible. Además, Leal Filho et al. (2020) identificó la crisis sanitaria como una amenaza significativa para la implementación del desarrollo sostenible al reducir la prioridad de los ODS. Por lo tanto, si bien se están realizando importantes esfuerzos globales para controlar la pandemia, no se debe descuidar la sostenibilidad en la era posterior al COVID-19 (Lambert et al., 2020). De hecho, la sostenibilidad y el logro de los ODS son aún más críticos ahora que antes (Leal Filho et al., 2020).

Aunque la pandemia es reciente, se ha realizado una gran cantidad de investigaciones relacionadas con COVID-19 debido a sus importantes implicaciones y consecuencias para la sociedad, el medio ambiente y la economía en todo el mundo. El efecto de la pandemia en diferentes dimensiones de la sostenibilidad y el desarrollo sostenible ha sido investigado por muchos estudiosos de la sostenibilidad en una amplia gama de áreas temáticas, como los sistemas de salud (Osingada y Porta, 2020), turismo (Ioannides y Gyimóthy, 2020; Romagosa, 2020), industria alimentaria (Fleetwood, 2020), ODS (Ashford et al., 2020), transición sostenible (Bodenheimer y Leidenberger, 2020), educación (Anholon et al., 2020; Tran et al., 2020), gestión estratégica (Barreiro-Gen et al., 2020), contaminación ambiental (Somani et al., 2020), cambio climático (Markard y Rosenbloom, 2020), disciplinas en cadenas de suministro (Chowdhury et al., 2021) y gestión de residuos (Kulkarni y Anantharama, 2020).

La mayoría de los trabajos de investigación anteriores se han centrado solo en un área temática específica o han considerado solo una dimensión de la sostenibilidad a la luz del brote de COVID-19. Además, debido a la emergencia sanitaria provocada por

virus y al interés cada vez más generalizado de los académicos por responder a la llamada urgente a la acción en el contexto de la sostenibilidad en un corto período, la literatura en esta área está muy fragmentada. En consecuencia, falta en la literatura un análisis integral de las implicaciones de COVID-19 para las prácticas de sostenibilidad en su conjunto. Por lo tanto, esta investigación presta mucha atención a la sostenibilidad basada en el marco de TBL dentro de las diferentes áreas temáticas, que han sido impactadas por la pandemia de COVID-19 para proporcionar una visión general y clara de los efectos, desafíos y oportunidades en la sostenibilidad. Con respecto a los artículos revisados, se detecta que es necesario abordar las implicaciones de la pandemia para la integración de los pilares sociales, ambientales y económicos del área de investigación de la sostenibilidad. Por lo tanto, reunir todas las investigaciones sobre sostenibilidad después de la pandemia puede ayudar a los gobiernos, las autoridades, los profesionales y los responsables de la formulación de políticas a averiguar dónde concentrar sus esfuerzos para aliviar los impactos negativos de la pandemia para avanzar en el desarrollo sostenible, y también apoyar a los investigadores e investigadoras para encontrar las lagunas, definir futuras direcciones de investigación y derivar nuevos intereses de investigación en el área.

2.4 Impacto COVID-19 en el turismo

De acuerdo con Moreno-Luna et al. (2021), el brote de COVID-19 ha provocado una crisis sin precedentes en España. Después de que China superó su pico de infecciones, la propagación del virus en Italia fue rápida, seguida de España, que se convirtió en el segundo epicentro en Europa por número de casos, alcanzando una de las tasas de mortalidad más altas del mundo. Desde septiembre de 2020, apareció una nueva ola de casos y muchos destinos introdujeron bloqueos y restricciones de viaje (Zhang, 2020). Según datos publicados el 29 de noviembre por la Organización Mundial de la Salud (WHO, 2020), España fue uno de los países más afectados de la llamada segunda ola, con 1.628.208 casos y 44.668 muertes en una población de unos 47 millones de personas.

Según los datos publicados en enero por la Organización Mundial del Turismo (UNWTO, 2020), el turismo mundial proporcionó 1,5 trillones de dólares en gastos turísticos y llegó a mover 1.5 billones de turistas en 2019. El turismo se ha visto afectado tanto en la oferta como en la demanda de viajes (Nicola, et, 2020). Según los datos del Barómetro del Turismo Mundial publicados en julio de 2020 (UNWTO, 2020), el bloqueo

impuesto provocó una disminución del 98% en las llegadas de turistas internacionales mundiales este año durante abril y mayo, en comparación con el mismo período de 2019, y del 70% entre enero y agosto. El coste hasta mayo superó tres veces las pérdidas resultantes de la crisis económica global de 2008, y esto se traduce en una caída de más de 300 millones de turistas, lo que provocó una disminución de 320 millones de dólares en gasto turístico. Por esta razón, la OMT (UNWTO, 2020a), califica 2020 como "el peor año de la historia del turismo". Esta fuente estima la caída de las llegadas internacionales en un 74%, con una pérdida de más de mil millones de llegadas menos a nivel mundial, sin espera de una recuperación de la actividad hasta al menos 2022.

El turismo juega un papel fundamental en el desarrollo de muchos países. Muchos de los países más afectados por la emergencia sanitaria, como España, Francia o Italia, son destinos clave a nivel mundial (WTTC, 2020). El impacto de la crisis será particularmente crítico en estos territorios debido a su fuerte dependencia del turismo internacional, haciéndolos más vulnerables (Robina-Ramírez et al., 2021). Según la Organización Mundial del Turismo, España es el segundo país con mayor número de llegadas de turistas internacionales (UNWTO, 2020). Esta situación, en la que el turismo representa el 12% del PIB de la economía, convierte a nuestro país en el tercer destino más vulnerable del mundo, en comparación con el resto de países líderes en turismo (UNWTO, 2020b).

Además, junto con la fuerte caída de las tasas de ocupación durante este año, muestra la importancia de estudiar con detenimiento el caso español. El propósito de esta investigación apunta no solo a comprender la gravedad de la situación que vive el país, sino a brindar medidas sobre la recuperación del sector turístico. España fue elegida para este estudio de caso por ser uno de los países más visitados del mundo, con más de 83,7 millones de turistas al año. Es el segundo país más visitado después de Francia, y el segundo en gasto turístico después de Estados Unidos, con más de 112.319 millones de dólares (UNWTO, 2020c). En España, el sector turístico es de gran importancia económica, ya que genera más de 2,6 millones de puestos de trabajo, lo que representa el 12,8% del empleo total del país y aporta el 12,3% de su PIB (INE, 2020).

2.5 Educación para el desarrollo sostenible del turismo

El cierre de COVID-19 también presenta una oportunidad para reflexionar sobre los desafíos encontrados por las instituciones de educación superior hasta la fecha. Las

universidades se enfrentan a varias barreras relacionadas con la implementación del desarrollo sostenible, como la falta de recursos financieros y humanos, y la falta de personal capacitado (Farinha et al., 2020). Además, también existen otras barreras que pueden considerarse condiciones previas para que las universidades implementen con éxito iniciativas de sostenibilidad a largo plazo. Estos incluyen: falta de planificación, la no adopción de un enfoque escolar integral para incorporar la sostenibilidad (Farinha et al., 2020; Leal Filho et al., 2018a) y falta de recursos financieros para apoyar iniciativas de sostenibilidad (Leal Filho et al.2018a).

Las nuevas tendencias en la sociedad y en la tecnología vienen con desafíos, pero también brindan oportunidades (Brudermann et al., 2019) y, por lo tanto, las barreras que afrontan las universidades también pueden verse como una motivación para la implementación del desarrollo sostenible (Farinha et al., 2020). Este artículo analiza los posibles avances de la tecnología para implementar la sostenibilidad en la educación superior. También reconoce la necesidad de un pensamiento creativo para adaptarse rápidamente a un entorno que cambia rápidamente. Sin embargo, es necesario reconocer que no todo el personal académico conoce las políticas existentes sobre el uso de la tecnología en la educación superior, ya sea que estas políticas se encuentren a nivel nacional, institucional o de la facultad (Habib y Johannesen, 2014). Durante el brote de COVID-19 y el cierre de universidades, el Ministerio de Educación de China lanzó una iniciativa de política de emergencia llamada “Suspensión de clases sin detener el aprendizaje” para cambiar las actividades presenciales a la enseñanza online a gran escala mientras las escuelas estaban cerradas (Zhang et al., 2020). Muchos países fueron tomados por sorpresa y la implementación de una enseñanza repentina basada en medios online planteó un desafío que algunos intentaron acometer.

La educación superior tiene un largo historial de uso de la tecnología para ayudar a los objetivos pedagógicos. Las universidades de educación a distancia ya ofrecen títulos en e-learning y recursos educativos abiertos (Azeiteiro et al., 2014; 2015) basados en sus modelos pedagógicos. Y las universidades de enseñanza presencial tuvieron que responder a la pandemia con una transición inmediata a la enseñanza a distancia online. La situación configura lo que Hodges et al. (2020) se refieren a una situación de “Enseñanza Remota de Emergencia”. Sin embargo, el e-learning es un desafío para las universidades de enseñanza presencial, dado el modelo pedagógico histórico de educación presencial utilizado. Esta situación también propició una oportunidad para la

colaboración y el intercambio de experiencias en contextos universitarios presenciales. Las respuestas exitosas incluyen la enseñanza de sostenibilidad y cambio climático (Azeiteiro et al., 2014; 2018) y la enseñanza e-Learning para la crisis global posterior al COVID-19 (Dans, 2020).

El creciente interés en la educación para la ciudadanía mundial y el desarrollo se ha producido como un resultado de una serie de factores, como, por ejemplo, la creciente naturaleza multicultural de las sociedades y el trabajo de las organizaciones internacionales de desarrollo (Baily et al., 2017; O'Flaherty et Alabama, 2017). Se ha dado mayor importancia a resaltar las desigualdades que existen en el mundo y el papel que todos desempeñamos para causar o prevenir tales desigualdades (Liddy y Parker Jenkins, 2013; McMorrow, 2006).

Los ODS, elaborados por Naciones Unidas, incluyen un objetivo centrado en que los estudiantes adquieran los conocimientos y las habilidades necesarias para promover el desarrollo sostenible (UNESCO, 2015). Sin embargo, en un entorno de decisiones ¿Pueden las medidas de aprendizaje tener en cuenta los niveles mejorados de compromiso cívico y eficacia social?, y ¿Pueden las medidas de impacto recopilan todos los resultados del aprendizaje? En esta investigación se aborda cómo estas intervenciones educativas miden y dan cuenta del impacto, que se exige en un entorno de políticas de gestión. Se desarrolla una síntesis de la literatura relacionada con la cuestión del "impacto" de las "intervenciones" deliberadas de educación para el desarrollo, guiada por la siguiente pregunta de investigación: ¿Cuál es el impacto de las intervenciones en educación para el desarrollo sostenible?, presentada desde la perspectiva de las políticas y de la práctica. A continuación, se describe la metodología utilizada para enmarcar la síntesis de la literatura. Los resultados se presentan en tres secciones: Formas de evaluación del aprendizaje / Evaluación del impacto; Contenido educativo; y resultados de la intervención. Finalmente, se exploran algunas interpretaciones de estos hallazgos desde una perspectiva local e internacional. Consciente de la necesidad de evidencia de aprendizaje de alta calidad, esta síntesis de investigación proporcionará una compilación y revisión completa y actualizada de la investigación con respecto a la medición de indicadores de aprendizaje que tienen como objetivo mejorar la capacidad de los educandos en su comprensión del mundo.

3. METODOLOGÍA

Los trabajos publicados han sido elaborados desde una metodología cualitativa y cuantitativa. La primera basada en revisiones de la literatura de fuentes secundarias y también la búsqueda de información a través de las fuentes primarias y grupos de trabajo o "Focus Groups". La segunda basada en métodos cuantitativos a partir de las ecuaciones estructurales SEM-PLS.

A partir de los Focus Groups se han podido definir las variables objeto del estudio. Estas variables han sido siempre testadas entre la población objeto del estudio. Fruto de estas pruebas se han podido validar los cuestionarios que han sido pasados a la población del estudio en diferentes muestras.

Tabla 1. Resumen de la metodología usada en cada publicación

REVISTAS PUBLICADAS	FUENTE INFORMACION	METODOLOGÍA	MUESTRA
RIO	Primaria	Cuestionarios	420
ECRA	Primaria	Cuestionarios	578
IJERPH1	Primaria	Cuestionarios/Entrevistas	378
IJERPH2	Secundaria	Revisión de la Literatura y Bases de Datos	-
SUSTAINABILITY	Secundaria	Revisión de la Literatura y Bases de Datos	-
LAND	Primaria	Cuestionarios/Entrevistas	55

Fuente: Elaboración propia

El trabajo metodológico basado en Focus Groups, ha sido estructurado partir del libro "Los Grupos Focales como herramienta de investigación turística" (2020), permitiendo así a los directores de esta tesis orientarme en el empleo de técnicas para la recolección de datos.

3.1 Proceso de revisión narrativa y bases de datos

Para alcanzar los objetivos presentados en los artículos, se realizó un consenso y revisión crítica utilizando tanto fuentes primarias, como artículos científicos, fuentes secundarias, como índices bibliográficos, páginas web y bases de datos. Los principales motores de búsqueda fueron WOS, SciELO y Google Scholar. El método fue una revisión de la literatura narrativa y de la literatura disponible.

La revisión narrativa es un análisis exhaustivo, crítico y objetivo del conocimiento actual sobre el presente tema. Es una parte esencial del proceso de investigación y ayuda a establecer un marco teórico y un enfoque o contexto para futuras investigaciones e intervenciones. Se realizó un consenso y revisión crítica utilizando tanto fuentes primarias, como artículos científicos, como secundarias, así como índices bibliográficos, páginas webs y bases de datos.

Se utilizaron los siguientes criterios de exclusión: (I) estudios con datos antiguos (fuera de las fechas de la COVID-19), (II) presentar temas inapropiados que no corresponden al enfoque principal de la revisión, y (III) tesis doctorales, actas de congresos, resúmenes y estudios en documentos inéditos. Se incluyeron todos los artículos que cumplieron con los estándares metodológicos y científicos que tuvieron relación con la temática.

En el caso del artículo "Tourism and Sustainability in Times of COVID-19: The Case of Spain", en cuanto a los materiales de trabajo para el desarrollo del análisis, el primer objetivo fue ilustrar la relación entre el sector turístico y el brote de COVID-19 en España. Para ello, se seleccionaron las Comunidades Autónomas con más casos confirmados para estudiar la existencia de algún tipo de relación entre el impacto de los casos confirmados y la mayor cantidad de turistas en las regiones. A partir de los datos obtenidos de las 17 Comunidades Autónomas ubicadas en la Península Ibérica, se seleccionaron y recopilaron datos diarios desde el 31 de enero hasta noviembre de 2020, organizados a partir de diversas fuentes oficiales proporcionadas por instituciones de nivel nacional e internacional. Los datos disponibles se obtuvieron brutos y no clasificados, por lo tanto, con el fin de que los datos estuvieran disponibles para el estudio fue necesario ordenarlos, depurarlos y clasificarlos.

Estos datos permitieron evaluar las tendencias en todas las regiones: información sobre la salud para cada región como el número de casos acumulados diarios y muertes confirmadas que fueron actualizados semanalmente. Sin embargo, debido a la situación excepcional provocada por la pandemia, el sistema sanitario español no estaba preparado para hacer frente a esta crisis y es posible que algunas regiones no pudieran proporcionar datos diarios precisos.

El impacto general de la pandemia en el medio ambiente, la sociedad y la economía un gran volumen de información estadística, obtenida directamente de

organismos nacionales e internacionales o de otros estudios secundarios. Se consideraron varias variables para el análisis del impacto de esta crisis en España: PIB de cada región, tasas de desempleo, tasas de variación de llegadas de turistas (internacional y turismo interno), y la oferta de servicios turísticos. Los datos se dividieron en tres etapas, el inicio de la pandemia de enero a mayo (período con más restricciones en España), la segunda etapa de junio a agosto (levantamiento de la alarma estatal), y septiembre-noviembre (la aparición de una nueva ola de casos y estado de alarma).

En cuanto a la metodología, se aplicó un análisis comparativo, dado que es una herramienta eficaz a la hora de describir hechos complejos, que son importantes desde un punto de vista social, económico o medioambiental, y que tienen impactos diferenciados en las diferentes áreas o territorios, organizando los datos y su presentación a través de tablas, gráficos ilustrativos y representación cartográfica.

3.2 Una introducción a los Focus Groups

Sus orígenes se remontan a la Universidad de Columbia a finales de la década de 1940 cuando se quiere contrastar la información del gobierno en tiempos de guerra (Bloor et al., 2001). De un método de recopilación de datos predominante en organizaciones públicas y privada se ha convertido en una herramienta de investigación valiosa en las últimas décadas.

Se trata de un método cualitativo de recopilación de datos que se ha utilizado ampliamente en las ciencias sociales durante varias décadas (Parker y Jonathan, 2006). Los grupos focales se utilizan comúnmente para explorar y construir conocimiento sobre un fenómeno particular en grupos pequeños (Kitzinger, 1995; Liamputtong, 2011; Krueger y Casey, 2015) o para ayudar en la interpretación, evaluación crítica o retroalimentación de los resultados de la encuesta (Bloor et al., 2001). Para un investigador o investigadora, los grupos focales ofrecen una invaluable amplitud de aprendizaje y los pensamientos de los participantes complementan la originalidad del propio pensamiento del que realiza la investigación (Bloor et al., 2001). Además, los participantes en dichos grupos de trabajo tienen la capacidad de identificar varias dimensiones (no observables a primera vista) de un tema (Longhurst, 2010).

Este método se caracteriza por ser una herramienta para contrastar la información inicial obtenida a partir de la revisión de la literatura, esta información permite adaptarla

y complementarla con la realidad a la que se dirige el estudio. Al mismo tiempo permite perfectamente combinar otros métodos de investigación como encuestas, cuestionarios y entrevistas individuales (Longhurst, 2010).

Además, su eficiencia en el tiempo y su bajo costo han propiciado su adopción generalizada. Otra razón para el amplio uso del método de Focus Groups es su naturaleza participativa inherente basada en procesos grupales (Chiu, 2003), lo que lo convierte en un excelente enfoque participativo. Esto se ve reforzado además por el hecho de que los grupos focales normalmente se dirigen a personas con un elevado conocimiento sobre la temática sobre la que se va a discutir, se trataría de "agentes de información privilegiados" (Farinosi et al., 2019). En consecuencia, el grupo focal es uno de los métodos de investigación más dinámicos (Farinosi et al., 2019), su dinámica de grupo ayuda a los investigadores a obtener datos más ricos y detallados (Berg, Lune, & Lune, 2012), lo que la distingue de otros métodos de investigación cualitativa.

Esta metodología ofrece unos beneficios tanto para el equipo investigador como para los participantes en el trabajo de investigación ya que permite incorporar las necesidades y expectativas de las personas que participan en el estudio. Cuando la discusión de un grupo de enfoque está impulsada por pura curiosidad, los beneficios de los participantes se limitan a obtener nuevos conocimientos y una perspectiva más amplia sobre los problemas compartidos dentro de un grupo de manera más general, como el empoderamiento, la inclusión y la construcción de la comunidad.

Por tanto, el elemento básico de este método es el aspecto participativo, que estimula la discusión dinámica entre los participantes guiada por un moderador de tal manera que todos los miembros del grupo estén comprometidos y activos (Miller y Scoptur, 2016). Por lo general, un ciclo de grupo focal consta de dos a diez discusiones, pero el número varía y depende de los objetivos de la investigación, el número de temas y la disponibilidad de tiempo y presupuesto. El número de participantes para cada discusión de grupo de enfoque individual varía de un óptimo seis a ocho, a modificaciones prácticas de la vida real que van desde tres a catorce participantes. El tamaño del grupo refleja las características de los participantes, así como los temas que se discuten (Bloor et al., 2001).

Aunque el método de los grupos focales se utiliza principalmente en las ciencias sociales, su usabilidad se aplica a otras disciplinas si la investigación requiere un aspecto

humano, medioambiental o social, de gran interés en la época de Covid-19 que estamos viviendo. Por lo tanto, el método también ha ganado popularidad en la gestión de recursos naturales. Los recursos naturales no solo son en general muy complejos, sino que también afectan a diversas políticas sectoriales, lo que dificulta su gestión. El futuro de la gestión medioambiental y su desarrollo futuro no son una excepción, especialmente en relación con el discurso del cambio climático y las preocupaciones sobre accesibilidad y equidad social, entre otras cosas.

3.3 Focus Groups aplicado al turismo y Covid-19

De acuerdo con Sánchez-Oro y Robina (2020) el diseño metodológico, a partir de los "grupos focales", tiene tres implicaciones en la metodología del estudio de fenómenos turísticos. Primero, el enfoque que se utiliza en estos trabajos va más allá del reduccionismo de los métodos positivistas (exclusivamente cuantitativos), incorporando de este modo, una visión holística del problema turístico. Segundo, el uso de esta herramienta cualitativa de investigación incorpora los resultados de la interacción entre el investigador y los investigados. En consecuencia, la interacción proveniente de la valoración que los actores que intervienen tienen de este fenómeno social, influye en los cambios en la percepción de los fenómenos vinculados al turismo. Tercero, resaltar la conveniencia de adoptar una posición metodológicamente ecléctica en los estudios turísticos, que integre lo cualitativo y cuantitativo.

La pandemia de COVID-19 ha sido un multiplicador de impactos, impulsando y profundizando las vulnerabilidades, de ahí la importancia de desarrollar Focus Groups para analizar su efecto tanto en el turismo como en la sostenibilidad. El estallido de la pandemia ha traído desafíos en numerosos aspectos operativos, pero también oportunidades para que los trabajadores en ayuda humanitaria innoven sus enfoques y sienten las bases para que mejoren su capacidad de respuesta a estos impactos.

3.4 El proceso seguido en los Focus Groups en los trabajos presentados

En las ciencias sociales aplicadas, las discusiones de grupos focales o las entrevistas grupales en profundidad se encuentran entre las herramientas de investigación más utilizadas. Los participantes responderán y se basarán en lo que han dicho otros

miembros del grupo. Se cree que este enfoque sinérgico genera información más reveladora y anima a los participantes de la discusión a dar respuestas más sinceras.

La presencia de un moderador y el uso de una guía de discusión. El moderador debe estimular el debate entre los miembros del grupo en lugar de entrevistar a miembros individuales, es decir, se debe alentar a cada participante a expresar sus puntos de vista sobre cada tema, así como a responder a los puntos de vista expresados por los demás participantes.

El tipo de datos que deben obtenerse de los participantes determinará hasta qué punto debe estructurarse la sesión y, por lo tanto, cuán directivo debe ser el moderador.

En la planificación del trabajo se identificaron diferentes participantes, los principales grupos de partes interesadas fueron:

1) Hoteleros rurales y urbanos (Artículo titulado: Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain)

2) Productores y consumidores de productos sostenibles y ecológicos (Artículo: Organic online attributes for buying and selling agricultural products in e-Marketplace in Spain)

3) Estudiantes del grado de turismo en España (Artículo: Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura)

Durante las sesiones se han seguido los siguientes pasos:

1) Contacto por email con cada uno de los participantes

2) Recibimiento de la aceptación o denegación para formar parte del grupo de trabajo.

3) Explicación de los objetivos científicos del trabajo a los grupos de trabajo

4) Formación de FG en función de similitud profesional, categoría de trabajo, etc.

5) Formación y secuenciación de las reuniones. En la mayoría de los casos se han desarrollado a través de la herramienta “Zoom” debido a los efectos de la pandemia.

6) Durante la primera sesión se han presentado las variables según la temática, obtenidas a partir de la revisión de la literatura. A ella se han añadido diferentes secciones conocidas como “lluvia de ideas” en la que se pidió a cada miembro del grupo que generara una idea bajo el área temática del grupo de trabajo.

7) La presentación de las ideas de cada participante al resto del grupo.

8) La discusión y selección de las ideas más favorables que conducen a la formación de subgrupos dentro del grupo de trabajo principal.

9) El mayor refinamiento de las ideas a partir de un conjunto de preguntas orientadoras.

3.5 Dificultades sobrevenidas en las sesiones de Focus Groups

Uno de los problemas principales que se encontraron en plena pandemia ha sido fijar un horario concreto para participar en los grupos de trabajo. Establecer la disponibilidad para asistir a los grupos focales se ha convertido en un freno para interactuar unos con otros. Además, un elevado número de participantes no respondieron a los correos electrónicos ni a las invitaciones de Google Calendar. Ello llevó a multiplicar los contactos por vía telefónica.

Algunas personas que manifestaron interés en participar no se unieron al grupo focal. La mayoría de los abandonos ocurrieron entre la inscripción inicial en el grupo de enfoque y la primera comunicación de seguimiento para confirmar la disponibilidad. Entre las razones de la no participación incluyeron horarios no compatibles.

Los participantes no siempre mostraron estar en un ambiente tranquilo y privado durante los grupos focales. Muchos participantes se unieron a los grupos focales desde lugares ruidosos o caóticos que a veces les impedían escuchar o permanecer concentrados durante la discusión.

A pesar de los problemas con la conexión online, la celebración del grupo de enfoque a través de Zoom redujo el riesgo de exposición a COVID-19 y permitió que los participantes se unieran convenientemente a los grupos de enfoque desde sus respectivas ubicaciones físicas. También redujo el riesgo de que los participantes llegaran tarde o se perdieran en busca de una ubicación física. Los grupos focales virtuales eliminaron la necesidad de gastar dinero en un lugar y en transporte aéreo y terrestre.

4. REVISTAS E INDICES DE IMPACTO DE LOS ARTICULOS PUBLICADOS

4.1 Artículo 1º. Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities

Revista: Land Año: 2021

Fuente de: JCR Q2 Índice de Impacto: 3.395

Autores: Libertad Moreno-Luna, Rafael Robina-Ramírez, Marcelo Sánchez-Oro and José Castro Serrano

Link: https://www.mdpi.com/2073-445X/10/9/939

Cita: Moreno-Luna, L., Robina-Ramírez, R., Sánchez-Oro, M., & Serrano, J. C. (2021). Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities. *Land*, *10*(9), 939.

4.2 Artículo 2º. Título: Tourism and Sustainability in Times of COVID-19: The Case of Spain

Revista: International Journal of Environmental and Public Health Año: 2021

Fuente de Impacto: JCR Q2 Índice de Impacto: 3.390

Autores: Libertad Moreno-Luna, Rafael Robina-Ramírez, Marcelo Sánchez-Oro and José Castro Serrano

Link: https://www.mdpi.com/1660-4601/18/4/1859

Cita: Moreno-Luna, L., Robina-Ramírez, R., Sánchez, M. S. O., & Castro-Serrano, J. (2021). Tourism and Sustainability in Times of COVID-19: The Case of Spain. *International Journal of Environmental Research and Public Health*, *18*(4), 1859.

4.3 Artículo 3º. Título: Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain

Revista: Electronic Commerce Año: 2020.

Fuente de Impacto: JCR Q2 Índice de Impacto: 6.104

Autores: Robina-Ramírez, R., Chamorro-Mera, A., & Moreno-Luna, L.

Link:

https://www.sciencedirect.com/science/article/pii/S1567422320300697?casa_token=zq4sE8Z3PbAAAAAA:4OUzH_grIZNJEiptwQ3sps_NujHrFStq1yZgWzhdkHVpMQuHIRLVEolqiXG4rnEfIZ80Tn190w

Cita: Robina-Ramírez, R., Chamorro-Mera, A., & Moreno-Luna, L. (2020). Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain. *Electronic Commerce Research and Applications*, *42*, 100992.

4.4. Artículo 4º. Título: Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain

Revista: International Journal of Environmental and Public Health Año: 2021
Fuente de Impacto: JCR Q2 Índice de Impacto: 3.390 Autores:
Autores: Robina-Ramírez, R., Medina-Merodio, J. A., Moreno-Luna, L., Jiménez-Naranjo, H. V., & Sánchez-Oro, M
Link: https://doi.org/10.3390/ijerph18020718
Cita: Robina-Ramírez, R., Medina-Merodio, J. A., Moreno-Luna, L., Jiménez-Naranjo, H. V., & Sánchez-Oro, M. (2021). Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain. *International Journal of Environmental Research and Public Health*, *18*(2), 718.

4.5 Articulo 5º. Título: The Impact of the COVID-19 Pandemic on Social, Health, and Economy

Revista: *Sustainability* Año: 2021
Fuente de Impacto: JCR Q2 Índice de Impacto: 3.251
Autores: Clemente-Suárez, V. J., Navarro-Jiménez, E., Moreno-Luna, L., Saavedra-Serrano, M. C., Jiménez, M., Simón, J. A., & Tornero-Aguilera, J. F.
Link: https://www.mdpi.com/2071-1050/13/11/6314
Cita: Clemente-Suárez, V. J., Navarro-Jiménez, E., Moreno-Luna, L., Saavedra-Serrano, M. C., Jimenez, M., Simón, J. A., & Tornero-Aguilera, J. F. (2021). The Impact of the COVID-19 Pandemic on Social, Health, and Economy. *Sustainability*, *13*(11), 6314.

4.6 Artículo 6º. Título: Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura

Revista: Revista Internacional de Organizaciones Año: 2020
Fuente de Impacto: REDIB Índice de Impacto: 23.900

Indexada: Emerging Source Citation Index, ERIH Plus, Fuente Academia Plus, Latindex, International Bibliography of Social Sciences, DOAJ, Dialnet y RACO
Autores: Robina-Ramírez, R., & Luna, L. M.
Link: http://www.revista-rio.org
https://doi.org/10.17345/rio24.63-90
Cita: Robina-Ramírez, R., & Luna, L. M. (2020). Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura. *Revista Internacional de Organizaciones*, (24), 63-90.

5. PRINCIPALES RESULTADOS OBTENIDOS

Para definir los resultados obtenidos en cada uno de los artículos publicados se presentarán las variables obtenidas, las hipótesis o proposiciones de trabajo y el modelo presentado.

5.1 Variables, hipótesis y modelo presentado. Drivers for Sustainability Awareness Development in Tourism Curricula: Case of Spanish Univ.

Variables:

SSM: motivación del personal; TT: Capacitación del personal dando conferencias; TM: métodos de enseñanza; y CSC: currículos, habilidades y competencias.

Hipótesis:

Hipótesis 1 (H1): La correcta formación del profesorado en sostenibilidad (TT) influye positivamente en el desarrollo de la motivación del personal y los estudiantes (SSM).

Hipótesis 2 (H2): La formación del personal docente en sostenibilidad (TT) influye positivamente en el desarrollo de habilidades y competencias en los planes de estudio (CSC).

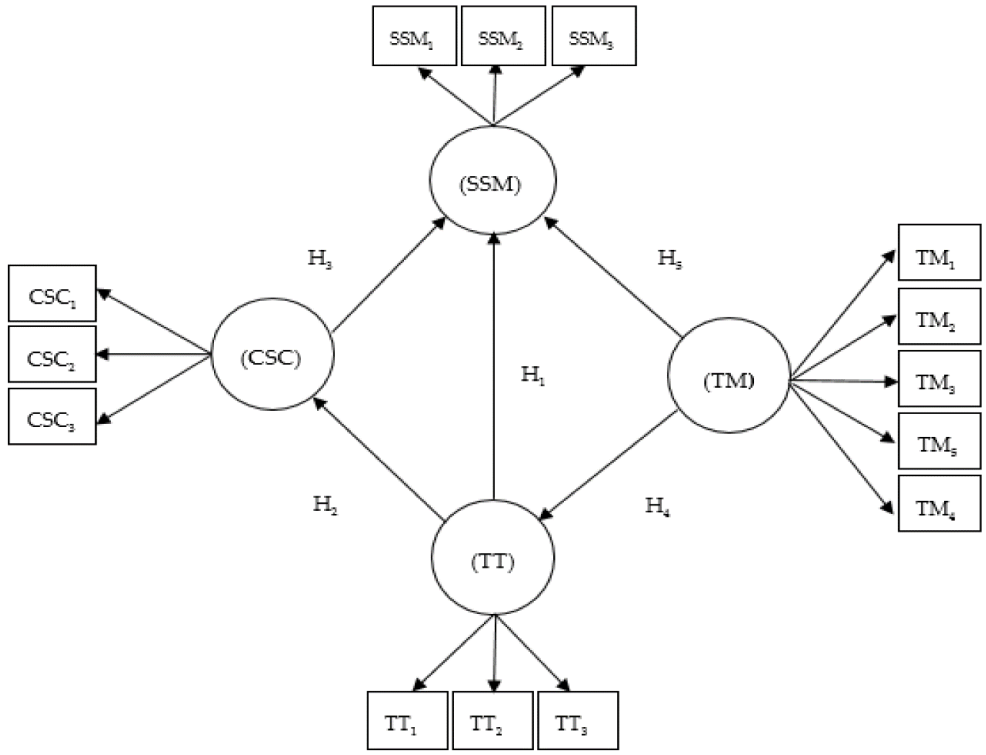
Hipótesis 3 (H3): El desarrollo de habilidades y competencias en los planes de estudio (CSC) influye positivamente en la motivación del personal y los estudiantes (SSM).

Hipótesis 4 (H4): Los nuevos métodos de enseñanza para materias de sostenibilidad (MT) influyen positivamente en el desarrollo de la motivación del personal y los estudiantes (SSM) hacia la sostenibilidad.

Hipótesis 5 (H5): Los nuevos métodos de enseñanza para materias de sostenibilidad influyen positivamente en el desarrollo de nuevas habilidades y competencias para la sostenibilidad en los planes de estudio (CSC).

De acuerdo con la revisión de la literatura, se presenta un modelo teórico para ser utilizado como herramienta para las universidades. Los resultados se entregarán en universidades públicas y privadas de España y Sudamérica (Figura 1).

Figura 1. Modelo



Fuente: Elaboración propia

5.2 Proposiciones, división de regiones afectadas por Covid-19. Tourism and Sustainability in Times of COVID-19: The Case of Spain

Proposición 1. Las regiones con mayor número de casos serán las más afectadas por la pandemia.

Proposición 2. Las regiones más turísticas serán las más afectadas por la crisis.

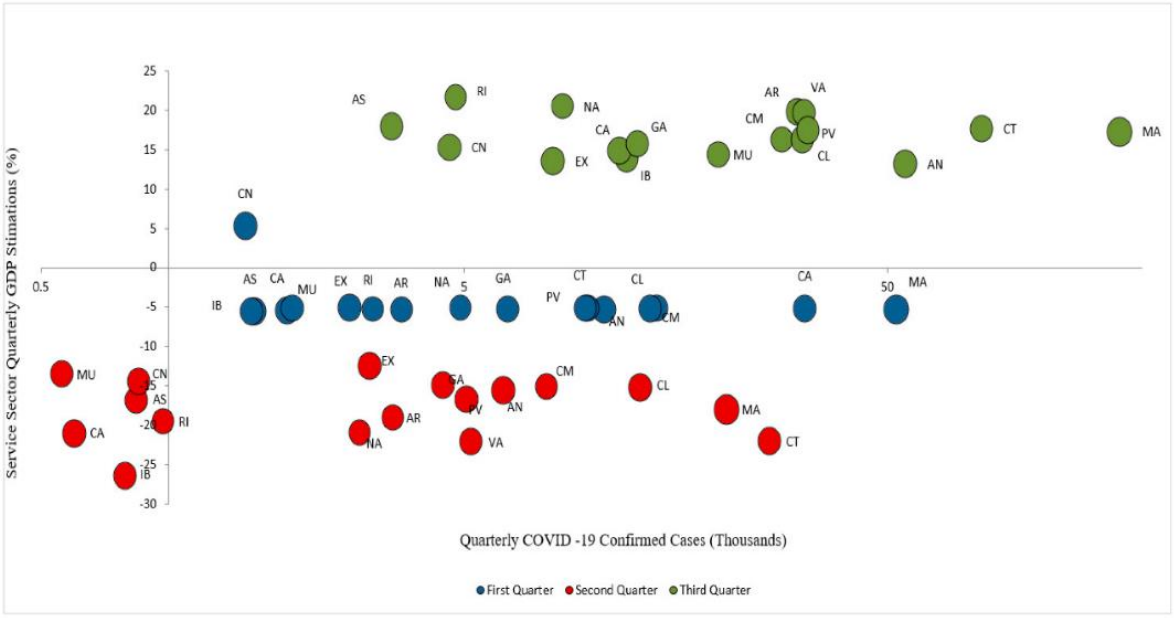
Proposición 3. Las regiones más infectadas serán las menos visitadas por turistas.

Proposición 4. Las regiones más turísticas serán las regiones con mayores tasas de desempleo.

Proposición 5. Las regiones con más casos de COVID-19 serán las que tengan mayores tasas de desempleo.

Proposición 6. Se espera que la demanda interna crezca más rápido que los movimientos externos; estacionalidad; Turismo doméstico; residentes; economía; sociedad; medio ambiente.

Figura 2. Casos confirmados de COVID-19 y variaciones del PIB en España por región



Fuente: Elaboración propia a partir de datos del INE, CNE y AIReF

AN: Andalucía; **AR:** Aragón; **AS:** Asturias; **CA:** Canarias; **CN:** Cantabria; **CM:** Castilla-La Mancha; **CL:** Castilla y León; **CT:** Cataluña; **MA:** Comunidad de Madrid; **VA:** Comunidad Valenciana; **EX:** Extremadura; **GA:** Galicia; IB: Islas Baleares; **RI:** La Rioja; **NA:** Navarra; **PV:** País Vasco; **MU:** Región de Murcia.

5.3 Variables, hipótesis y modelo presentado. Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain

Hipótesis 1 (H1): La ética, el comercio justo y la salud (EFT) en consumidores y productores ecológicos afecta positivamente la actitud de uso de sitios web ecológicos.

Hipótesis 2 (H2): El menor precio de los productos ecológicos encontrados online influye positivamente en la actitud hacia las compras online.

Hipótesis 3 (H3): Los beneficios ambientales afectan positivamente la actitud de uso de los sitios web ecológicos.

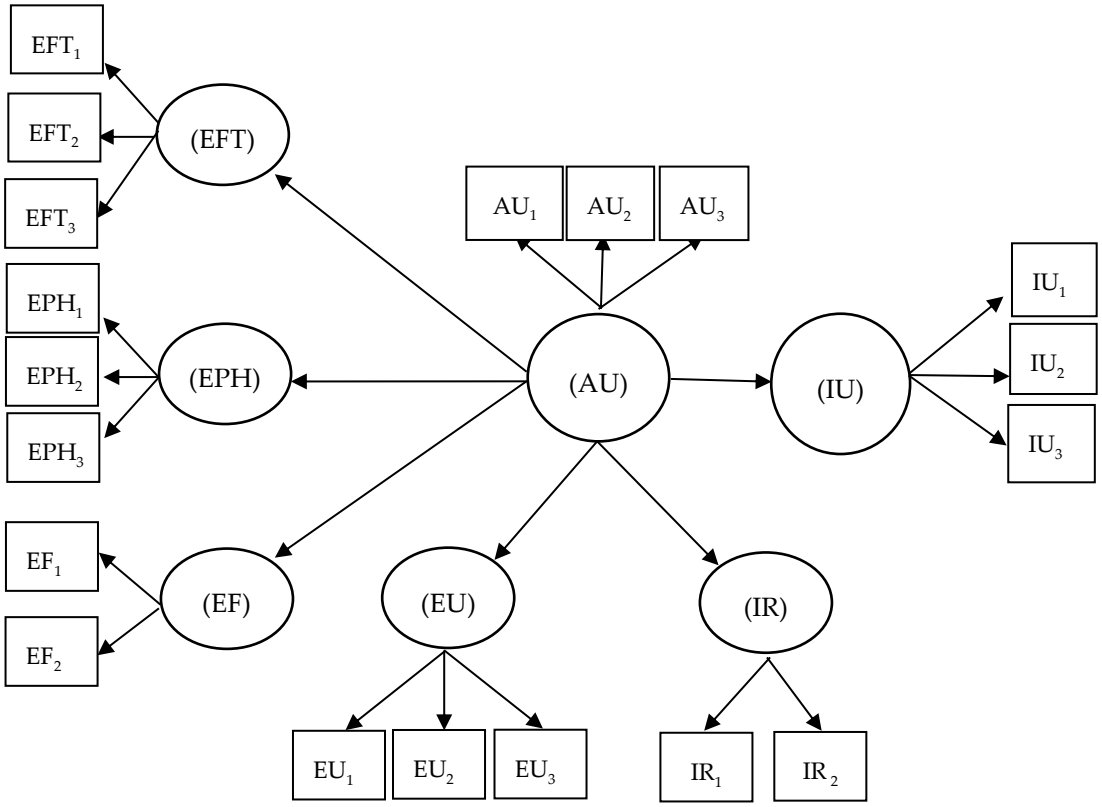
Hipótesis 4 (H4): La facilidad de navegación afecta positivamente la actitud de uso de sitios web ecológicos.

Hipótesis 5 (H5): El acceso confiable afecta positivamente la actitud de uso de sitios web ecológicos.

Hipótesis 6 (H6): La actitud de uso incide positivamente en la intención final de uso de la compra online ecológica.

Según los resultados, los cinco atributos con mayor puntuación fueron elegidos para estudiar su influencia en la actitud e intención de uso de la compra online ecológica. Tres de ellos están directamente relacionados con el mercado ecológicos; ética y comercio justo (EFT), protección ambiental y salud (EPH) y factores económicos: precio y costo (EF). Los otros dos están específicamente alineados con compras online; Facilidad de uso (UE) e información confiable (IR). Los atributos seleccionados se representan en la Figura 3.

Figura 3: Modelo



Fuente: Elaboración propia

5.4 Variables, hipótesis y modelo presentado: Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain

De acuerdo con los cuatro constructos diseñados por los gerentes de hotel, las hipótesis determinaron la relación de las principales motivaciones de los gerentes de hotel y las variables exógenas (SHM; MT; SD). El modelo teórico se muestra en la Figura 4.

Las motivaciones se centran en tres elementos:

• El efecto de la reapertura de fronteras al sector turístico brindando soluciones seguras y saludables a los turistas.

• El desarrollo de protocolos para una transición gradual según autoridad sanitaria.

• El diseño de soluciones asequibles para el sector turístico para abrir los hoteles en condiciones seguras.

Hipótesis 1 (H1): Las medidas de saneamiento y salud (SHM) influyen positivamente en como motivador del período de transición de COVID-19 (C19TP).

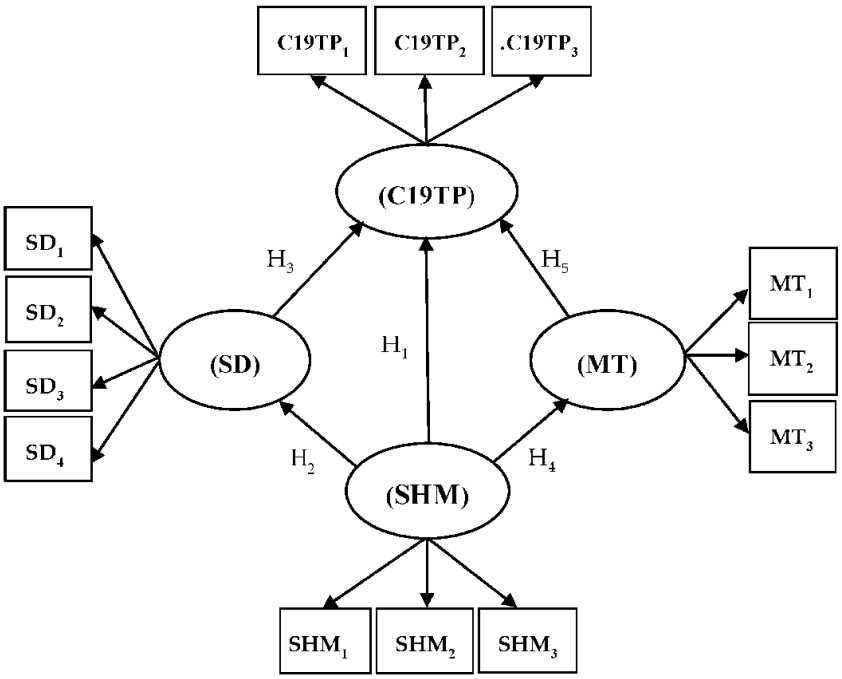
Hipótesis 2 (H2): Las medidas de saneamiento y salud (MSS) influyen positivamente en el distanciamiento social (SD).

Hipótesis 3 (H3): El distanciamiento social (SD) influye positivamente en los como motivador del período de transición del COVID-19 (C19TP).

Hipótesis 4 (H4): Las medidas de saneamiento y salud (SHM) influyen positivamente en las pruebas masivas (MT).

Hipótesis 5 (H5): Las pruebas masivas (MT) influyen positivamente en los como motivador del período de transición de COVID-19 (C19TP).

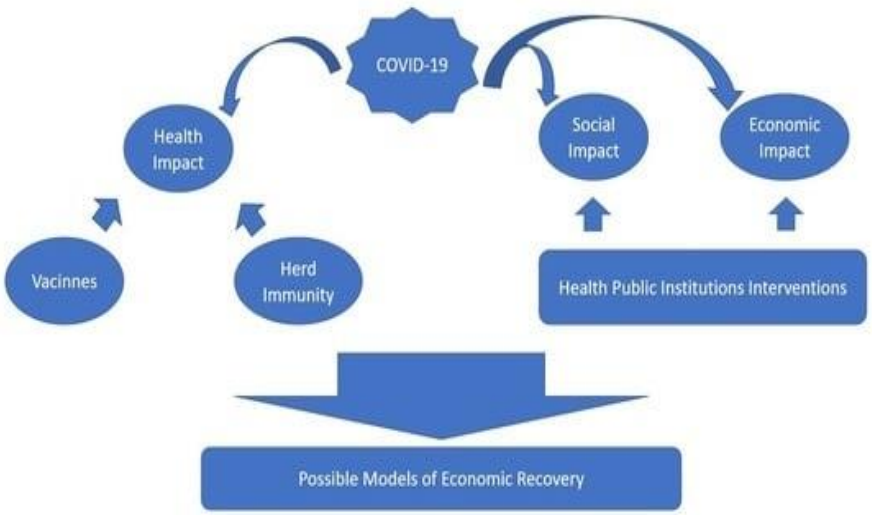
Figura 4: Modelo



Fuente: Elaboración propia

5.5 Variables, hipótesis y modelo presentado. The Impact of the COVID-19 Pandemic on Social, Health, and Economy

Figura 5. Proceso de recuperación de la economía



Fuente: Elaboración propia

Tabla 2: Diferentes políticas empleadas para combatir la pandemia Covid-19

País	MD	RET	AETE	AETC	AEPT	AETTP	AFED	CRD	ATEIC
Austria	x	x	x	x	x	x	x		x
Belgium	x	x	x	x	x	x	x		x
Czech Republic	x	x	x	x	x	x	x		x
Denmark	x	x	x	x	x	x	x		x
Estonia	x	x	x	x	x	x	x		x
Finland	x	x	x	x	x	x	x	x	
France	x	x	x	x	x	x	x	x	
Germany	x	x	x	x	x	x	x		x
Greece	x	x			x	x	x	x	x
Hungary	x	x		x	x	x	x		x
Iceland	x		x	x	x	x	x		x
Ireland	x	x	x	x	x	x	x		x
Italy	x	x	x	x	x	x	x	x	x

País	MD	RET	AETE	AETC	AEPT	AETTP	AFED	CRD	ATEIC
Japan	x	x	x	x	x	x	x		x
South Korea	x	x	x	x	x	x	x		x
Latvia	x	x	x	x	x	x	x		x
Holland	x	x		x	x	x	x		x
Norway	x		x	x	x	x	x		x
Poland	x	x	x	x	x	x	x		x
Portugal	x		x	x	x	x	x		x
Slovakia	x		x	x	x	x	x	x	x
Spain	x	x	x	x	x	x	x	x	x
Sweden	x	x	x	x	x	x	x		x
United Kingdom	x	x	x	x	x	x	x		x

Fuente: OECD 2021

MD: Medidas confinamiento; **RET:** Reducción de la exposición de los trabajadores al COVID-19 en el lugar de trabajo; **AETE:** Ayuda económica para los trabajadores enfermos y sus familias; **AETC:** Ayuda económica para los trabajadores en cuarentena que no pueden trabajar desde casa; **AEPT:** Ayuda económica para las personas que pierden sus trabajos o ingresos por trabajo por cuenta propia; **AETTP:** Ayuda a las empresas a ajustar el tiempo de trabajo para retener puestos de trabajo; **AFED:** Apoyo financiero a las empresas afectadas por la caída de la demanda de los consumidores; **CRD:** Cambios en la regulación de despidos; **ATEIC:** Ayuda a los trabajadores económicamente inseguros a quedarse en casa.

5.6 Variables, hipótesis y modelo presentado. Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Uex.

Los indicadores relativos a cada uno de los constructos fueron:

1. Desarrollo de la conciencia medioambiental entre estudiantes (DCM)

2. Formación del profesorado en sostenibilidad (FPS).

3. Competencia medioambiental transversal (CMT).

4. Actividades de concienciación medio ambiental (ACM).

Las hipótesis recogidas en la revisión de la literatura se exponen a continuación, se pueden visualizar en el modelo estructural de constructos expresado en la Figura 6.

Hipótesis 1 (H1): La introducción de competencias medioambientales transversales influye positivamente en el aumento de la conciencia medioambiental entre los estudiantes de la universidad.

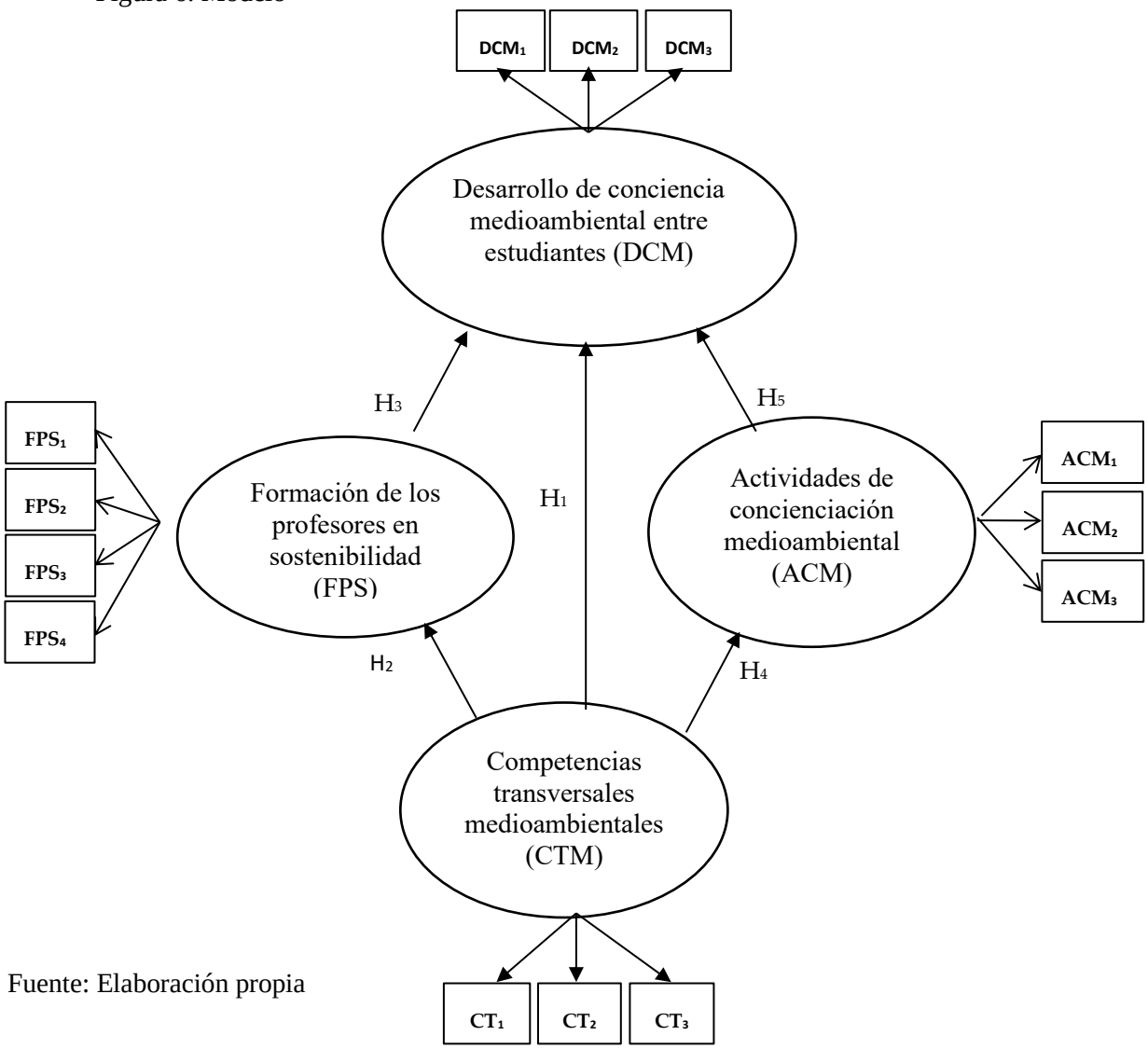
Hipótesis 2 (H2): La introducción de competencias medioambientales transversales influye positivamente en la formación del profesorado de la universidad.

Hipótesis 3 (H3): La formación medioambiental del profesorado influye positivamente en aumento de conciencia medioambiental entre estudiantes universitarios.

Hipótesis 4 (H4): La introducción de competencias medioambientales transversales influye positivamente en la organización de actividades universitarias de concienciación medioambiental.

Hipótesis 5 (H5): La organización de actividades de respeto a la naturaleza influye positivamente en aumento de conciencia medioambiental entre estudiantes universitarios.

Figura 6. Modelo



Fuente: Elaboración propia

6. CONCLUSIONES

6.1 Impacto del Covid-19 en la economía y el turismo

El SARS-CoV-2 tiene un fuerte impacto directo y agudo en la salud de la población, no solo a nivel fisiológico sino también a nivel psicológico para quienes lo padecen, sus allegados y la población en general, quienes sufren las consecuencias sociales de la pandemia. En esta línea, la recesión económica aumentó, más aún, la presión social. A nivel social, el impacto económico golpeó a las familias más vulnerables, creando un contexto difícil de abordar para las instituciones públicas. Nos enfrentamos a uno de los mayores desafíos de la intervención social, que requiere respuestas rápidas, efectivas y bien coordinadas por parte de las instituciones públicas, el sector privado y las organizaciones no gubernamentales para atender a una población cada vez más desesperada y con necesidades cada vez más urgentes.

Es necesaria una legislación a largo plazo para reducir la vulnerabilidad de los menos afortunados, así como para analizar la respuesta social para mejorar la gestión de la organización social de los recursos disponibles. Una posible línea de investigación futura en relación al modelo de recuperación económica propuesto por la Unión Europea durante la pandemia podría consistir en un análisis comparativo de los resultados obtenidos por los Estados miembros. Este análisis de resultados podría contrastarse estadísticamente, a través de un modelo de datos de panel, según el grado de cumplimiento de los planes de recuperación presentados por los Estados miembros y la financiación recibida de la Unión Europea. Además, se debe considerar el impacto de la pandemia de COVID-19 en la población con salud mental, ya que también afectaría la economía, la salud y la sociedad en todo el mundo.

En un contexto de pandemia, los turistas optan cada vez más por entornos cercanos, sus propios países, en lugar de grandes viajes a lugares distantes y relativamente inseguros. Este cambio en la perspectiva de los turistas podría llevarlos a evitar destinos turísticos masivos y masificados en favor de lugares más familiares, pero menos poblados y más confiables. La evolución del turismo interior en España podría ser una gran esperanza para la resiliencia del país y, con las medidas adecuadas, podría favorecer un cambio en el modelo de desarrollo turístico de países como España, centrándose más en propuestas sostenibles, menos intensivas y con menor impacto en la población y el medio ambiente. Esta nueva "era del turismo" involucra de manera más decisiva regiones donde hasta ahora ha predominado el turismo masivo de "sol y playa". Este estudio muestra que

aún se está evaluando el impacto de la pandemia. El análisis de la relación entre el sector turístico y el brote pandémico en España proporciona un estudio de caso instructivo para ayudar al sector en el proceso de recuperación. El objetivo fue estudiar los efectos de la propagación del virus en las diferentes regiones y su impacto en la economía y los flujos turísticos regionales. Para ello, se establecieron un conjunto de proposiciones las cuales se intentaron demostrar con los resultados del estudio. En esencia, se ha observado cómo el impacto de la pandemia ha sido mayor en las regiones con mayor tasa de contagio, y esto, en el período estudiado, coincide con las regiones más dependientes de los flujos turísticos. Aquellas regiones que han invertido en un desarrollo de turismo rural y alternativo apoyando, por ejemplo, hospedajes rurales y campamentos, han experimentado una disminución menor. Esta evidencia debe tenerse en cuenta en los planes y estrategias de turismo. Este tipo de turismo genera altos beneficios y permite preservar la distancia física requerida en esta crisis de salud.

Dentro de las fases de “desescalamiento” propuestas por las autoridades sanitarias en España, es necesario garantizar la seguridad sanitaria en los servicios turísticos que se prestan para evitar la propagación del virus con nuevas infecciones. A través de una metodología participativa, los gerentes de hoteles propusieron una serie de medidas a ser consideradas por estas autoridades. De los resultados se extraen tres conclusiones. Los protocolos de salud propuestos por la OMS a los hoteles afectan la implementación responsable del sector privado.

Como primera conclusión se puede decir que la potenciación de las medidas sanitarias en los hoteles no solo se refiere a contar con un protocolo de actuación sanitario aprobado por el sector privado para prevenir infecciones y reubicar a los infectados, los hoteles también deben desarrollar sus estándares de vigilancia para evitar contagios, entre ellos el test masivo es el más valorado. Los gerentes de hotel valoraron la capacidad de detectar el estado de salud de los empleados y clientes para evitar el contagio. En línea con estas propuestas, varias entrevistas a directores ejecutivos muestran que las pruebas deben ser rápidas, asequibles y homogéneas en toda la Unión Europea. Si esas medidas se implementan efectivamente en el sector de la hostelería, ayudaría a planificar la temporada turística para los próximos meses.

La segunda conclusión muestra que la distancia social y las medidas saludables en los hoteles han demostrado ser las más eficaces en la prevención de infecciones, lo que ayuda eficazmente a reducir el número de pacientes infectados en los hospitales. Según

los gerentes del hotel, esas medidas deben estar debidamente diseñadas para llegar a un equipo de gestión de crisis informado que demuestre un alto compromiso con la salud y la seguridad del cliente.

La tercera conclusión está relacionada con la influencia de las medidas de saneamiento y salud (SHM) en la definición de las motivaciones del período de transición. Los protocolos sanitarios vigentes establecidos por las autoridades públicas deben ser observados y ajustados gradualmente sin demora a la gravedad de la pandemia. Para frenar el aumento de las infecciones por coronavirus, estas medidas deben aplicarse no solo en los hoteles, sino también en las llegadas de turistas a España. El control debe ser realizando pruebas a pasajeros de otros países, principalmente los de riesgo.

La cuarta conclusión se refiere a la relación establecida en la Hipótesis 3: el distanciamiento social (SD) influye en las motivaciones del período de transición del COVID-19. La distancia social y las medidas saludables necesitan actualizarse periódicamente, principalmente para las áreas comunes como ha sido expresado por más del 90% de los hoteles entrevistados.

La quinta conclusión muestra la influencia de las pruebas masivas (MT) en los controladores para el período de transición de COVID-19. Cada hotel tiene que ofrecer sus propias estrategias para garantizar la seguridad y recuperar la confianza de los clientes. Estas estrategias incluyen no solo la disponibilidad de pruebas masivas para el cliente, sino también el establecimiento de un proceso de vigilancia de turnos de personal, equipos de protección individual diaria, desinfección de áreas comunes y habitaciones, frecuencias de lavado, distanciamiento entre áreas de recepción y recolección, protocolos de manipulación de alimentos, determinando capacidad en áreas comunes, etc. Además, todo hotel debe colaborar inmediatamente con la autoridad sanitaria y sanitaria. Se debe proporcionar a los clientes un protocolo para hacer frente a esta situación. Algunos hoteles españoles ya ofrecen esta posibilidad a través del check-in, y también están proporcionando habitaciones apartadas donde médicos privados realizan pruebas virales para COVID-19.

6.2 Sostenibilidad y producción ecológica

Esta investigación analizó uno de los pocos casos de uso de e-Marketplace o plataforma de comercio electrónico en España. Con respecto a este tema, el estudio

aumentó la evidencia de la relación particular entre comunidades y productores ecológicos. De los resultados obtenidos se desprenden varias implicaciones y recomendaciones que pueden resultar interesantes para los gestores de los mercados electrónicos de productos ecológicos con el fin de atraer a productores y consumidores ecológicos a este "punto de encuentro" entre oferta y demanda. Es decir, aumentar la intención de utilizar estas plataformas online para vender y comprar alimentos ecológicos.

De esta forma, la promoción de este tipo de e-Marketplace puede ayudar a impulsar el mercado interior de alimentación ecológica, muy limitado en España debido a la escasa oferta que aún existe en las cadenas de distribución minorista que dominan el mercado de alimentación en España. Además, este tipo de comunidad o unión permite incrementar el mercado potencial al que pueden llegar los pequeños productores ecológicos, sin necesidad de administrar su propia tienda online. Muchos consumidores conscientes del medio ambiente también aportan valor añadido a estos mercados electrónicos, porque entienden que ayudan a los productores directamente, sin tener que hacer negocios con las grandes empresas multinacionales de distribución de alimentos.

En primer lugar, los resultados confirman la Teoría de la Acción Planificada, de tal manera que la actitud predice la intención de utilizar el e-Marketplace. Así, para incrementar la intención de uso de la plataforma, sus directivos deben trabajar sobre aquellos aspectos o atributos que determinan esa actitud. En la investigación realizada se ha encontrado que la actitud de uso se explica por casi las mismas variables para el caso de los productores (vender en el e-Marketplace) y para los consumidores (comprar en el e-Marketplace). Para atraer consumidores o grupos de consumidores a la plataforma online, este estudio ha mostrado la importancia de enfocar la información que se emite a través de la plataforma en los beneficios económicos y en los beneficios ambientales y para la salud, ya que ejercen una influencia positiva actitud (y, por lo tanto, la intención de uso). En otras palabras, resaltar mensajes relacionados con los beneficios económicos, ambientales y sociales que se garantizan a través de una comunidad consumidor-productor puede ser la forma de diferenciar estas plataformas de venta de competidores basados en otros formatos de venta, principalmente Supercadenas e hipermercados con escaso contenido y variedad de productos ecológicos en sus líneas.

Los gerentes de una plataforma online de alimentos ecológicos también deberán diseñar su página Web de manera que facilite todo el proceso de compra a los consumidores, ya que la facilidad de acceso y la confianza del sitio también han resultado

ser una variable que influye la actitud e, indirectamente, en la intención de utilizar la plataforma.

Con respecto a los productores, las conclusiones son similares. Pero también cabe señalar que la comunicación que realice el gestor del mercado online para atraer productores también debe resaltar mensajes enfocados en los beneficios sociales derivados de la conexión directa entre productores ecológicos y consumidores. La investigación realizada es un estudio exploratorio, que tiene sus limitaciones y debe complementarse con investigaciones futuras. Entre ellos, sería interesante evaluar si la actitud de productores y consumidores y su intención de comprar o vender a través del comercio electrónico es diferente entre quienes lo hacen a través de un e-Marketplace y quienes lo hacen a través de una tienda online, donde existe una empresa intermediaria, pero no una conexión tan directa entre el productor y el consumidor. En el caso de los productores, además de esos beneficios, el uso de la página web les ayuda a extender el beneficio ético derivado de la producción ecológica, como el comercio justo y los productos seguros para respetar el medio ambiente.

6.3 Sostenibilidad y educación

La actual existencia de barreras para enseñar sostenibilidad como una forma de expresar sus preocupaciones sobre el actual sistema regulatorio académico español proceden de diferentes áreas como: limitaciones económicas, falta de recursos humanos, conocimiento e infraestructura, y carreras académicas basadas en publicaciones más que en la excelencia en los métodos de enseñanza.

Entre las soluciones, la motivación es una condición previa para involucrar al personal en el proceso de enseñanza y aprendizaje. Junto a ello, los planes de estudio de las titulaciones de Turismo en España enseñan temáticas relacionados con el medio ambiente, la sostenibilidad y los recursos relacionados con el turismo, y que prácticamente todas las universidades ofrecen al menos una asignatura con estas características. Sin embargo, las deficiencias son evidentes; por ejemplo, pocas universidades abordan “Turismo y Transporte”, que trata sobre algunas cuestiones ambientales que se exploran con el fin de establecer la relación entre el sector y la sostenibilidad de la actividad turística, aunque hay asignaturas como “Territorio, Turismo Sostenible y Desarrollo” que han incluido aspectos relacionados con los anteriores.

En cualquier caso, se incluye el estudio y aplicación de herramientas de gestión sostenible, la evaluación del potencial turístico y la gestión de los flujos de visitantes. Algunas universidades también han incluido asignaturas optativas que abordan aspectos relacionados con las nuevas formas de consumo turístico más acordes con los principios de responsabilidad ambiental y social. Estos a menudo se denominan “ecoturismo” o “sostenibilidad ambiental y ecoturismo”. Siguiendo esta línea de investigación, en este trabajo se ha profundizado en la oferta de las universidades en estas materias, que en términos relativos es baja. Además, consideramos que la dependencia pública o privada de las universidades es, entre otros factores, un factor importante en el peso de estas asignaturas.

Actualmente se levantan barreras debido a la falta de determinación de las universidades españolas para abordar este tema como una prioridad. Si bien el turismo ocupa el segundo lugar entre los sectores que más aportan al PIB en España, representando más del 14% del empleo del país, solo el 32% de las titulaciones de Turismo son asignaturas relacionadas con el turismo sostenible y el 7% incluye asignaturas de turismo y medio ambiente en universidades públicas. Solo el 8% de las universidades privadas ha desarrollado asignaturas relacionadas tanto con el turismo sostenible como con el medio ambiente y el turismo.

A través de una metodología interactiva, el profesorado de treinta y cinco universidades españolas ha debatido cuatro motivadores extraídos de la revisión de la literatura. Sin embargo, las universidades privadas están más impulsadas a desarrollar competencias profesionales entre los estudiantes promoviendo una mejor conexión entre las empresas turísticas sostenibles y las titulaciones de Turismo para tener un impacto en el campus. Los títulos de turismo en universidades privadas también enfatizan el papel que juega la inversión de recursos económicos en la promoción de la sostenibilidad en los planes de estudio de turismo, así como la cooperación y el trabajo en red entre el personal docente en actividades sostenibles en el grado de Turismo. Por ello, el profesorado de las universidades españolas necesita incrementar su compromiso con la creación de sociedades sostenibles y, por tanto, gestionar el turismo de forma sostenible. Promover un turismo masivo e irresponsable hacia el medio ambiente solo puede conducir al detrimento del destino y su población, provocando gradualmente el agotamiento de los recursos naturales y culturales.

En el caso de la universidad española podemos hablar del escaso eco que hasta la fecha ha tenido la competencia sobre la protección medioambiental desarrollada en el Real Decreto 1393/2007. En concreto en las facultades de economía y empresa. En segundo lugar, y como consecuencia de la primera conclusión, la falta de recursos económicos y académicos concretados en efectivas políticas de sostenibilidad en la Universidad. A juicio de los estudiantes no solo escasean las referencias medioambientales en la enseñanza transversal de las asignaturas las áreas de economía y empresa sino también es llamativa la ausencia de políticas de sostenibilidad en la Universidad conocidas por los estudiantes. Es importante establecer políticas y programas formativos transversales para insertar contenidos de defensa del medio ambiente en aquellas asignaturas más relacionadas con la gestión de empresa y gestión de recursos naturales.

El tercer objetivo está relacionado directamente con la filosofía empresarial impartida actualmente en las facultades de economía y empresa. Los estudiantes afirman que "la maximización del beneficio y la reducción de costes son los únicos criterios utilizados para la toma de decisiones empresariales". Junto a ello, otros estudiantes añaden que "si la protección del medioambiente genera un mayor coste, prevalece el criterio económico sobre el medioambiental". Aspectos ambos que señalan la gran distancia existente entre la maximización económica y el respeto del medio ambiente. Estas afirmaciones son un botón de muestra de la gran responsabilidad que la universidad tiene actualmente de formar estudiantes que actúen de forma consecuente con el medio ambiente.

7. INFORME DE LOS DIRECTORES

Cáceres
Asunto: INFORME DE LOS DIRECTORES
Destinatario: Don José Juan Sán José Blasco. Coordinador Programa Doctorado "DESARROLLO TERRITORIAL SOSTENIBLE" (Cod. R015)
Universidad de Extremadura

Los Dr./Dres. RAFAEL ROBINA RAMIREZ Y MARCELO SÁNCHEZ-ORO SÁNCHEZ y de acuerdo con la Normativa de los estudios de Doctorado, en relación a la tesis **"Pandemia y cambio de paradigma: crisis del turismo de masas y oportunidad para el turismo sostenible"**, realizada por D./Dª. LIBERTAD MORENO LUNA, emitimos el siguiente informe sobre el factor impacto y categorización de los artículos incluidos en esta tesis.

Artículo 1º. Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities. Revista: Land Año: 202.1Fuente de: JCR Q2 Índice de Impacto: 3.395.

Síntesis y planteamiento:

En este artículo se plantea que España es uno de los destinos turísticos más populares del mundo, y uno de los diez primeros países en términos de contribución turística a su economía. Dado que el turismo está causando un impacto gravemente negativo en el medio ambiente, las universidades desempeñan un papel clave en la sensibilización de los estudiantes y la reducción de las consecuencias perjudiciales de dicho turismo. Las conexiones entre la sostenibilidad y los estudios de turismo han recibido poca atención en la educación superior. El personal de conferencias y los cuerpos estudiantiles de las universidades fueron entrevistados con el objetivo de averiguar qué motiva a los académicos a desarrollar conductores e indicadores que aumenten la conciencia ambiental dentro de los títulos de turismo de posgrado. Los resultados muestran una perspectiva diferente sobre la enseñanza de la sostenibilidad dentro de los planes de estudio de turismo en las universidades públicas y privadas. Según los participantes, la motivación y la formación de los profesores han sido los dos principales impulsores. Los resultados se pueden aplicar a otras titulaciones de Turismo con el fin de superar las barreras comunes a las que se tienen que enfrentar estos estudios para introducir la sostenibilidad en los planes de estudios de turismo.

Relevancia de la revista:

Land es una revista internacional e interdisciplinaria, revisada por pares y de acceso abierto sobre la gestión de la tierra, la ciencia del sistema de la tierra, el paisaje, los sistemas suelo-sedimento-agua, los contextos urbanos, las interacciones urbano-rurales, la tierra y el clima. interacciones, etc., publicado mensualmente en línea por MDPI. La Asociación Internacional para la Ecología del Paisaje (IALE), el Instituto Europeo de Uso de la Tierra (ELI) y el Instituto del Paisaje (LI) están afiliados a Land. Indexado en Scopus , SSCI (Web of Science) , AGRICOLA , AGRIS , GeoRef , RePEc y muchas otras bases de datos. Clasificación de la revista: JCR - Q2 (Estudios ambientales) / CiteScore - Q2 (Conservación de la naturaleza y el paisaje). Proceso de

revisión por pares.

Artículo 2º. Título: Tourism and Sustainability in Times of COVID-19: The Case of Spain. Revista: International Journal of Environmental and Public Health Año: 2021. Fuente de Impacto: JCR Q2 Índice de Impacto: 3.390

Síntesis y planteamiento:

El objetivo de este trabajo es estudiar los efectos de la propagación del virus COVID-19 en diferentes regiones y su impacto en la economía y los flujos turísticos regionales. Para ello, los investigadores se han guiado por un conjunto de proposiciones que han tratado de demostrar con los resultados obtenidos. Esta investigación muestra que el impacto de la pandemia aún se está evaluando. El análisis de la relación entre el sector turístico y el brote pandémico en España proporciona un estudio de caso instructivo para ayudar al turismo en su proceso de recuperación. El documento profundiza en los impactos en las principales regiones turísticas españolas durante la pandemia y aporta implicaciones para la recuperación del turismo. En España, el sector turístico es de gran importancia económica, convirtiéndose en uno de los países más vulnerables cuando la crisis afecta a esta industria. La imagen negativa del país debido a las altas tasas de infección ha tenido un impacto negativo en los viajes y el turismo. Baleares ha sido la región más afectada con un descenso del 87% en los visitantes turísticos. Los viajes realizados por los residentes españoles dentro del territorio español muestran el primer incremento encontrado en la serie analizada. El turismo interno no solo representa una oportunidad para todas las regiones en esta situación crítica, sino que los tipos de alojamiento también juegan un papel clave.

Relevancia de la revista:

Journal of Environmental and Public Health publica investigaciones que cubren todos los problemas de salud de toda la población. La revista sirve a la comunidad de salud pública: epidemiólogos, médicos, toxicólogos, agencias gubernamentales, legisladores y ONG. La revista aparece en las principales bases de datos multidisciplinarias como Scopus y Web of Science mediante su inclusión en Science Citation Index Expanded o Emerging Sources Citation Index. También en bases de datos de temas específicos como Embase (investigación biomédica), INSPEC (física e ingeniería), MEDLINE (medicina) y Chemical Abstracts Service (química). Proceso de revisión por pares.

Artículo 3º. Título: Organic and online attributes for buying and selling agricultural products in the e-Marketplace in Spain. Revista: Electronic Commerce Año: 2020. Fuente de Impacto: JCR Q2 Índice de Impacto: 6.104

Síntesis y planteamiento:

Con el desarrollo del comercio electrónico, el consumo en línea ha crecido rápidamente. Este estudio pretende poner de manifiesto un ejemplo de la compra online de productos ecológicos en el mercado ecológico español. A través de un modelado de ruta de mínimo cuadrado parcial (PLS), se aplica un análisis multigrupo (MGA) para probar los atributos online y ecológicos de un producto que pueden influir en la intención de usar un mercado electrónico para comprar y vender productos ecológicos. Los atributos ecológicos y en línea de un producto se extrajeron de 149 comunidades de

consumidores ecológicos y 106 productores ecológicos del mayor mercado electrónico español. Los resultados indican qué atributos influyen en la actitud hacia el uso y la intención de usar esa plataforma en línea. Los resultados del estudio pueden orientar a los gestores online de este tipo de e-marketplaces en el diseño de sus políticas para atraer participantes y aumentar las transacciones comerciales online.

Relevancia de la revista:

Electronic Commerce Research and Applications tiene como objetivo crear y difundir conocimientos sólidos sobre el entorno del comercio electrónico. Proceso de revisión por pares.

Artículo 4º. Título: Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain. Revista: International Journal of Environmental and Public Health Año: 2021. Fuente de Impacto: JCR Q2 Índice de Impacto: 3.390

Síntesis y planteamiento:

La crisis sanitaria provocada por el brote de la enfermedad COVID-19 ha devastado el sector de la hostelería en todo el mundo. La situación actual ha llevado a muchos países a implementar reglas drásticas para detener la propagación del virus. Según la autoridad sanitaria española, las decisiones deben tomarse en el contexto de incertidumbre y falta de experiencias informadas a través de un proceso de desescalada gradual y asimétrico planificado en cuatro fases. Aunque la gran mayoría de los estudios se refieren a riesgos económicos e impactos en los flujos turísticos y los ingresos económicos, pocos de ellos investigan explícitamente las medidas de seguridad y salud que los gerentes de hoteles deben implementar a sus clientes. Más de una población de 12.740 hoteles, 823 gestores hoteleros españoles han participado en un estudio participativo. Con el objetivo de evaluar las acciones tomadas para detener la propagación del virus, se implementó una investigación empírica. Un modelo presentó cuatro variables y 13 indicadores que han sido previamente probados entre los gerentes de hoteles en el sector turístico. De las hipótesis se extraen cinco conclusiones: (1) La vigilancia masiva de las pruebas en clientes y empleados debe ser rápida, asequible y homogénea en toda la Unión Europea. (2) Tanto las autoridades públicas como el sector privado deben adoptar medidas de formación para llegar a un equipo de gestión de crisis bien informado y con un alto compromiso con la salud y la seguridad del cliente. (3) Los protocolos establecidos por las autoridades públicas deben observarse y ajustarse gradualmente no sólo en los hoteles, sino también en las llegadas de turistas. (4) Las medidas saludables deben actualizarse periódicamente.

Relevancia de la revista:

Journal of Environmental and Public Health publica investigaciones que cubren todos los problemas de salud de toda la población. La revista sirve a la comunidad de salud pública: epidemiólogos, médicos, toxicólogos, agencias gubernamentales, legisladores y ONG. La revista aparece en las principales bases de datos multidisciplinarias como Scopus y Web of Science mediante su inclusión en Science Citation Index Expanded o Emerging Sources Citation Index. También en bases de datos de temas específicos como Embase (investigación biomédica), INSPEC (física e ingeniería), MEDLINE (medicina) y Chemical Abstracts Service (química). Proceso de revisión por pares.

Articulo 5º. Título: The Impact of the COVID-19 Pandemic on Social, Health, and Economy. Revista: Sustainability Año: 2021. Fuente de Impacto: JCR Q2 Índice de Impacto: 3.251

Síntesis y planteamiento:

El impacto de la pandemia de COVID-19 en la salud de la población no tiene precedentes en los últimos años y el impacto a nivel social aún más. La pandemia de COVID-19 es la pandemia a mayor escala en la tierra este siglo, y el impacto en todos los sectores de la vida es devastador y afecta directamente a la actividad humana en la primera ola. El impacto en la economía, los sistemas de atención social y las relaciones humanas está causando una crisis global sin precedentes. El SARS-CoV-2 tiene un fuerte impacto agudo directo en la salud de la población, no solo a nivel fisiológico sino también a nivel psicológico para quienes lo padecen, sus allegados y la población en general, que sufre las consecuencias sociales de la pandemia. En esta línea, la recesión económica incrementó, aún más, el desequilibrio social y la inequidad, golpeando a las familias más vulnerables, y creando un contexto difícil de abordar para las instituciones públicas. Nos enfrentamos a uno de los mayores desafíos de la intervención social, que requiere respuestas rápidas, efectivas y bien coordinadas de las instituciones públicas, el sector privado y las organizaciones no gubernamentales para atender a una población cada vez más desesperada con necesidades cada vez más urgentes. La legislación a largo plazo es necesaria para reducir la vulnerabilidad de los menos afortunados, así como para analizar la respuesta social para mejorar la gestión de la organización social de los recursos disponibles. Por lo tanto, en esta revisión de alcance, se realizó una revisión consensuada y crítica utilizando tanto fuentes primarias, como artículos científicos, como secundarias, como índices bibliográficos, páginas web y bases de datos. Los principales motores de búsqueda. El método fue una revisión de la literatura narrativa de la literatura disponible. El objetivo fue evaluar los efectos de la pandemia de COVID-19 en la salud de la población, donde se discuten las posibles intervenciones a nivel sanitario, el impacto en las áreas económicas y sociales, y las intervenciones gubernamentales y de los sistemas de salud en la pandemia, y finalmente, se proponen posibles modelos económicos para la recuperación de la crisis.

Relevancia de la revista:

Esta revista es parte de la serie Discover comprometida con proporcionar un proceso de envío simplificado, revisión y publicación rápidas, y un alto nivel de servicio de autor en cada etapa. Es una investigación de publicación de revistas de acceso abierto y centrada en la comunidad de todos los campos relevantes para la investigación de la sostenibilidad. Mantiene los estándares éticos para la investigación y la publicación según lo definido por COPE. Proceso de revisión por pares.

Artículo 6º. Título: Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura. Revista: Revista Internacional de Organizaciones Año: 2020. Fuente de Impacto: REDIB Índice de Impacto: 23.900

Síntesis y planteamiento:

El objetivo de esta investigación es conocer las actuales políticas de sostenibilidad en la Universidad y proponer un nuevo modelo que contribuya a aumentar la conciencia medioambiental de los estudiantes de la universidad las áreas de economía y empresa. Para desarrollar la conciencia medioambiental entre estudiantes (DCM) se han

determinado 3 factores a partir de un proceso de análisis y validación de variables entre estudiantes universitarios. Estos factores son: la Formación de profesores en sostenibilidad (FPS), actividades de concienciación medioambiental (ACM) e incorporación de competencias medioambientales transversales (CMT). La metodología aplicada para analizar el modelo estructural fue el Modelo de Ecuación Estructural (SEM) a través del paquete informático SmartPls-3. La muestra estaba formada por 420 estudiantes pertenecientes a las Facultades de Económicas y la Facultad de Empresa, Finanzas y Turismo de la Universidad de Extremadura. Los resultados de la encuesta arrojan datos que justifican la introducción de políticas de sostenibilidad en la Universidad tanto a nivel del profesorado como estudiantes. Dichas políticas deberían resaltar la importancia de dotar de contenido a la competencia transversal dirigida a la protección medioambiental entre los futuros empresarios de nuestro país.

Relevancia de la revista:

Revista Indexada: Emerging Source Citation Index, ERIH Plus, Fuente Academia Plus, Latindex, International Bibliography of Social Sciences, DOAJ, Dialnet y RACO. Revisión por pares. *RIO* está auspiciada por la Universidad Rovira i Virgili, donde la editará el grupo de investigación Análisis Social y Organizativo de la Universidad Rovira i Virgili.

Cáceres a 20 de septiembre de 2021

"La conformidad del director/es de la tesis consta en el original en papel de esta Tesis Doctoral"

Fd. Rafael Robina Ramirez Fd. Marcelo Sánchez-Oro Sánchez

8. BILIOGRAFIA

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9. ANEXOS: ARTICULOS PUBLICADOS

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Article

Drivers for Sustainability Awareness Development in Tourism Curricula: The Case of Spanish Universities

Libertad Moreno-Luna [1], Rafael Robina-Ramírez [2,*], Marcelo Sánchez-Oro [2] and José Castro Serrano [3]

[1] Department of Finance and Accounting, Faculty of Business, Finance and Tourism, University of Extremadura, 10071 Cáceres, Spain; libertadml@unex.es
[2] Department of Business and Sociology, Faculty of Business, Finance and Tourism, University of Extremadura, 10071 Cáceres, Spain; msanoro@unex.es
[3] Department of Art and Land Sciences, Faculty of Philosophy, University of Extremadura, 10071 Cáceres, Spain; josecastro@unex.es
* Correspondence: rrobina@unex.es

Abstract: Spain is one of the most popular tourism destinations in the world, and one of the top ten countries in terms of tourism contribution to its economy. As tourism is causing a gravely negative impact on the environment, universities play a key role in raising student awareness and reducing the damaging consequences of said tourism. Connections between sustainability and tourism studies have received little attention in higher education. The lecturing staff and student bodies from universities were interviewed with the aim of finding out what motivates academics to develop conductors and indicators that raise environmental awareness within under-graduate Tourism degrees. Results show a different perspective on teaching sustainability within the tourism curricula at public and private universities. According to the participants, motivation and training lecturers have been the two main drivers. Results can be applied to other Tourism degrees in order to overcome the common barriers that these studies have to face to introduce sustainability in the tourism curricula.

Keywords: education for sustainable development; sustainable tourism; universities; sustainability

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1. Introduction

In the early stages of the COVID-19 pandemic, most research focused on the medical and health aspects of the pandemic [1], but immediately raised concerns about the social, economic, and environmental aspects of this health crisis and how it could affect sustainable development. The environmental effects of the measures adopted by governments against the pandemic have had an impact on the environment. By restricting human activities in most countries, reductions of more than 50% in air pollutant emissions have been observed in some cities, improving air quality and contributing to better public health in countries such as France, Germany, Italy, or Spain [2]. From the point of view of economic repercussions, this pandemic is unprecedented, given its evolution from an initial health crisis to a humanitarian and development crisis on a global scale. Both the health and economic effects are pushing large sections of society into poverty in many parts of the world.

As we pointed out in our article published in this magazine last February, the consequences of the pandemic outbreak have led to negative growth of the Gross Domestic Product (GDP) and have increased inequality and poverty. Millions of people have lost their jobs at the height of the crisis. However, the sectors with the greatest increase in unemployment have been the hotel and catering industry, where demand for these services has ceased to exist for many months [3]. This has affected less qualified workers the most, as their work situation does not allow the possibility of working remotely, with a higher probability of unemployment and exposure to the virus.

Humanity is currently facing an unprecedented environmental crisis, reflected not only in the natural environment [4,5], but also in the social sphere [6,7]. Three decades of discussion about sustainability have clarified that it does not exclusively concern environmental issues, but also includes the social and economic field [8,9]. To reach a socio-economic balanced development in society [10], Education for Sustainability has become crucial. Its unprecedented role was recognized in the Bruntland Report [11] as well as at the UN Conference held in Rio de Janeiro in 1992 [12,13]. However, as the UN confirmed in 2002, the progress of implementing education has been slower than predicted [14]. Additionally, in some cases, the state of education for sustainability in society was even worse [15].

This uneven progress was highlighted in the UNESCO study called: 'Decade of Education for Sustainable Development 2005–2014' [16]. It not only explains the vital role that education plays on youth towards a societal transformation, but also provides an equal access to education in sustainability, which has been endorsed by 'Agenda 2030' [17]. At its heart, the seventeen Sustainable Development Goals (SDG) were determined in order to guide the social, economic, and environmental development for the next 15 years [18–20].

The environmental projection is significantly threatened by the pollution generated in the tourism sector [21]. This sector is responsible for about 5% of global emissions, which contributes to 4.6% of global warming [22] and motivates billions of people to travel every year. In fact, in 2018, international tourist arrivals grew by 5%, reaching 1.4 billion worldwide [19,20,23,24]. Thus, tourism plays a crucial role in many countries' development as is one of the most labour-intensive sectors of the economy. Spain is one of the main tourist destinations in the world, holding second place within international arrivals with more than 83 million per year [20]. Therefore, the tourism sector is of major economic importance for this country. The COVID-19 outbreak has affected the Spanish tourism industry in an unprecedented scale. From January until July 2020, Spain received 72.4% fewer visitors compared to the same period 2019. Only in July, Spain received 75% fewer tourists in comparison to the same period last year [25].

This dependence on tourism makes it the third most vulnerable destination in the world when demand for these services ceases to exist [26]. Therefore, for Spain, the social, economic, and environmental development are strongly linked to the tourism industry, and these figures show the key role that sustainability plays for this sector [27]. Although this importance has been recognized in the last 30 years, limited attention has been paid to the relationship between education, tourism, and sustainability [28]. What role does sustainability play in Spanish Tourism degrees? What currently drives lecturing staff to introduce sustainability into tourism studies?

According to Teruel-Serrano and Vinals [29,30], the problem of environmental sustainability in the case of tourism is crucial as it is a global phenomenon based on the use of the territory and its resources, which can have negative consequences for the population and the environment. In line with these authors [29], this article presents an overview of education for sustainable development in Tourism degree programs in Spanish universities, with two objectives: 1. To propose an interactive methodology to define the main drivers to introduce education for sustainability in the tourism curriculum; 2. According to the main drivers established, the paper ranks a list of seventeen indicators to guide Tourism degrees to implement sustainability in the curricula.

Following this introductory Section 1, the structure of this paper is divided into four sections: Section 2. Background and context; Section 3. Methodology; and Section 4. Conclusions.

2. Background and Context

2.1. Tourism for Sustainable Development

Tourism is the sector with the greatest social impact due to its economic results and the mass of its movements. This makes destinations responsible for a more sustainable tourism management that minimizes any negative effect [20,24], contributing not only to stopping the deterioration of the planet, but also to economic benefits for locals [29]. In the relations established in the tourism system, there is always a cultural exchange

that will affect tourists and local communities, the results of which may be beneficial or harmful [31]. Furthermore, the jobs generated in the hospitality sector are mostly seasonal and not qualified; usually the job creation is prioritized in exchange for collateral damage to natural resources and local community welfare [32].

With the COVID-19 health crisis, the least qualified workers are more vulnerable, as their work situation does not allow the possibility to work from home, resulting in higher probability of unemployment and exposure to infection, increasing the risk of falling into poverty [33]. Based on the original conceptualization, sustainability in tourism development should relate to the needs of people and the use of natural and cultural resources, increasing long-term well-being for its residents [24,31]. Well-managed tourism can make a significant contribution to social, economic, and environmental dimensions of sustainable development [34]. Thus, future tourism professionals must be able to promote tourism through the minimization of negative environmental and social repercussions [35].

2.2. Universities for Sustainable Development

In the last decades, Spanish regional and national governments have timidly started to invest in raising a pro-environmental behaviour in the educational system [36]. To respond to the interconnected economic, social, and environmental needs, training in sustainability has become the main educational issue to mitigate the negative impacts into the environment [37–40]. According to Ferrer-Balas et al. [40], it is clear that universities should play a much more active role in the transition process towards sustainable societies. Change towards sustainability requires an institutional management compatible with a sustainable development [41] which connects mission and policies with curriculum, campus, research, and teaching [13,21,42].

However, environmental missions and policies in Spanish Universities have just started two decades ago, as society demanded to reach a sustainable world [36]. Even though multidisciplinary research has been widely expanded amongst lecturers, there is still no well-developed teaching strategy [37]. In this regard, some progress has been made over the past decade making sustainability part of the universities' operations [43,44]. As a result, the damage of unsustainable practices has become a common issue in the Spanish universities [15]. However, despite the urgent call for responsibility, much remains to be done [19,45]. Wals [46] claims that most of our universities are still articulating procedures to promote environmental behaviours amongst universities to tackle the existing social inequalities and the overexploitation of human and natural resources [14,28].

The challenge to tackle these inequalities lays on the responsibility of contributing to create sustainable societies from the university [13,20,36,47]. Otherwise, universities will be failing to involve students in one of the biggest demands of our time [5]. As the UNESCO [48] states, the change process begins by integrating new understandings and behaviours for actions into the education system at all levels. This can only be achieved through continuous educational work and the commitment of universities and academics, as well as in companies [29,49]. This education process ensures that graduates are equipped with the necessary knowledge, skills, and values helping to transform their workplaces and live as responsible global citizens [18,20,50].

To equip students with the necessary skills at universities, innovative practices have emerged from committed work in their operations, curriculum, research programmes, and academic investigation [41]. Thus, in order to reorient teaching methods with sustainability criteria [29,40] investing on research and innovation for sustainable development must become a priority [36,50]. This implies the introduction of a curricular reform for sustainability skills development from an interdisciplinary and transdisciplinary approach [51]. In other words, it should involve the integration between theory and practice, ethical discussions, and reflections [5,52]. Students will not be efficiently motivated if they only grasp theoretical training without being applied by universities in their daily policies [44,49].

Pedagogical methodologies should be focused on the active and experiential participation of students and teachers throughout academic training [50,53]. Opportunities to

learn about the different experienced problems by the community can become topics to be debated in the classroom [54,55]. As a result, using problem-based-learning and participatory engagement with local communities might influence the students' behaviour, as well as to challenge their own stereotypes and personal values [21,42,56]. When pedagogical methodologies are overlapped to effective sustainable policies at the university, educational student behavioural outputs are fully achieved. Then, graduates start learning to connect society and environment in their daily academic routine [47,49,57]. In particular, active campuses that help students to embrace sustainability [12,31] introduce them into ways of mitigating the university campus' negative impact into the environment [7,20].

This way of encouraging sustainability awareness teaches students how to think and act for themselves [43,45,49,51], building capability to make critical analysis and enabling actions [7,10]. Critical thinking should be focused not only on teaching and research activities, but also on university policies such as resource conservation, waste management, and equity and social justice promotion [58]. In the depicted scenario, the progress of implementing sustainability in many Spanish universities has been very slow [18]. Although there has been an increasing interest over the past few decades [45,59], they still need to increase their commitment considerably in order to shift the students' environmental mentality [51,58].

The resistance of Spanish universities to engage with sustainability related pedagogical methodologies as well as environmental policies, entails a lack of awareness and support from university administrators [39,43]. Barriers related to the inclusion of sustainability into the university structure are repeatedly risen [45], not only due to the lack of incentives and financial resources, but also as sustainability is not a priority in the academic system [41,42]. Consequently, few universities were focused on the creation of green areas, waste management and energy efficiency [10], with a reduced number of educators and researchers actively involved in promoting those sustainable resources [49].

That lack of interest at the Spanish universities has recently increased due to the economic crisis [58]. As a result, the ACES network (Curricular Environmentalization of University Studies) and the CRUE Spanish Universities Association [18] set a guideline to integrate sustainability in European and Latin American universities [60]. This programme has had a reduced impact in Spanish universities [61]. To overcome this inactivity, the Spanish government developed the 'University Strategy 2015' [38]. It states that universities should be more socially and environmentally responsible to develop ethical and sustainable values to contribute to the socioeconomic development [58].

2.3. Sustainable Development in Tourism Studies

In Spain, the number of universities engaged in teaching for a sustainable behaviour is still scarce [35,41]. In 2010, the CRUE developed a sustainability self-diagnosis tool for universities, focusing on measuring the progress of the application of the 17 Sustainable Development Goals (SDG). The first implementation of that platform was in 2017, particularly, in the Tourism degrees, thirty-three universities were analysed in 2018. Results observed little improvement in methods of teaching sustainability. The slowest progress was found in the implementation of curricular sustainability and research [62]. This lack of the Tourism degree's interest for sustainable issues contrasts with the negative contribution to climate change [28] and its consequences to the environment due to the tourism influence in the worldwide economy [63]. The tourism sector grew 2.9% in 2018 compared to the previous year, contributing a record 319 million jobs to the world economy, generating 10.4% of all global economic activity [64].

In Spain, the contribution to the GDP represented is even higher, 14.6% of the total economy, with a 3.4% growth in 2018 in relation to the previous year, generating three million jobs. It represents the 14.7% of total Spanish employment, which makes tourism a true global force for economic growth and development [65]. These figures place tourism as the second most important sector in the Spanish economy [66], positioning the country among the top ten global destinations in terms of the tourism contribution to its econ-

omy [67]. Despite its economic benefits, on the other hand, tourism's growth has become responsible for negative impacts on a global and local scale [68], contributing significantly to environmental degradation and representing 5% of total global emissions derived from transport and tourist accommodation [22].

In this controversial and damaging environmental scenario, sustainability plays a key role in the tourism industry [23]. Unfortunately, destinations are viewed as resources for tourism, rather than tourism as a resource to preserve the destinations [69,70]. Hence, sustainability in the tourism industry relates the use of natural and cultural destinations to the residents' quality of life while providing a high-quality experience for visitors, promoting ethical touristic consumption [71–74]. To achieve that goal, the direct involvement of the local stakeholders such as businesses, residents, and visitors, has become essential to identify weak points to contribute to sustainable development [27,67]. This collaborative process not only improves the environmental quality in destinations, but also increases the social welfare of the region [68] by preserving natural and cultural heritage to contribute to the residents' well-being [24,30,75]. To preserve the natural and cultural heritage, educational training needs to be implemented at the universities [76,77]. They have the responsibility of developing alternative thinking to protect the environment [78]; this comes from introducing sustainable perspectives for managing the tourism industry.

In Spain, tourism curricula have been growing from 30 public and 13 private universities in 1995, to 48 and 27, respectively, in 2019 (see Table 1). During that time, sustainability was taught through two different denominations: "sustainable tourism", which involves a more general term, including the three main pillars of sustainable development, and "environmental tourism", which refers mainly to the environmental issues related to tourism. While in 1995, 33% of Tourism studies in public universities taught "sustainability tourism" and 5% "environmental tourism", in 2019, those percentages remained quite similar, at 32% and 7%. However, in private universities, the percentage has increased from 0% in 1995 to 4% in 2019, either in teaching sustainable or environmental tourism. This allows us to say that sustainability is growing faster at private universities. Table 1 shows the variation in percentage between the three periods of time.

Table 1. Sustainability related subjects in Spanish under-graduate Tourism degree programs.

Tourism Degrees	1995	%	2010	%	2019	%
Public Universities	30	70%	41	66%	48	64%
- Teach Sustainable Tourism	14	33%	17	27%	24	32%
- Teach Environmental Tourism	2	5%	3	5%	5	7%
- Do not teach any of the subjects	8	19%	9	15%	9	12%
Private Universities	13	30%	21	34%	27	36%
- Teach Sustainable Tourism	0	0%	1	2%	3	4%
- Teach Environmental Tourism	0	0%	0	0%	3	4%
- Do not teach any of the subjects	2	5%	2	3%	1	1%
- Do not offer a Tourism degree program	16	37%	21	34%	20	26%
TOTAL	43		62		76	

Source: Self-made from CRUE data.

Table 2 compares the presence of sustainability in Tourism degree programs in public and private universities per region in 2019. In regions such as Canarias, Region de Murcia, Asturias, Islas Baleares, Cantabria, and Extremadura, tourism curricula is taught in every university; however, in those regions where tourism has a high impact, such as Andalusia, Comunidad de Madrid, Castilla León, Cataluña, Comunidad Valenciana, Canarias, and Region de Murcia, Tourism degrees do not play such an important role. Although sustainability is present in the 60% of the tourism curricula, the impact on environmental policies at the university, as well as the lecturing staff and students, is scarce [55].

Table 2. Sustainability related subjects in Spanish Tourism degree programs per regions.

Regions	Tourism Degree Programs	Total Universities	%	Sustainability in Tourism Degrees	%
Andalucía	8	11	73%	8	100%
Comunidad de Madrid	7	14	50%	6	86%
Castilla y León	5	8	63%	4	80%
Cataluña	7	12	58%	4	57%
Comunidad Valenciana	4	7	57%	4	100%
Canarias	3	3	100%	3	100%
Región de Murcia	3	3	100%	2	67%
Aragón	1	2	50%	1	100%
Asturias	1	1	100%	1	100%
Islas baleares	1	1	100%	1	100%
Universidad (UNED)	1	2	50%	1	100%
Cantabria	1	1	100%	0	0%
Castilla la Mancha	0	1	0%	0	0%
Extremadura	1	1	100%	0	0%
Galicia	2	3	67%	0	0%
La Rioja	1	2	50%	0	0%
Comunidad Foral de Navarra	0	2	0%	0	0%
País Vasco	2	5	45%	0	0%
TOTAL	48	79		35	

Source: Self-made from ANECA data 2019.

3. Methodology

To propose what drivers should be implemented by universities to successfully introduce sustainability in Tourism degree programs, the research team contacted fifty-six Spanish universities from September to December 2019. The list was offered by the Spanish National Government of Education. Thirty-nine were public and seventeen private universities. A letter of invitation was addressed to the Dean of each Tourism degree. Forty of them responded favourably to the research; thirty-one from public universities and nine from private. Amongst those, five eventually stepped down. Thirty-five degrees in Tourism were eventually involved in the research. Almost 90% delegated that responsibility to lecturers in charge of the Undergraduate Quality Commission in tourism.

Table 3 shows the number of Deans and lecturers in charge of Undergraduate Quality Commission in Tourism degrees interviewed per Spanish regions. Only three Deans were directly involved in the research; one each from the Andalucia, Asturias, and Cantabria regions.

Three online meetings were organized in January and February 2020. On average, 75% of the participants attended the meetings. In the first the objectives of the study were debated, as well as barriers to education for sustainability in Tourism degrees. Interesting qualitative arguments were highlighted. Three barriers to teach sustainability at university were pointed out: (1) the inexistence of an academic gap to introduce more subjects in the current curricula approved by the National Government; (2) the common staff resistance to teach about sustainability; and (3) the lack of interest from the academic boards to implement environmental policies on campus. All those three aspects are well aligned with Wilson and von der Heidt [79].

Table 3. Spanish Tourism degree programs' type of involvement per regions.

Regions	Tourism Degree Programs	Tourism Degree Involved	Dean Involved in the Research	Undergraduate Quality Commission Involved in the Research
Andalucía	8	7	1	6
Comunidad de Madrid	7	5	0	5
Castilla y León	5	3	0	3
Cataluña	7	2	0	2
Comunidad Valenciana	4	4	0	4
Canarias	3	3	0	3
Región de Murcia	3	3	0	3
Aragón	1	1	0	1
Asturias	1	1	1	0
Islas baleares	1	0	0	0
Universidad (UNED)	1	1	0	1
Cantabria	1	1	1	0
Castilla la Mancha	0	0	0	0
Extremadura	1	1	0	1
Galicia	2	1	0	1
La Rioja	1	1	0	1
Comunidad Foral de Navarra	0	0	0	0
País Vasco	2	1	0	1
TOTAL	48	35	3	32

Source: Undergraduate Quality Commission in tourism.

Table 4 shows that 57% of the in charge of Undergraduate Quality Commission in tourism interviewed were male, and 43% female. Most of them had an age range of 46–55 years (40%) and 56–65 years (29%).

Table 4. Sample composition.

Gender	N = 35	%
Male	20	57
Female	15	43
No response	0	00
Total	35	100
Age	N = 35	%
25–35	2	06
36–45	8	23
46–55	14	40
56–65	10	29
More than 66	1	03
No response	0	00
Total	35	100
Total	N = 35	%

Source: Undergraduate Quality Commission in tourism.

In the second week of January, in the first debate, the vast majority of the lecturers stressed two current factors that might help to shift those barriers: (1) the pressure of international organizations to look after the environment which has positively influenced the perception of sustainability in young generations of students; and (2) the key role that culture and society play in developing sustainability. Regarding these two factors, in a second meeting in the first week of February, a rich debate was raised to overcome those barriers to teach sustainability in Tourism degrees. Then, four drivers were proposed by the authors according to the literature review: (1) lecturing staff and student motivation; (2) training teachers in sustainability; (3) Methods to teach sustainability; and (4) subjects,

skills, and competences. In the third meeting, in the last week of February, items to define those drivers were proposed. The debate shows detailed experiences and proposals to enlighten why those drivers and items were chosen. Arguments are developed in the following paragraphs. Participants also raised specific studies to back up their proposals.

In order to contrast the theoretical indicators, two focus groups were organized separately with lecturers and students from six private and public universities in Spain [68,80], three universities from Andalusia, one from Alicante, one from Castilla y León, and one from Madrid, based on a participatory procedure. A total of 26 lecturers and 30 students were involved to debate through online meetings. The aim of these meetings was to polish the indicators based on the daily activity at the University. As a result of the first debate, fourteen items were approved in the second meeting.

In the third meeting, several proposals were debated to translate the items to expected outcomes to effectively implement the academic regulatory system in sustainability into Tourism degrees:

- Integrate the academic policies of the Tourism degree and sustainability.
- Promote sustainable tourism amongst students by highlighting sustainable companies and future jobs in the private sector.
- Undertake a variety of teaching methodologies regarding to sustainability topic.
- Introduce long-term sustainable policies at the Tourism degree in electricity consumption, use of water, gardening, and building maintenance.
- Promote cooperation with public institutions and private touristic companies.
- Set up learning cooperation and networking amongst lecturers to share experiences in teaching sustainability.
- Incentivise lecturing staff to promote social and environmental values in students.
- Define methodologies to link teaching in sustainability with real social and environmental challenges.
- Develop reputable and high-quality teaching and research programs in sustainability related to economic and social well-being and environmental protection.

3.1. Drivers to Implement Sustainability in Tourism Degree Programs

3.1.1. Lecturing Staff and Student's Motivation (SSM)

Sustainability in the tourism industry is not only relevant and crucial for the people's well-being; a declaration to introduce sustainability in education is also widely mentioned by the Association of University Leaders for a Sustainable Future, Kyoto Declaration, Swansea Declaration, COPERNICUS University Charter, Global Higher Education for Sustainability Partnership, Lüneburg Declaration, Declaration of Barcelona, Graz Declaration on Committing Universities to SD, Abuja Declaration, and Torino Declaration [41]. However, results are far from the expectation created by tourist international organizations [17]. Participants also debate about the slow process experienced in Tourism degrees to integrate sustainability into education, as recommended by UNESCO [16].

The international agency has stressed the relevance of providing knowledge about sustainability, but also to sympathetically inspire affections and values for nature amongst stakeholders in the tourist sector to protect the tourist destinations. The complex process of inspiring affections and emotions toward nature has been highly valued by the participants triggering successful environmental experiences [81–83]. Apart from motivation and environmental experiences, Gutiérrez et al. [61] pointed out that academic and economic support is required to introduce motivational procedures. Experiential learning economically supported by the university is highly valued to better implement sustainability practices in the local territory [58]. However, unsurmountable barriers are currently raised at Spanish universities due to overcoming the structural resistance to spend funds in those activities [42].

3.1.2. Training Teachers (TT)

The second aspect stressed by the lecturing staff was the need of receiving adequate training at the universities. The affective relationship between the environment and economic-social, cultural, and political actors is not appropriately treated at universities, and is degrading the environmental resources. As a result, teaching sustainability is a complex issue; it is comprised by environmental, economic, and social perspectives, which makes them an interdisciplinary composite process of teaching and learning [84]. This interdisciplinary perspective is also extended to different subjects in the tourism curricula. Responsible training processes to build the individual or collective common sense for tourist destinations' components and awareness of its values [85,86] should be mixed with examples of the degradation rhythm in a process of excessive exploitation [46].

Training resources play a key role in the challenge of implementing sustainability in the tourism curricula [60] as was supported by 90% of the participants. Thus, not only is investment in training resources essential to develop the tourism curricula, but as is cooperation and networking processes between lecturing staff in sustainable activities in the Tourism degree programs [87]. The points analysed above revealed several relationships that allowed us to formulate the following hypothesis:

Hypothesis 1 (H1). *The correct training of lecturing staff in sustainability (TT) positively influences the development of staff and students' motivation (SSM).*

Hypothesis 2 (H2). *Training lecturing staff in sustainability (TT) positively influences the skills and competences development in the curricula (CSC).*

3.1.3. Subjects, Skills, and Competences Development in the Curricula (CSC)

Addressing last driver, participants debated about how to insert critical thinking through environmental skills and competences into the tourism curricula. In the work of Jamal et al. [88], Sustainable tourism pedagogy and academic-community collaboration: A progressive service-learning approach, different approaches to develop skills and competences are proposed. New concepts and values are mixed with tools, and new procedures implemented to introduce subjects, skills, and competences about sustainable development in the university. As a result, academic, social, and economic incentives to lecturers should be performed in order to transform students' attitudes [89] by developing their proper teaching methods [90]. Moreover, tourism curricula must pay attention to better connect sustainable touristic companies and the Tourism degree [91]. This leads to the formulation of the following hypothesis:

Hypothesis 3 (H3). *The skills and competences development in the curricula (CSC) positively influences staff and students' motivation (SSM).*

3.1.4. Methods to Teach Sustainability (TM)

In relation to the proper training, the third issue discussed amongst lecturers was the innovative pedagogical practices to teach sustainability based on critical and creative thinking as well as responsible decision making [92]. This way of encouraging environmental awareness teaches students how to think and act by themselves [49,51], building their capability to make critical analysis and enabling actions [10]. Those analyses and actions trigger deep learning in sustainability by promoting the integration between practice and theory through the interaction and collaboration with diverse stakeholders [28,54,55]. In other words, the local and global problems should be approached by involving the students in the decision making [59]. Consequently, education for sustainability is about training people to learn how to critically analyse the connections between the economic, social, and environmental areas, and finding an equilibrium amongst them [53,81].

During the debate, student's critical analysis were addressed towards having self-experiences triggered outside the formal education system [51,93]. According to the

participants, inserting critical thinking and reflection in the curricula are, perhaps, one of the most important claims for the transformation of the current education system [59]. UNESCO [94] has come to the same conclusion, saying that skills in sustainability basically comes from critical and reflective experiential thinking, which is based on participation in decision-making, and cooperation in problem solving. These educational approaches allow them to think and learn about the collaborating process with colleagues and students observing different points of view to identify possible actions [95].

In the context of sustainability, intention to apply sustainability, skills, and know-how to achieve such is crucial [1]. This leads us to propose the following hypotheses:

Hypothesis 4 (H4). *New teaching methods for sustainability subjects (TM) positively influences the development of staff and students' motivation (SSM) towards sustainability.*

Hypothesis 5 (H5). *New teaching methods™ for sustainability subjects positively influences the development of new skills and competences for sustainability in the curricula (CSC).*

3.1.5. Indicators Selected from the Literature Review

The indicators used in the model we propose have been obtained from the existing literature, although the opinions of the participants in the focus groups and the results of the student surveys have been taken into account in the process of developing them in order to narrow down their scope and meaning (see Table 5).

Table 5. Preliminary study and list of indicators.

Drivers	Items	Authors
Staff and students' motivation (SSM)	Sustainability in the tourism curricula (SSM1)	Junyent and Geli [36], UN [50], Wals and Jickling [5]
	Practical teaching in sustainability (SSM2)	Aznar et al. [37], Wals and Jickling [5], Robina-Ramírez et al. [52], Puertas and Marti [20], Wiek et al. [7], Wright [96]
	Academic involvement in sustainable tourism in the local territory (SSM3)	Aznar et al. [37], Holdsworth et al. [4], Lozano [38], Robina-Ramírez and Medina-Merodio [39], Wiek et al. [7,55]
Training staff lecturing (TT)	Develop training courses at the university	Albareda et al. [18], Ferrer-Balas et al. [40], Puertas and Marti [20], UN [50], Leal Filho et al. [49]
	Interdisciplinary knowledge about sustainability (TT2)	Howlett et al. [51]
	Cooperative activities in tourism programs among staff (TT3)	Brida et al. [68], Cucculelli and Goffi [75], Osorio et al. [31], UNWTO [24]
Teaching methods (TM)	Innovative pedagogical practices (TM1)	Howlett et al. [51], Leal Filho et al. [49], Barrón et al. [10]
	Collaborative processes between teachers and stakeholders (TM2)	Goffi et al. [27], WTTC [67], Saarinen [71], Tourspain [72]
	Awake students about the real challenges they need to face (TM3)	Wals and Blaze [78]
	Reduce negative impacts into the social and environment (TM4)	Aznar et al. [37], Holdsworth et al. [4], Lozano, [38], Robina-Ramírez and Medina-Merodio [39], Wiek et al. [55]
	Activities to positively impact on campus (TM5)	Jickling and Wals [14], Moscardo [28]
Curricula, skills, and competences (CSC)	Integrate skills and competences in sustainability (CSC1)	Albareda et al. [18], Ferrer-Balas et al. [40], Puertas and Marti [20], UN [50]
	Professional competences amongst students (CSC2)	Jamal et al. [88], Moore [89], Sinakou et al. [90]
	Student's skills and competences in Tourism degree (CSC3)	Holdsworth et al. [4], Howlett et al. [51], Lozano et al. [38], Thurow [97]

Source: Self-made.

As a result of the focus groups that have been carried out, a series of items have been established and systematized in Table 6.

Table 6. Preliminary study and list of items corrected by Managers.

Drivers	Items
Staff and students' motivation (SSM)	Invest economic resources and pay academic attention to introduce sustainability in the Tourism curricula (SSM1)
	Connect theoretical knowledge and practical teaching (SSM2)
	Academic support to undertake initiatives to impact the sustainable tourism in the local territory (SSM3)
Training lecturing staff (TT)	Provide training for lecturers by organizing specific seminars and courses aligned with the Sustainable Development Goals (SDGs) (TT1)
	Promote interdisciplinary approaches towards sustainability and issues related (TT2)
	Introduce cooperation and networking processes amongst lecturing staff in sustainable activities in tourism programs (TT3)
Teaching methods (TM)	Introduce innovative pedagogical practices based on critical and creative thinking (TM1)
	Establish collaborative processes between teachers and stakeholders to address better outputs of the teaching process (TM2)
	Address local and international environmental problems to make students aware of the real challenges they need to face (TM3)
	Propose activities based on reducing negative impacts into the social and environmental sphere to be performed by students out of class (TM4)
	Describe a group of activities to make positive social, economic, and environmental impact on campus (TM5)
Curricula, skills, and competences (CSC)	Establish academic, social, and economic incentives to lecturers to integrate skills and competences in sustainability into their courses (CSC1)
	Develop professional competences amongst student by promoting better connections between sustainable touristic companies and the Tourism degrees (CSC2)
	Develop the student's skills in sustainability in Tourism degrees by performing sustainable activities in the territory (CSC3)

Source: Self-made.

With the intention to highlight those items that are more relevant for each driver, lecturers from public or private universities ranked each indicator from 0 (less important) to 10 (most important), following the process of generating indicators based on Likert scales explained by González Blázquez, [98] (see Table 7).

According to the literature review, a theoretical model is presented to be used as a tool for universities [99]. Results will be delivered in public and private universities in Spain and South America. The model is shown in Figure 1.

Table 7. Indicators ranked in every driver.

	Items	Public Universities %		Private Universities %	
Staff motivation (SSM)	SM1	136	36%	58	44%
	SM2	127	34%	38	29%
	SM3	115	30%	35	27%
	Total	378	100%	131	100%
Training staff lecturing (TT)	TT1	115	36%	24	33%
	TT2	103	32%	22	31%
	TT3	101	32%	26	36%
	Total	319	100%	72	100%
Teaching methods (TM)	TM1	97	19%	21	19%
	TM2	116	23%	23	21%
	TM3	105	21%	23	21%
	TM4	98	19%	20	18%
	TM5	94	18%	25	22%
	Total	510	100%	112	100%
Curricula, skills, and competences (CSC)	CSC1	138	37%	47	35%
	CSC2	122	33%	59	43%
	CSC3	112	30%	30	22%
	Total	372	100%	136	100%

Source: Self-made.

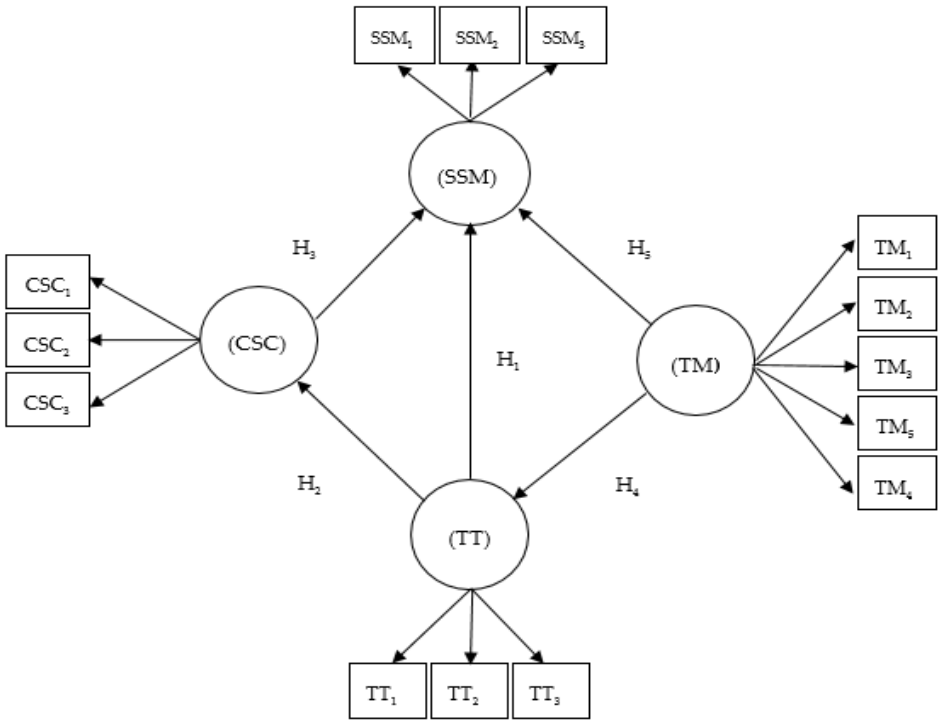

Figure 1. Structural Model (Source: Self-made. SSM: Staff motivation; TT: Training staff lecturing; TM: Teaching methods; and CSC: Curricula, skills, and competences).

4. Conclusions

Firstly, from a descriptive perspective, we highlight that 90% of the participants agreed to highlight barriers to teach sustainability as a way to express their worries about the current Spanish academic regulatory system. They came from different areas such as: lack of interest from boards of directors, economic constraints, lack of human resources, knowledge and infrastructure, and academic careers based on publications rather than in excellence in teaching methods. Almost 100% of the attendees to the debate addressed motivation as the main driver to overcome those barriers. They agreed that motivation is a

pre-condition to engage staff themselves in teaching and learning process [44]. According to Lazarus [68,80], people feel motivated when the action is relevant or important to their needs or well-being.

Teruel-Serrano and Vinals (2020) [29] consider that, in the curricula of Tourism degrees in Spain, more than 30 of the optional subjects are related to topics related to the environment, sustainability, and resources related to tourism, and that practically all universities offer at least one subject with these characteristics. However, shortcomings are evident; for example, few universities address 'Tourism and Transport', which deals with some environmental issues that are explored in order to establish the relationship between the sector and the sustainability of tourism activity, although there are subjects such as 'Territory, Sustainable Tourism and Development' that have included aspects related to the above.

In any case, these authors [29] points out that the study and application of sustainable management tools, such as recreational carrying capacity, the inventory and assessment of tourism potential, and the management of visitor flows are included.

The study and application of sustainable management tools such as recreational carrying capacity, inventory, and assessment of tourism potential and visitor flow management are included in one way or another in the development of the programmes. Some universities have also included optional subjects that deal with aspects related to new forms of tourism consumption more in line with the principles of environmental and social responsibility. These are often referred to as "Ecotourism", or "Environmental Sustainability and Ecotourism". Following this line of research, in our work we have looked in depth at the offer of universities in these subjects, which in relative terms is, in our opinion, low. In addition, we consider that private or public dependence on universities is, among other factors, an important factor in the weight of these subjects.

The paper has delved into the challenges that tourism curricula are facing to teach sustainability in Spanish universities. Barriers are currently raised due to the Spanish universities' lack of determination to address that issue as a priority. Although tourism is in second place among the sectors that contribute most to GDP in Spain, representing more than 14% of the country's employment, only 32% of Tourism degrees are teaching subjects related to sustainable tourism and 7% includes subjects about tourism and environment in public universities. Only 8% of the private universities have implemented subjects related both to sustainable tourism or environment and tourism.

Through an interactive methodology, lecturing staff from thirty-five Spanish universities have debated four drivers drawn from the literature review. Seventeen items were considered as a way of introducing sustainability and all the three pillars in Tourism degrees. Public universities tend to highlight the relevance of investing economic resources for the introduction of educational reforms for sustainable development (SSM1). Special training to the lecturing staff (TT1) as well as academic, social, and economic incentives to lecturers should be undertaken with the aim to integrate skills and competences in sustainability into their courses (CSC1). In that process, collaborative actions between teachers and stakeholders are crucial (TM2).

However, private universities are more prompted to develop professional competences amongst students by promoting better connection between sustainable touristic companies and the Tourism degrees (CSC2) to have an impact on campus (TM5). Tourism degrees in private universities also stress the role that investing economic resource play in the promoting sustainability in the tourism curricula (SSM1), as well as the cooperation and networking between lecturing staff in sustainable activities in Tourism degree (TT3). As a result, the Spanish universities' lecturing staff need to increase their commitment to the creation of sustainable societies and, therefore, to manage tourism in a sustainable way. Promoting massive and irresponsible tourism towards the environment can only lead to the detriment of the destination and its population, gradually causing the depletion of natural and cultural resources, and the loss of their identity.

Participants in the meetings stressed that development of sustainable tourism awareness is essential to contribute to education as citizens, tourists, and professionals. Almost 100% of the participants postulated that change in teaching and curricular content towards the inclusion of the Sustainable Development Goals (SDGs) is necessary to help us change to a way of thinking which leads the fight against the degradation of the planet and the loss of quality of life worldwide. Companies and society must contribute by moving towards a responsible production and consumption model. This, together with university education, will allow students to develop sustainable behaviour.

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Tourism and Sustainability in Times of COVID-19: The Case of Spain

Libertad Moreno-Luna [1], Rafael Robina-Ramírez [1,*], Marcelo Sánchez-Oro Sánchez [1] and José Castro-Serrano [2]

[1] Department of Business and Sociology, Universidad of Extremadura, 10071 Cáceres, Spain; limorenol@alumnos.unex.es (L.M.-L.); msanoro@unex.es (M.S.-O.S.)
[2] Department of Art and Land Sciences, Universidad of Extremadura, 10071 Cáceres, Spain; josecastro@unex.es
* Correspondence: rrobina@unex.es

Abstract: The aim of this paper is to study the effects of the spread of the COVID-19 virus in different regions and its impact on the economy and regional tourist flows. To this end, the researchers have been guided by a set of propositions which they have tried to demonstrate with the results obtained. This research shows that the impact of the pandemic is still being evaluated. The analysis of the relationship between the tourism sector and the pandemic outbreak in Spain provides an instructive case study to assist tourism in its recovery process. The paper delves into the impacts on the main Spanish touristic regions during the pandemic and providing implications for tourism recovery. In Spain, the tourism sector is of major economic importance, becoming one of the most vulnerable countries when crisis affects this industry. The negative image of the country due to the high infection rates has had a negative impact on travel and tourism. The Balearic Islands have been the most affected region with an 87% decrease in tourist visitors. The trips made by Spanish residents inside the Spanish territory shows the first increase found in the series analyzed. Domestic tourism not only represents an opportunity for all regions in this critical situation, but the types of accommodation also play a key role.

Keywords: COVID-19; tourism; sustainability; Spain; seasonality; domestic tourism; residents; economy; society; environment

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1. Introduction

The world is experiencing an unprecedented global health, social, and economic emergency due to the COVID-19 pandemic [1–3]. On 11 March 2020, the World Health Organization (WHO) urged governments worldwide to prepare for the first wave of public health emergency. Nationwide lockdowns as one of the drastic measures were stablished in many countries to limit human interaction at close distances [4–6]. According to the WHO Coronavirus Disease Dashboard [7], the current outbreak has confirmed more than 61 million cases worldwide and caused more than 1.5 million deaths, remaining a devastating pandemic [8] with numbers that continue to grow [9].

Recent data from WHO [7] shows the United States as the country with more confirmed cases, followed by India and Brazil. Inside the European continent, the Russian Federation has been hit the hardest by the virus. France, Spain, United Kingdom, and Italy also shows a high number of confirmed cases. Nonetheless, there could be many more cases that have not been reported [1,10].

The COVID-19 outbreak has led to an unprecedented crisis in Spain. After China passed their peak in infections, the spread of the virus in Italy was quick, followed by Spain which became the second epicenter in Europe by number of cases, reaching one of the world's highest mortality rates [11]. Since September 2020, a new wave of cases appeared, and many destinations have reintroduced lockdowns and travel restrictions [12,13]. Currently, according to data reported on 29th November [7], Spain is one of the leading countries of

the so-called second wave with 1,628,208 cases and 44,668 deaths in a population of about 47 million people.

At the beginning of the pandemic, most of the research focused on the medical aspects. Now it is important to study the social, economic, and environmental aspects that this crisis has caused, and how it is affecting sustainable development [14]. It is necessary to analyze the consequences on society sustainability, both in the short- and long-term, so it can be addressed in the right direction.

Since the first sustainable development concept established by the Bruntland Report [15], three decades of discussion about sustainability have clarified that it does not exclusively concern environmental issues, but it is also necessary to create quality of life for the present and future generations, involving the social and economic field [16–18]. To stimulate collective action in balancing the three dimensions of sustainable development, the United Nations [19] established in 2015 a global agreement between governments 'Agenda 2030', which comprise 17 Goals (SDGs) in areas of critical importance for humanity and the planet to accomplish in the next ten years.

Every aspect of our lives has been affected [20]: How we live and communicate with each other, how we work and travel [21]. The exceptional measures imposed by governments, rendered our streets empty, producing a negative impact on tourism and leisure [2,22].

According to data published by UNWTO in January [23], global tourism provided almost US$1.5 trillion of tourism expenditures and reached 1.5 billion tourist arrivals in 2019. Tourism has been affected on both travel supply and demand [20]. According to data on the World Tourism Barometer [3] published in July 2020, the lockdown imposed led to a 98% decline in global international tourist arrivals this year during April and May, as compared to same period 2019, and 70% between January and August. The cost up to May was more than three times the loss during the global economic crisis of 2009, and this is translated into a fall of 300 million tourists leading to a US$320 decrease in tourist spending. For all these reasons, the UNWTO [24] qualifies 2020 as "the worst year in the history of tourism". This source estimates the drop in international arrivals at 74%, with a loss of more than one billion fewer arrivals globally, while a recovery in activity is not expected until at least 2022.

Tourism plays a crucial role in many countries' development. Many of the countries most affected by the health emergency, like Spain, France, or Italy, are key destinations globally [25]. The impact of the crisis will be particularly critical on these territories due to its heavy dependency on international tourism, making them more vulnerable [20,24,26].

According to the World Tourism Organization, Spain is the country with the second highest international tourist arrivals figures [3]. This dependence on tourism, which represents 12% of the economy's GDP, makes it the third most vulnerable destination in the world, in comparison to the rest of the tourism leading countries [27]. Furthermore, together with the heavy fall in occupancy rates this year, shows the importance of carefully studying the Spanish case. The purpose of this investigation aims not only to understand the gravity of the situation experienced by the country, but to provide measures on the recovery of the tourism sector.

Spain was chosen for this case study as is one of the most visited countries in the world, with more than 83.7 million tourists per year. Is the second most visited country after France, and the second in tourist expenditures after the United States, with more than 112,319 million US$ [28]. In Spain, the tourism sector is of major economic importance, as it generates more than 2.6 million jobs, comprising 12.8% of the country's total employment, and contributes 12.3% to its GDP [29].

The deep and quick changes are having a devastating impact on the economy and employment globally [2]. Current estimations establish that more than 100 million jobs are at immediate risk only in the tourism sector [30], one of the most labor-intensive sectors of the economy, and more than half of the workers are women [21,31]. This threatens to roll

back progress made in advancing the Sustainable Development Goals (SDGs) of Agenda 2030, and losses from billions to trillions in export revenues from tourism [3,32].

This crisis is affecting the tourism industry in an unprecedented scale. Currently, there is a clear lack of research on how crises affect this sector. To study this gap, a spatial and temporal analysis of the impact of COVID-19 on tourism across the Spanish regions has been carried out in the present paper. The main goal is to study if the spread of the virus throughout different regions has impacted differently to their economy and tourist flows. This question is particularly relevant given the importance that tourism has for the country economy and especially for some regions.

To achieve this objective, six research questions or proposals have been formulated, referring to the effects of the crisis in the Spanish regions. These research proposals have been formulated according to the exposure of each region to the different tourist flows, as well as according to the degree of affectation by the pandemic and the effect on employment in the tourism sector.

The paper is structured as follows: Section 2 provides an overview of the impacts of the pandemic on the environment, the consequences of this crisis at a societal level and the repercussions of the measures imposed on the economy. Section 3 follows with an analysis of the impacts on the tourism industry. Section 4 describes the objectives, materials, and methods used in this research, followed by a study of the current Spanish situation on all these pillars in Section 5. Sections 6 and 7 provide the discussions and conclusions, suggesting some implications for the recovery of the Tourism sector in Spain.

2. COVID-19 and the Environmental, Social, and Economic Impacts

This article refers to the impacts that the pandemic crisis is causing in different subsystems; in particular the environment, the social and economic systems, within the latter we especially include the tourism sector. Given that the objective of our work is to analyze how the spread of the virus has had several consequences depending on its territorial distribution (autonomous regions) in Spain, it is necessary to start from a general evaluation of these impacts.

Environment change is one of the biggest and most vital challenges for humankind. Air pollution deeply affects people's health, increasing the severity of chronic diseases and aggravating the symptoms in coronavirus cases [2,33].

The confirmation of the confinement's positive effect on the environment and of mobility restrictions has become more evident in certain areas of the planet where there was an accelerated industrialization. This might be the only positive side of the pandemic. Self-quarantine and social distancing for more than two months, and subsequent confinement measures in the second and third waves, in the words of Lokhandwala and Gautam [34], has given nature a "healing time", due to the reduction of the human impact on the natural environment. These authors confirm a great impact of the containment measures on air quality, which is being experienced by all and recorded in several official reports, about India. It has given way to blue skies in cities like Delhi, marine life is experiencing higher activity, pollution levels have decreased in almost all metropolitan cities, and animals, particularly birds, seem to enjoy greater freedom. It further notes that, in metropolitan cities like Delhi, where the energy footprint was high, currently has improved air quality on a larger scale [34].

As human activities were restricted in most of the countries, a reduction of more than 50% of atmospheric pollutants were seen in some cities, improving air quality and helping to improve public health in countries such as France, Germany, Italy, and Spain [35,36]. This showed clean air and transparent skies, having little impact helping to recover the ozone layer though, for a significant change, there should be a mind shift in all countries' economies [37].

Additionally, ecosystems are recovering greatly, and many beaches around the world are being cleaned up due to a reduction in the waste usually generated by tourists [38]. On the other hand, among the negative indirect effects is the increase in domestic and

medical waste. The online food ordering has is on the rise, consequently, waste generated by households has increased. Furthermore, restrictions to recycle waste in countries like the USA and Italy has been another negative indirect effect of the health crisis [37].

From the social impact's perspective, this pandemic has been unprecedented because of its evolution from a health shock to a humanitarian and development crisis [32,39]. The virus has already brought significant challenges all over the world and people continue to suffer from both the health and the economic shock [9,11], as impacts on the economy are pushing workers and their families into poverty without income or social support [21].

Consequences of the pandemic outbreak have caused a negative gross domestic product (GDP) and increased inequality and poverty [40]. Millions of people have lost their jobs at extremely high rates [41]. The sectors with higher unemployment increases are those like hospitality sector, as demand for these services has ceased to exist [42]. Least qualified workers are more vulnerable, as their work situation does not allow the possibility to work from home [43], having a higher probability of unemployment and exposure to infection [41].

Hospitality has a majority female workforce, representing globally between 60 and 70% of the workers according to ILO [44]. Therefore, the pandemic is increasing existing inequalities, disproportionately hitting women and the most vulnerable population groups [30,45]. This also affects workers with precarious jobs, pushing an additional 71–100 million people into extreme poverty, reaching 684 million globally [13,21,46].

In most vulnerable households, income often depends on one person, increasing the risk of the whole household falling into poverty and social exclusion [43]. The situation for single parents, 78.4% of them are women, it is especially difficult if they struggle with work and caring for children when schools are closed [21].

The Internet has become the main method to obtain essential supplies and receive essential services [20,42] but not everyone has access to technology or the capabilities to use it; therefore, this situation will influence how communities fight the crisis [22].

The education system has been affected in an unprecedented scale. At least 147 countries, have moved their school and universities' courses online [39], affecting more than 1.4 billion students of all levels of the education system [30]. Lack of access to the technology needed for learning at home [47] leads to limited access to online learning, where only families with access to technology will ensure that education continues during social isolation [20]. This situation warrants human development to decline worldwide for the first time in 30 years, and the first increase in global poverty since 1998, reversing all of the progress made [41,45].

The pandemic is putting gender equality in jeopardy, threatening fragile gains on human's rights [32]. Globally, women, on average, perform three times as much unpaid care and domestic work as men, a situation that intensifies with school closures and when health systems are overloaded [30]. Furthermore, lockdowns affect vulnerable people, since the outbreak, violence and sexual assault against women and girls is on the rise, resulting in a shadow pandemic [21,39].

COVID-19 is not just affecting people's physical health, high rates of mental distress, including stress and depression are reported, with women reporting higher rates than men [42]. Increases in social disparities, job uncertainty, income loss, and an increase in gender violence are some of the reasons for the need of mental health care [48].

Tourism sector is an important driving force for inclusive socio-economic development as contributes to job creation both directly and indirectly, particularly for women and young people [49]. Actions should not jeopardize the fragile gains that have been made on gender equality. Progress on Agenda 2030 depends on a common response that builds equal and resilient societies for the future [32].

Regarding the economic impacts, the COVID-19 pandemic and its mobility restrictions has brought severe socioeconomic consequences [4,20]. It has decreased consumption and demand, affecting communities, businesses, and organizations globally [9,10,50,51]. The great uncertainty of the pandemic has caused markets' disruption and high economic costs on an unprecedented scale, making them highly unpredictable [11,36,52,53].

For the first time, countries worldwide are experiencing negative figures in their GDP due to lockdowns measures [38,41]. According to the last World Economic Outlook [54], global economy is showing unprecedented figures in recent history, shrinking by −4.4% this year. Asia will have the first regional recession in almost 60 years. The economies of the United States and Europe are projected to contract between −18% and −13%, respectively. The drop in Latin America and Arab States is estimated by −11.4% and −10.6%.

In the second quarter of 2020 GDP has decreased −13.9% in the European Union, in comparison with the same quarter of the previous year [55], showing the sharpest decline observed [21–23]. The third quarter 2020 already showed a recovery in comparison with the previous quarter, with positive growth for all the countries and only few exceptions. This might be due to the borders reopening and resumption of the economic activity in some sectors.

Spain registered the greatest GDP fall in Europe in the second quarter by −21.5%, followed by France (−18.9%), Italy (−17.9%), and Portugal (−16.4%), with the most representative figures [55]. The reason that these countries have experienced such an unprecedented decline might be due to the relevance that tourism sector has on their economies, as these countries receive the highest tourist flows in Europe. Therefore, the border closures and lockdown measures has been devastating for these countries.

Worldwide, the pandemic has led to a catastrophic hit to the global labor market. As supply chains disintegrate, whole sectors collapse, and most companies must implement an indefinite hiring freeze while other businesses have been forced to close [11]. The emergency measures adopted to contain the virus are having an uneven impact on workers from different occupations and industries [40]. According to the last ILO Monitor [56], workers around the world are facing unemployment and loss of their incomes with 94% of them currently suffering some kind of closure measure in their countries or a decrease in working hours.

The global job losses are estimated to be 495 million in the second quarter of 2020, a considerably larger decline than the 195 million estimated in April for the same quarter [56], reflecting the worsening situation globally [21–25]. The International Labor Organization estimates a loss of 345 million jobs for the third quarter, a quite small improvement for this tremendous crisis.

In addition, crises also accelerate technology innovation, while some businesses are struggling, other are thriving [42]. Due to fear of infection individuals have changed their consumption habits, resulting in an online overconsumption [20,22,40]. Working via digital means only selected parts of the economy will remain open [41]. The survival of many companies depends on their ability to adopt different forms of e-commerce [39]. The consequences of the pandemic might help towards teleworking and a greater use of the Internet [50,51].

It is necessary to mention that although some destinations and tourist attractions have created virtual visits, the tourism sector cannot develop its full social, cultural, and economic potential, solely on the basis of online offers, like other sectors of the economy can. By definition, tourists should be able to travel, because the essence of tourism is personal and direct experiences in destinations.

Tourism businesses have been racing to ensure the safety and re-design experiences to re-start tourism [22]. Innovative actions are key for tourism business as they often suffer from innovation deficiencies [31].

Tourism is firmly positioned in the 2030 Agenda for Sustainable Development, it has been identified by the United Nations Environment Programme (UNEP), as one of the sectors that can lead the transition to the green economy [44]. Its importance as a driver for job creation and the promotion of local economic development is reflected in the Sustainable Development Goals 8, 12, and 14, which include tourism-specific targets [49,53].

Governments and destinations have been providing stimulus packages and interventions to ensure the continuity of tourism firms and jobs [22]. The European Commission has provided an unprecedented degree of economic support for the tourism sector. However,

this situation does not seem to likely to recover any time soon, with some regions of the world remaining closed and the pandemic continuing to spread [57].

3. Tourism in the COVID-19 Crisis

The coronavirus pandemic has had the most significant impact on the tourism industry like no other previous event in history [22,38]. The restrictions imposed have brought international travel to a standstill, showing the vulnerability of the industry to crises [26,58].

Many airlines are already in bankruptcy due to the restrictions in domestic and international travel [41], decreasing by more than 90% during April and May 2020, compared to same period in 2019 [59]. Europe has been the most affected region, as the number of international flights dropped by 95%, from 576,572 in May 2019, to only 26,796 flights in May 2020 (−535,867). Followed by Asia (−207,556) and North Africa (−96,065). This has had a decisive impact on the accessibility of tourist destinations. June brought a slight recovery due to the lifting of strict border closures, but the difference with the same period last year was still exceptionally large.

The pandemic outbreak has caused the international tourism economy to contract 70% in the first eight months of the year, according to the last UNWTO Tourism Barometer published in October [57]. This translates into 700 million fewer international tourist arrivals in comparison to 2019 and a loss of US$ 730 billion from international tourism, more than 8 times the figures after the global economic crisis in 2009. International arrivals decreased 81% in July and 79% in August, traditionally the two busiest months of the year and the peak of the summer season. As Figure 1 shows, the UNWTO [24] estimates the drop in international arrivals in 2020 at a global level at 74%. The areas with the greatest reduction in international tourist arrivals were Asia-Pacific (−84%) followed by Africa and the Middle East (−75%), while Europe (−70%) and the Americas (−69%) would remain below the global average loss of international arrivals.

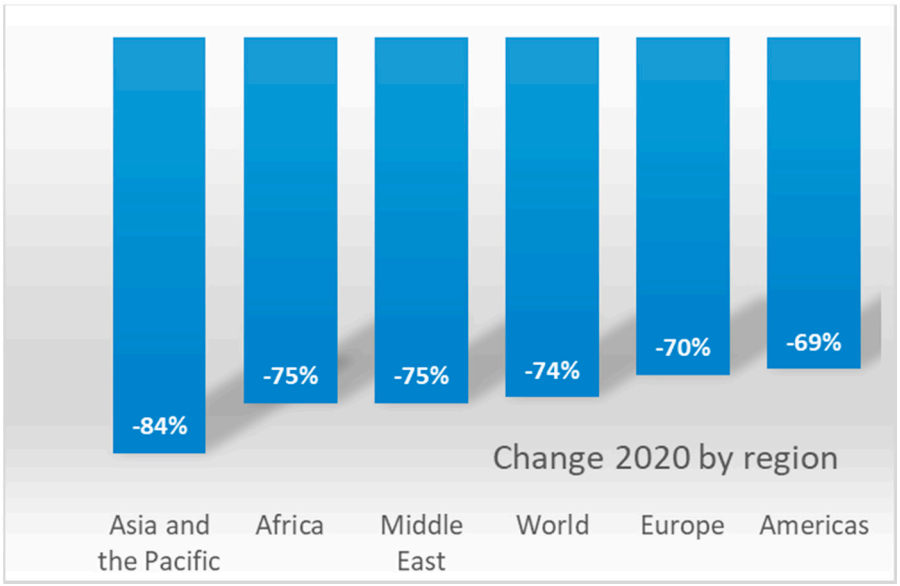

Figure 1. Tourists arrivals decrease in 2020 by world regions. Source: World Tourism Organization (UNWTO) January 2021.

The major tourist destinations worldwide have experienced a strong impact due to the intense decline in international tourist arrivals. Spain was the second destination in international tourist arrivals in 2019, and this year has shown one of the largest decreases with a 98% drop in international tourist arrivals. Other European destinations, such as Great Britain, would have experienced smaller decreases, with a 54% less in June 2020. As for what was the third leading country in tourist arrivals in 2019, the United States has also experienced an intense decrease of 95% in June 2020 [57].

According to the latest data published by UNWTO [60] on hotel occupancy rates in September 2020 part of the leading destinations has fallen significantly. Spain is in fourth place of the top 10 list of tourist destinations with the highest occupancy rates, with 61% in January 2020. However, in September 2020 Spain registered an occupancy rate of only 27%, while other countries such as China (62%), United States (48%), Great Britain (46%), Turkey (45%), Germany (44%), France (42%), and Italy (34%) had much higher rates. Therefore, Spain has fall to the last position of the leading destinations in September 2020, both in international arrivals and in hotel occupancy rates.

The tourism sector has experienced a continued expansion and diversification during the last decades and is one of the most dynamic and fastest-growing economic sectors [44]. Travel and tourism accounts for 10.3% of global gross domestic product (GDP), a total of US$8.9 trillion [25]. After the global economic crisis of 2008, there was an employment growth in accommodation and food services up to 35%, exceeding the overall employment growth (11%) [61]. In 2019 the sector accounted more than 330 million jobs worldwide, equivalent to one in 10 jobs globally [49].

The significant multiplier effect on employment in related sectors cause a domino effect when the sector falls, including all those elements that depend directly or indirectly [26]. It is estimated that one job in the tourism sector creates about one-and-a-half additional or indirect jobs, like transportation, food and beverage provision, handicrafts, and the preservation of cultural and natural assets [44]. With the sudden halt of the economic activity, workers in the tourism industry are now facing devastating difficulties [20].

It seems unlikely that the sector will return to normalcy any time soon. Not surprisingly, fear of infection and risks of new lockdowns has a tremendous effect on tourists' perceptions, increasing insecurity and making people reduce exposure voluntarily [22,54,60,62]. The pandemic might alter the image of destinations in front of potential tourists, in those territories that suffer from high infection rates [31]. Tourists will evaluate their travel decisions according to the measures being taken by destinations on this exceptional situation.

In view of supporting a safe restart of tourism, destinations are implementing safety and hygiene protocols measures [28]. During the first week of July, some countries started to reopen borders and a small resurgence in air traffic was observed mostly by the domestic market [49,59].

The impact of the current pandemic will likely last longer for tourism than for other affected industries. Despite the effects of crises on tourism, history verifies its own resilience [22,58].

4. Objectives, Materials, and Methods

The objective of this research is to analyze the effects of the spread of the virus in the different regions of Spain, as well as to explain its impact in a differentiated manner on the economy and on regional tourist flows. To this end, we start from the following premises or research hypotheses:

Proposition 1. *The regions with higher number of cases will be the most affected by the pandemic.*

Proposition 2. *The most touristic regions will be the most affected by the crisis.*

Proposition 3. *The most infected regions will be the less visited by tourists.*

Proposition 4. *The most touristic regions will be the regions with higher unemployment rates.*

Proposition 5. *The regions with more COVID-19 cases will be the ones with higher unemployment rates.*

Proposition 6. *Domestic demand is expected grow faster than foreign movements.*

Regarding the working materials for the development of this analysis, the first task is to illustrate the relationship between the tourism sector and the outbreak of COVID-19 in Spain. For this purpose, the regions with more confirmed cases were selected to study if there was any relationship between the impact of confirmed cases and the most tourist regions. The study aims to evaluate the impact on the supply side and demand of tourist services, which implies estimations not only on the impact that mobility restrictions may have caused on tourists' movements, but also the contraction in the tourism services supply. From data obtained from the 17 Spanish regions located in the Iberian Peninsula.

Daily data from 31 January until November 2020 has been collected, selected, and organized from various official sources provided by national and international level institutions: mainly, the Survey of Tourist Movements at Borders (FRONTUR) [63], the Spanish National Institute of Statistics (INE) [29] and the National Epidemiology Center (CNE) [64]. Available data was raw and unclassified, therefore, in order to make the data available for the study required sorting, purge and classifying them. 31 January 2020 has been chosen as the starting point for this evolution study since it was the first case identified in Spain.

The overall impact of the pandemic on the environment, society, and the economy has been considered from various sources, all of them secondary. In the case of the impacts on the environment, on which there is still a scarce literature, five papers published in high impact scientific journals have been taken into consideration. The paper deals with the measures taken by EU countries against the pandemic. Energy deficits, highlighted by COVID-19, are explained by Bresemer et al. [33]. The analysis of the effects on air quality is addressed by Zambrano-Monserrate, Ruano, and Sánchez-Alcalde [37], and, for the European context, by Islam and Chowdhury [35].

Regarding the social impact of COVID-19, the sources used are based on a large volume of statistical information, obtained directly from national and international organizations or from other secondary studies. Up to 18 different references have been consulted on these issues, such as the effects of COVID-19 on human development levels, addressed by the United Nations Development Programme (2020) [39]. Regarding the labor market and working conditions, the information provided by the International Labor Organization [40] stands out, in addition to other references that we will collect throughout this work. To analyze the impact of the pandemic on the tourism sector, we have resorted to the ILO [30] and the International Monetary Fund [45]. Regarding the effects on education, the UNESCO report [47] has been analyzed, referring to the reasons why learning should be strengthened, and education funding protected, in the current pandemic situation. The interpretation of the situation and its social impact has been considered on the basis of works published in reference journals, some of which are: Palomino, Rodriguez, and Sebastian, [40]; Kanda and Kivimaa, [41]; Donthu and Gustafsson [42]; Lakner et al. [46]; and Cenat et al. [48].

Regarding the economic impacts, several documents have been analyzed. Among them we have taken as reference the following official data sources: World Bank [51]; CCSA (Committee for the Coordination of Statistical Activities) [21]; ILO (International Labour Organization) ILO Monitor: COVID-19 [56], and EUROSTAT [55] and UNWTO (World Tourism Organization): World Tourism Barometer—October (2020) [57].

As analysts of the current situation regarding economic impacts, authors such as Tobías [10] have been focused on perimeter closures and their economic effects in Italy and Spain. Regarding economic risks for the tourist sector several works are addressed such as Zhang, Hu and Ji [11]; Tisdell, [50], and Shehzad, Xiaoxing, and Kazouz, [53].

COVID-19 data corresponding to the provinces of Spain was downloaded from official sources of epidemiological information (World Health Organization, National Center for Epidemiology (CNE) [57] which allowed to assess the trends across regions. Health information for each region like number of daily accumulated cases and confirmed deaths were updated weekly. Nevertheless, due to the exceptional situation caused by the pandemic, the Spanish health system was not prepared to deal with this crisis and some regions were not able to give accurate daily data.

On the other hand, socio-economic and tourist data have been collected from the State Public Employment Service (SEPE) [65], National Statistics Institute (INE) [29], EUROSTAT [55], International Labor Organization (ILO) [56] and the United Nations (UN) [39]. Several variables have been considered for the analysis of the impact of this crisis in Spain: GDP of each region, unemployment rates, tourist arrivals variation rates (international and domestic tourism), and the supply of tourist services.

The data have been divided into three stages, with the beginning of the pandemic in January–May (period with more restrictions in Spain), the second stage from June–August (lifting of the state alarm), and September–November (the appearance new wave of cases and state of alarm).

Regarding the methodology, we have applied a comparative analysis, given that the objective is to carry out an analysis of the different Spanish regions or Comunidades Autónomas, which constitute the existing administrative division in Spain. This has been the objective pursued in the organization of the data and their presentation through tables, illustrative graphs, and maps.

Cartographic representation is of particular interest when the impacts have territorial and management consequences, as is the case of Spain in the present study. The procedures for comparison operations are quite varied. In the case of data representation by thematic maps, we have used geographic information systems for their representation in thematic cartography, with automatic classifications by means of natural breaks in the data.

We, therefore, consider that the use of the comparative method is an effective tool when it comes to describing complex events, which are important from a social, economic, or political point of view, and which have differentiated impacts in the different areas or territories.

5. The Case of Spain

The first confirmed case of COVID-19 in Spain was reported on 31 January 2020. It was an imported case corresponding to a tourist visiting the Canary Islands. After a month, the confirmed cases increased to 100 [66]. Despite the centralized measures to control the spread in the country, different impact across Spanish provinces have been observed as it is shown in Figure 2 [43].

5.1. Spanish Economy and the Labour Market

The Spanish economy has suffered a severe hit due to the pandemic. According to the National Institute of Statistics [29] the GDP in the last quarter of 2019 was 2%, while on the first quarter of 2020 Spain already showed negative figures, −5.24%, due to the state of alarm imposed on 12 March and the strict confinement measures. The consequences left the economy activity on halt, with limitations to only essential services for more than three months at the national level [43]. This resulted in a temporary layoff, decline in private consumption, companies closed, and with hospitals at their limits [67], which brought a contraction of −18.5% on the second quarter and is currently in recession.

Due to the reduction of mobility measures that were taken in Spain during the state of alarm, April and May were the worst months of the year for tourism, as airports and borders were completely closed to international tourists [68] until June 30 during the first wave. The entire hospitality industry was also closed during these months, with exceptions for those hotels that were offered as medicalized accommodations. It was only during this period that the borders remained totally closed to foreign travelers in Spain. Subsequently, there has not been a total closure again, but both tourist activity and the possibility of travel to Spain for foreigners from outside the European Union have been considerably restricted, especially since the state of alarm was re-declared on 25 October 2020. These restrictions are still in force today.

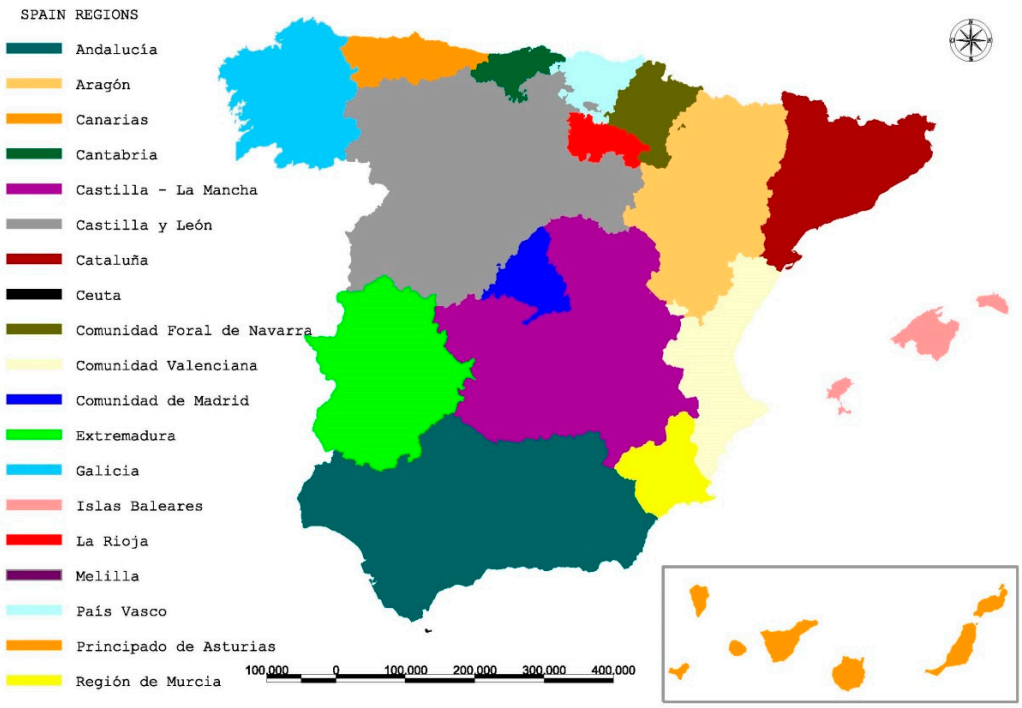

Figure 2. Spanish regions (Comunidades Autónomas). Source: Own elaboration.

The fact that during the first wave the closure of tourist activity and borders was total, while it has been only partial during the second wave, constitutes one of the main differences for the evolution of the sector in both periods. In addition to this, we must clarify that during the first wave the restrictions were the same for all regions of the country, since the anti-COVID measures were adopted in a centralized manner by the Spanish government. However, during the second wave, the central government has taken a step back in decision-making, ceding more autonomy and responsibility to the Autonomous Regions, so that they can make different decisions regarding the restrictions to be imposed on the different sectors of economic activity, especially in the case of hospitality activities and the tourism sector in general. This will imply differences in economic and tourism activity during the third and fourth quarters of 2020 in Spain, but the absence of data for this entire period prevents us from addressing such analysis here.

The restrictions may affect economies in a different way just because their productive structure is not the same. When a certain economic activity is closed in a sector like hospitality, working is not possible. Countries who are specialized in these kinds of activities, like Spain, will suffer more from capacity and mobility limitations with enormous economic and social repercussions [40,43].

The impact on the Spanish labor market is unprecedented. Unemployment data registered by the Public Employment Statal Service (SEPE) [68] shows an 9.3% increase in March in comparison to the previous month, establishing the number of unemployed people at 3,548,312. These figures have never seen such an elevated increase, in one month all the progress made since the end of the previous economic crisis has been lost [43].

The unemployment rate in Spain have reached the peak in the second quarter with a 17.33% (3,862,883), the highest in Europe and one of the 10 countries with the highest unemployment rate worldwide [54,65]. Despite this negative evolution is still much lower than the one seen in the first quarter of 2013, with 26.94% during the earlier economic crisis. However, this numbers do not include workers under the Temporary Employment Regulation, known as ERTE, which is a measure implemented by the Spanish government to protect jobs and to reduce impacts in businesses and individuals. When business cannot afford to pay employees due to the cease of activity, employees under the ERTE measure will still receive a percentage of their salary [66].

SEPE [65] data shows an unequal impact among the population, with the majority of women (57.7%) unemployed in the hospitality sector. Furthermore, immigrants, temporary workers, and less-qualified workers would be some of the most affected groups with an increased risk of falling into poverty and social exclusion [43].

In 2019, Spain's population was 47,329,981 million people, distributed among 17 regions and two autonomous cities (Ceuta and Melilla), which are further divided into provinces. Table 1 presents the current regions in Spain with the highest total unemployment figures, the unemployment in the service sector, the economic growth of each of these regions and the accumulated COVID-19 cases until the end of October 2020.

Table 1. Regions most impacted by the Covid-19 crisis.

	Unemployment	Unemployment Service Sector	GDP Q1 2020	GDP Q2 2020	COVID-19 Cases
Andalusia	980.096	648.584	−5.25%	−15,6%	19.279
Catalonia	485.019	360.556	−5.19%	−22%	77.43
Valencian Community	456.796	309.153	−5.11%	−22.1%	17.298
Community Madrid	417.199	334.354	−5.33%	−18%	78.056
Canary Islands	261.714	204.2	−5.45%	−21%	2.726
Balearic Islands	74.293	58.581	−5.55%	−26.4%	2.849
TOTAL	2675.117	1915.428	−5.24%	−18,5%	197.638

Source: Own elaboration from SEPE, INE, and CNE data.

According to the National Epidemiology Center (CNE) [64] from January to July have been 321,561 cases registered in Spain. The regions with the highest COVID infections rate per 100,000 inhabitants are Andalusia, Catalonia, Valencian Community, Community of Madrid, Canary Islands, and the Balearic Islands. According to data from the Spanish National Statistics Institution, these regions are also the ones that usually have more tourist flows in Spain [63], therefore, they mostly depend on tourism and the service sector for their economy.

The state of alarm established in Spain on 14 March 2020 has impacted these territories the most, showing a decrease between −21% and −26% of their GDP (see Figure 3). The other regions in Spain would show a recession around −15% [29]. They also show the highest unemployment figures, which encompasses 69.25% of the total Spanish unemployment in the second quarter. The service sector in Spain represents 70.80% of the total unemployment figures, in addition only these six regions, accounts for 70.03% of the total service sector unemployment at the national level.

In the first quarter, all regions showed a similar recession, but in the second quarter, the regions where the service sector predominates the most, showed a heavier decrease in their GDP: Canary Islands −21%, the Valencian Community −22.1%, Catalonia −22%, and the Balearic Islands −26.4% [65].

Although the Balearic Islands is the most affected region by the current crisis, showing the highest negative GDP figures (−26.4%), in comparison to the previous quarter of the year, the registered unemployment data does not show the same drastic figures. This may be due to the fact that the majority of workers from the Balearic Islands starts with the summer season, in April, and travel from the peninsula to work there, so when they register as unemployed, it would be in their community of origin, therefore, will not appear on the island records.

In July, a small improvement (2.32%) on the unemployment figures was seen due to the end of the state of alarm on 21 June and the reactivation of some parts of the economy. But currently, in the month of November, unemployed people are reaching the peak seen in June. This might occur due to the new wave of cases from September on, which surpassed the daily confirmed cases since beginning of the pandemic, reaching 22,610 confirmed cases in one day, on 27 October [64], which forced the government to establish a new state of alarm. This new measure is less severe than the first one, with curfews implemented

nationwide and some capacity and mobility limitations, still, the unemployment figures from 2020 are 17% higher than the same period in the previous year.

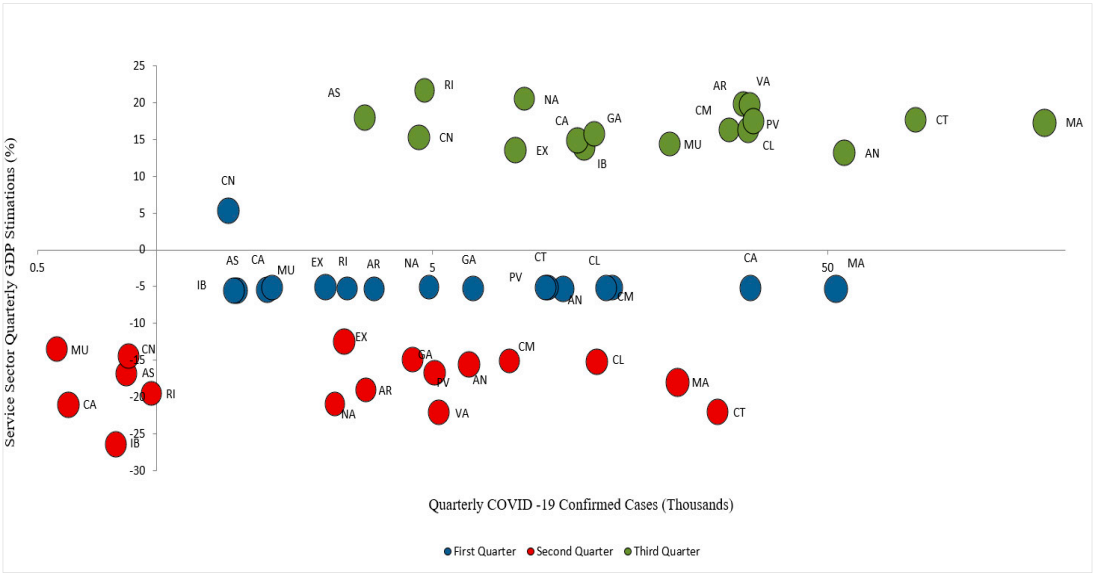

Figure 3. COVID-19 confirmed cases and GDP variations in Spain per region. AN: Andalucía; AR: Aragón; AS: Asturias; CA: Canarias; CN: Cantabria; CM: Castilla-La Mancha; CL: Castilla y León; CT: Cataluña; MA: Comunidad de Madrid; VA: Comunidad Valenciana; EX: Extremadura; GA: Galicia; IB: Islas Baleares; RI: La Rioja; NA: Navarra; PV: País Vasco; MU: Región de Murcia. Source: Own elaboration from SEPE, INE and CNE data.

5.2. The Economic Impact in Spanish Regions

An economic and health analysis is particularly important to understand the impact of changes in tourism at a national level, but it also necessary to study the regional components in order to understand the Spanish case. From January until July 2020, Spain received 13,249,637 international tourists, −72.4% fewer visitors compared to the same period 2019. Only in July, Spain received 75% fewer tourists in comparison to the same period last year [69].

From the six most touristic regions, the Canary Islands shows a decrease of 61.4% in the first seven months of 2020 in comparison to the same period of 2019. Catalonia is the second region with almost 2.8 million tourists and had a decrease of 75.6%. Andalusia, with more than 1.9 million in third place, shows a 72.3% decrease in 2020. The number of international tourists fell by 69.7% in the Valencian Community, and 67.1% in the Community of Madrid. The Balearic Islands have been the community most affected by the crisis in terms of decrease in tourist visitors −87% [69].

The first quarter shows that the 89.7% of the trips made by the Spanish residents were inside the Spanish territory, with a decrease of 30.7% compared to same period last year. In the second half of March, 370,000 trips were made, in comparison to the 8.5 million of the same period in 2019. The main destinations chosen are Andalusia (17.2%), Catalonia (12.9%) and the Community of Madrid (9.4%). On the other hand, trips abroad, which represent 10.3% of the total, decreased by 25.2% [70].

According to the Statistics of Tourist Movements at the Border [29,63], the total expenditure in the first quarter represents a decrease of 22.6% compared to the same period of 2019. Travels within the national territory shows a fall in total spending by 24.3%, and in those made abroad by 19.1%.

Figure 4 shows a high decrease in the annual variation rate of tourist arrivals in the second quarter of 2020 in comparison with 2019. However, every region shows different changes, therefore, is important to understand the economic and health context of each one. There is a high impact on tourist arrivals both in the Community of Madrid (−87.67%) and in Catalonia (−85.85%) [69]. One of the main reasons is the confinement imposed due to the high number of confirmed COVID-19 cases. It is worth mentioning that the

differences between regions lie in three different factors, which will be analyzed throughout the investigation: seasonality (which will particularly affect the Balearic Islands), the origin of tourists, and the accessibility of each region (regarding the mobility restrictions due to the pandemic outbreak).

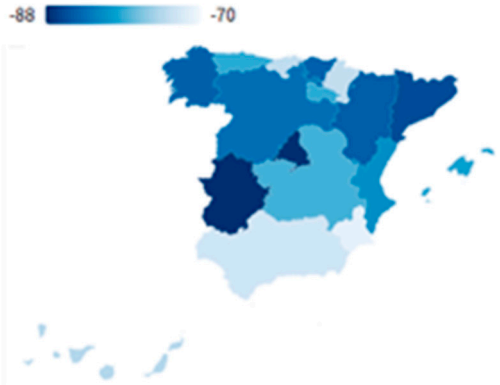

Figure 4. The inter-annual variation rates of tourist arrivals in the second quarter of 2020. Source: Own elaboration from INE data.

According to the INE [71], analyzing the different types of accommodation chosen by international tourists this year in comparison with 2019, hotels shows the strongest impact on the six leading touristic regions: Catalonia, Balearic Islands, Andalusia, Canary Islands, Community of Madrid, and Valencian Community, in that order. Regardless of the small difference between number of cases, the negative image of the country due to the high infection figures, had a high negative impact on international tourism.

According to the Figures 5–8, in the case of international visitors who stayed in tourist apartments, the evolution is quite similar to hotels. The greatest impact has been seen in the Community of Madrid, the Balearic Islands, and Andalusia. The impact of COVID cases in these regions must be considered in the first place, and second, the decrease in the accommodation supply of tourist apartments in many of the regions due to the restrictions nationwide. In the Balearic Islands, the evolution is very marked by seasonality, so the fall is already determined at the end of September 2019. On the other hand, other regions, such as the Canary Islands, the drop is noticeable already in February 2020. It should be considered that this region possesses a microclimate that allows stable visitors throughout the year.

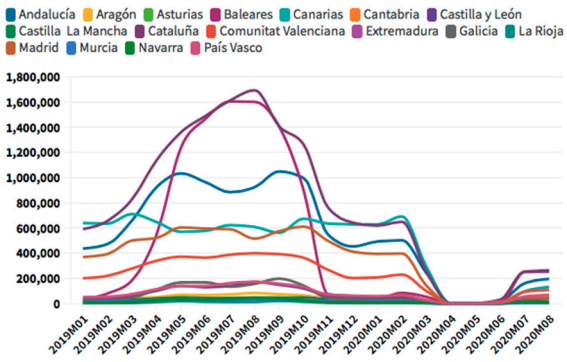

Figure 5. International tourism hotel occupancy. Source: Own elaboration from INE data.

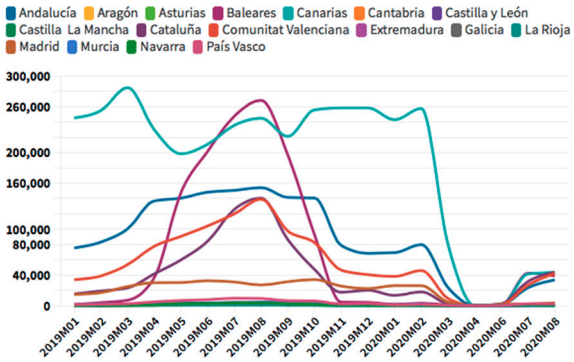

Figure 6. International tourism apartments occupancy. Source: Own elaboration from INE data.

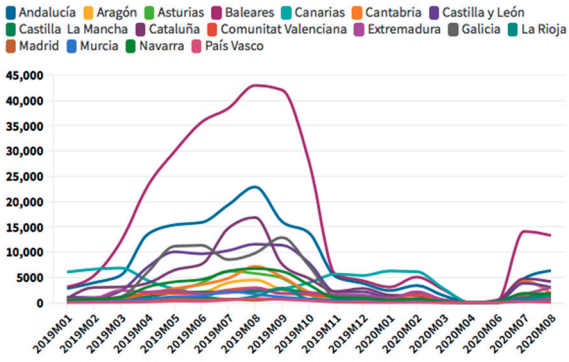

Figure 7. International tourism rural accommodation occupancy. Source: Own elaboration from INE data.

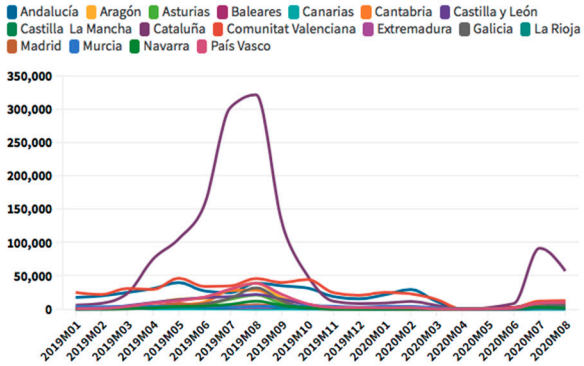

Figure 8. International tourism camping occupancy. Source: Own elaboration from INE data.

The Balearic Islands was the leading region for international tourists in rural accommodation in 2019, which has decreased a 69% in August 2020, but still is the first region for this type of accommodation. Andalusia comes second, and Catalonia, the Valencian Community, the Canary Islands, and the Community of Madrid follow. This type of tourism has experienced relatively lower rates of decline; therefore, it represents an opportunity for the tourism in this critical situation.

As for international tourists who stayed in campsites, there is a wide difference between regions. There is a leading region par excellence in this type of accommodation, Catalonia. After Catalonia, Valencia and Andalusia are the regions with higher figures.

According to Figures 9–12, regarding domestic tourists who stayed in hotels, Andalusia was the leading region, followed by Catalonia and the Valencian Community. Other regions chosen were Galicia, Castilla and León, and the Community of Madrid, also

showing high figures in domestic tourism, with a drop in number in August 2020, which are not as high as those experienced by international tourism.

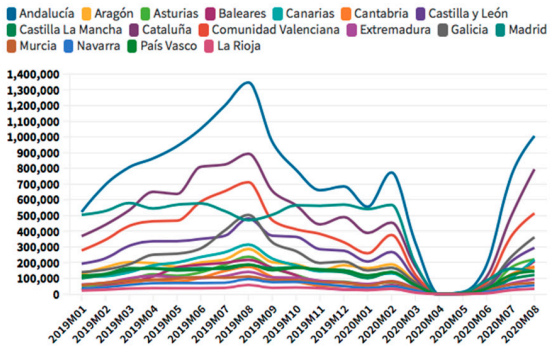

Figure 9. Domestic tourism hotels occupancy. Source: Self-made from INE data.

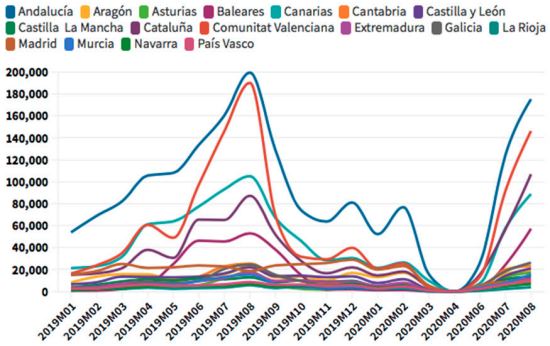

Figure 10. Domestic tourism apartments occupancy. Source: Self-made from INE data.

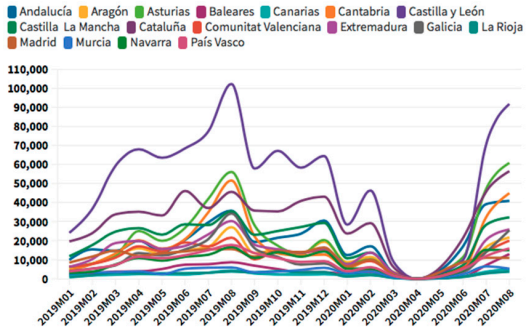

Figure 11. Domestic tourism rural occupancy. Source: Self-made from INE data.

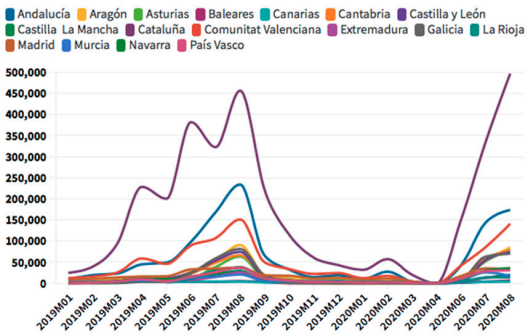

Figure 12. Domestic tourism camping occupancy. Source: Self-made from INE data.

The evolution of national tourists who stay in tourist apartments according to the INE [71] is slightly different from the hotel occupancy figures, nevertheless the fact that they have experienced a more fortuitous recovery it should be considered. The region with the highest figures for domestic tourism in touristic apartments in August 2019 was Andalusia. After Andalusia, the Valencian Community, the Canary Islands, and Catalonia, which would have experienced an increase in August 2020 in this type of accommodation compared to August 2019. This would be the first increase found in the series analyzed, so it shows how domestic tourism not only represents an opportunity for all regions, but the types of accommodation also play a key role. The Balearic Islands have also experienced a slight growth in tourist apartments, and Madrid have experienced a decline. In this last case, the fact that Madrid was the leading region in number of COVID-19 cases might have influenced in the tourists' decisions.

The rural accommodation presents an even more encouraging evolution than international. Although in this case, the Balearic Islands is not the leading region, Castilla y León would be the first one instead. It should be noted that, although 2020 figures are lower than 2019, it shows a faster recovery than any other accommodation. As mentioned before, this type of tourism represents a great opportunity for the country, promoting a more sustainable tourism and helping tourism diversification for other regions that are not tourist leaders par excellence. In rural accommodation Catalonia manages to experience an increase in August 2020. Finally, it should be noted that the rest of the regions, traditionally leaders at the tourist level, such as: Andalusia, Valencian Community, Canary Islands, Balearic Islands, and Madrid, do not lead in this tourist accommodation.

The evolution of domestic tourism in campsites, represents, together with rural accommodation, another key opportunity for the recovery of the Spanish tourism sector. In this tourist accommodation, Catalonia continues being the leader at international and domestic tourism. The figures show the highest increase of all accommodation types, which should serve as an example to the other regions in the implementation of tourist strategies. After Catalonia, at a certain distance, are Andalusia and the Valencian Community. Despite the lower figures in comparison with the first three regions, Asturias and the Balearic Islands have experienced a growth from August 2019 to August 2020 in this type of accommodation for domestic tourism.

6. Discussion

Throughout this investigation, we have seen how from January to July 2020 Spain registered 321,561 COVID-19 cases [64]. The regional distribution of these infections means that the highest rate per 100,000 inhabitants was in Andalusia, Catalonia, Valencia, Madrid, the Canary Islands, and the Balearic Islands; these regions are also those with the highest tourist flows in Spain [63] and are the most dependent on the tourist sector. This finding therefore confirms Proposition 1, which states that the regions with more confirmed cases are those most affected by the pandemic.

Proposition 2 points out that the most touristic regions of Spain will be the most affected by the crisis. We found that regions with high rates of COVID cases were Andalusia, Catalonia, Valencia, the Canary Islands, and the Balearic Islands. These regions are also the most dependent on tourism for their economy. For example, they have cited the case of the Canary Islands which presented, in the period analyzed (from January 31 until November 2020) a 61.4% decrease in GDP compared to the same period in 2019. Catalonia had a decrease of 75.6%; Andalusia a decrease of 72.3%; in the Valencian community the decrease was 69.7%; and 67.1% in the Community of Madrid. Of all of them, the Balearic Islands was the region most affected by the crisis in terms of the decrease in tourist visitors with −87% [69].

On the other hand, we can see that the regions most affected by this pandemic, in the first and second waves, have been the most dependent on international tourism, but also on their seasonal flows (related to summer and good weather), such as Catalonia, Valencia, the Canary Islands, and the Balearic Islands. These regions register the lowest GDP figures,

showing a clear relationship between the high rates of cases and the decrease in visitors to these regions, which confirms Proposition 3, which stated that the most infected regions would be the least visited; related at the same time with Proposition 1.

In relation to Proposition 4, as shown in Figure 2, the most touristic regions have higher unemployment rates. Available data shows that the highest unemployment figures, in the second quarter of 2020, are found in the six most touristic regions representing 69.25% of total Spanish unemployment. At the same time, these regions register 70.03% of total unemployment in the service sector nationwide. In line with the previous finding, it has been verified that the regions with more cases are those with the highest unemployment rates (Proposition 5).

Finally, this work shows the importance of domestic tourism alleviating the ravages of the health and socioeconomic crisis, with rural and camping types of accommodation leading the visitors' choices. This evidence one of the most appropriate options for the development of sustainable tourism, providing quality of life for residents and safety for tourists (Proposition 6). We have seen how the data shows a faster recovery of domestic tourism than the experienced in international tourism, which in our opinion is an opportunity for regions that are not tourism leaders, although they have been developing alternative offers linked to rural tourism; these regions are for example Castilla y León, Asturias, and Cantabria, which in this pandemic have focused their strategies on the promotion of domestic tourism (Proposition 6). In turn, the Spanish regions that traditionally lead the tourism sector, such as Andalusia, Valencia, the Canary Islands, the Balearic Islands, and Madrid, have not developed many alternative offers to mass tourism. In this context, experiential, rural and active tourism represents one of the strong points of the sector; the accommodations associated with these tourism practices are the ones that have recovered the fastest and have experienced relatively lower rates of decline. This type of tourism offers opportunities for the regions most affected by the impacts of the pandemic, helping to diversify the tourism activity, especially in those areas suffering from high seasonality levels.

Some implications can be drawn from the data analyzed in this article. The current moment, in the collapse of the tourism model in Spain, which we trust is conjunctural can help to develop certain implications, is the time to continue moving towards a more sustainable tourism model from an economic, social, and environmental point of view. The post-pandemic period could align the tourism industry more closely with the Sustainable Development Goals (SDGs) and lead to a greener, more inclusive and resilient industry that provides decent work for all tourism workers. It also has implications for safety and health, including for the national health system, which is key for all destinations. This should be reflected in their marketing and communication strategies, by planning procedures to regain the confidence of potential visitors, developing protocols to ensure health safety, to ensure the competitiveness of the tourism industry and guarantee the safety of all. There are also implications in terms of communication: Government communication strategies must be aligned with these solutions in order to obtain maximum benefits. As an example, the domestic tourism campaign that Spain has launched for the first time in history, '#DescubreLoIncreíble' [72], which is being promoted on social networks. This type of communication campaign should target rural accommodations and campsites to help the tourism sector.

7. Conclusions

In a pandemic context, tourists are increasingly opting for nearby environments, if not their own countries, rather than for grand tours to distant and relatively unsafe places. This change in tourists' perspective could lead them to avoid overcrowded and mass tourism destinations in favor of more familiar, but less populated and more reliable places. The evolution of domestic tourism in Spain could be a great hope for the country resilience and, with the right measures, it could favor a change in the tourism development model of countries like Spain, focusing more on sustainable, less intensive proposals with less impact

on the population and the environment. This new "era of tourism" involves in a more decisive way regions where until now mass "sun and beach" tourism has been dominant.

This study shows that the impact of the pandemic is still being evaluated. The analysis of the relationship between the tourism sector and the pandemic outbreak in Spain provides an instructive case study to assist the sector in the recovery process.

Our objective was to study the effects of the spread of the virus in the different regions and its impact on the economy and regional tourism flows. To this end, we have been guided by a set of propositions that we have tried to demonstrate with the results of the study. In essence, we have seen how the impact of the pandemic has been greater in the regions with higher rate of contagion, and this, in the period studied, coincides with the regions that are most dependent on tourist flows. Those regions that have invested in a rural and alternative tourism development supporting, for example, rural and camping lodgings, have experienced a smaller decrease. This evidence should be considered in tourism plans and strategies. This type of tourism generates high profits and allows preserving the physical distance required in this health crisis.

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Organic and online attributes for buying and selling agricultural products in the e-marketplace in Spain

Rafael Robina-Ramírez[a,*], Antonio Chamorro-Mera[b], Libertad Moreno-Luna[c]

[a] Business and Sociology Department University of Extremadura, Avda de la Universidad s/n, 10071 Cáceres, Extremadura, Spain
[b] Business and Sociology Department University of Extremadura, Avda de Elvas s/n, 06002 Badajoz, Extremadura, Spain
[c] University of Extremadura, Avda de la Universidad s/n 10071 Cáceres, Extremadura, Spain

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ABSTRACT

With the development of e-commerce, online consumption has rapidly grown. This study aims to highlight an example of the online shopping of organic products in the Spanish organic market. Through a Partial Least Square path modelling (PLS), a multi-group analysis (MGA) is applied to test a producťs online and organic attributes that may influence the intention of using an e-marketplace to buy and sell organic products. A producťs organic and online attributes were drawn from 149 organic consumers' communities and 106 organic producers from the biggest Spanish e-marketplace. The results indicate which attributes influence the attitude toward use and intention to use that online platform. The results of the study can guide the online managers of these types of e-marketplaces in the design of their policies to attract participants and increase commercial online transactions.

1. Introduction

In the last 30 years, there has been a significant shift towards a healthy style of living in an attempt to get rid of diseases caused by unhealthy lifestyles, such as obesity or heart problems. Healthy living is being threatened by chemicals and processed foods, which represent a constant safety issue in food production (Potter et al. 2019).

Responsible attitudes in the food sectors have now prompted consumers and producers to become increasingly aware of food values and lifestyle changes (Fraj and Martinez, 2006), which are reflected in food quality and safety (Rezaei 2018). Adding to this, recently those buyers and sellers have simultaneously raised their interest in environmental preservation (Desquilbet et al. 2018).

For decades, organic farming has targeted healthy food and the preservation of the environment (Cerdá Suárez et al., 2018; Paul et al. 2016). Organic farmers have aimed to produce harmoniously while respecting the local ecosystems and nature, by avoiding the use of synthetic fertilizers, pesticides, and chemicals (Bryła, 2016).

In that organic scenario, Spain encompasses the second largest group of organic producers in Europe. From 1991 to 2017, the number of organic producers and the extension of land measured grew from 396 to 41.871 organic producers and from 4.235 ha to 2.082.170 ha (MAPA, 2017).

However, organic consumption in Spain is far from the European average. Table 1 shows the European countries with higher organic consumption measured as a percentage of total food consumed. Spain's organic food consumption is only 1.2%, which is still very far from other European economies (Ecological 2018). That lack of demand has delayed the take-off of this emerging market (Robina-Ramírez and Cerdá-Suárez 2015; Sanjuán et al. 2003).

The low level of organic consumption in Spain is based on a lack of knowledge on the part of the population (Mesías Díaz et al. 2012); its higher prices in relation to conventional food (Ghali-Zinoubi and Toukabri 2019; Robina-Ramírez et al., 2016) and the competition of the Spanish Mediterranean diet, which has proved to be the healthiest in Europe (Sanjuán et al. 2003).

To overcome those deficits, in recent years organic producers have developed online stores as part of an e-marketplace, which allows for direct contact between small organic producers and the consumer (Kawecka and Gębarowski 2015). This new electronic environment where the online transaction takes place (Petersen et al. 2007) uses "Internet technology to bring together multiple buying and selling businesses around an online platform" (Janita and Miranda 2013, p. 364).

Buyers can be represented by communities which interact with producers through social commerce in online marketplaces (Tedeschi 2006). Food consumers agree to approach the organic seller as a group, and with this leverage they benefit by buying several units of products

* Corresponding author.
E-mail addresses: rrobina@unex.es (R. Robina-Ramírez), isanchez@unex.es (A. Chamorro-Mera), limorenol@alumnos.unex.es (L. Moreno-Luna).

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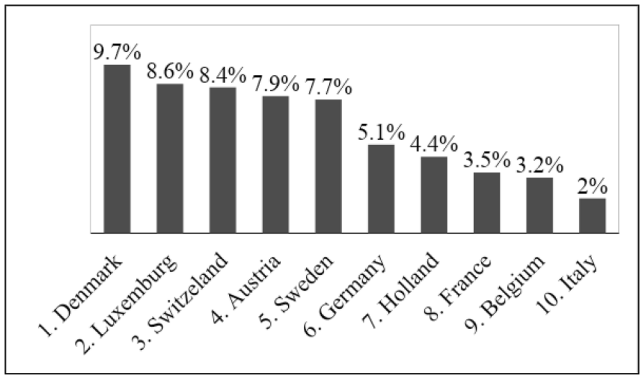
Table 1
Organic consumption in Europe (measured in % from total food consumed) Own source from Ecological, (2018).



at once (Mozas-Moral et al. 2018). That e-marketplace delivers increased value-added services to their customers (Miranda et al. 2015).

Online tools not only helps consumers to pay more attention to foods intangible values such as health, nutritional content, environmentally friendly production, and animal welfare (Torjusen et al., 2001), but also product's intangible value proposition can increase the options of make online purchase because of the advantages of E-commerce (low cost, high efficiency, openness) Then, the intangible value proposition of organic product makes the E-market an interesting sales proposal (Grunert and Ramus, 2005). Communication technologies helps also not only to promote products (Salleh et al. 2010) but also to but also to study the effects of behaviour behind purchase attitudes (Kriwy and Mecking 2012) and store information about consumers' purchase history to easily establish marketing strategies (Taylor 2003).

Despite studies about online food shopping (Ilyuk 2018) and the consumer–producer relationship (Opitz et al. 2019; Raynolds and Ngcwangu 2010), to our knowledge this is the first study that compares consumers' organic communities with organic producers through an e-marketplace. Hence, the study aims to highlight the importance of technology as a remedy to raise the level of consumer spending in the Spanish organic market.

Through a Partial Least Square path modelling (PLS), a multi-group analysis (MGA) allows to test if organic producers and consumers have significant differences in their group-specific parameter estimates. Following the SmartPLS modelling it is provided outcomes are based on bootstrapping results from every group. PLS path model is based on producís five attributes participatory chosen through a focus groups by producers and consumers.

The paper is structured in four sections. After the Introduction, it is addressed the Material and Methods. In this second part, organic producís seven online attributes as well as its methodology of selection and the case of study are explained. Results are detailed in the third section and Discussion and limitations of the study in the last one.

2. Material and Methods

2.1. Research background and producís organic-online attributes

In a traditional organic market, genuine features are distinctive from the conventional ones. On one hand, fair trade based on trust between the organic consumer and producer, as well as environmental protections, positively define the organic awareness among buyers and sellers (Mzoughi 2011; Padel and Foster 2005; Sahota 2018). On the other hand, price is a barrier for consumers to access the organic market, especially for those customers who buy organic food only occasionally (Aschemann-Witzel and Zielke 2017).

Table 2
Online shopping´s attributes.

Attributes	Communities	Producers	Total
Assurance	22	18	40
Ease of use **	89	40	129**
Efficiency	40	22	62
Environmental protection **	86	47	133**
Ethics, fair trade and health**	60	49	109**
Flexibility to make transactions	50	15	73
Information reliable **	88	21	109**
Personalization	34	27	61
Price and cost involved**	102	66	168**
Quality of information	28	21	49
Responsiveness	20	14	34
Search capacity-functionality	32	19	61
Security	62	18	96
Website aesthetics and design	26	26	52

** According to the producers and consumers preferences, they are the key items to be included in the online trading platform

The traditional organic marketplace needs to be adapted to the online consumer–producer interaction through online communication tools (email, chat, etc.). Quality service of the online portal requires the use of a producís online and design attributes to ease the online transaction (Collier and Bienstock 2006). These online features are combined with reliable information, security, ease of use/accessibility, search capacity/functionality, and quality of information as key online factors (Saraph et al. 1989).

Wolfinbarger and Gilly (2002) added several producís attributes, such as online platform design, customer service, security, and reliability. Zeithaml (2002) included new dimensions such as efficiency, flexibility, personalization, responsiveness, assurance, and site aesthetics.

These lists of a producís online and organic attributes, gathered from a literature review, were discussed within two focus groups from September to October 2018. There were 36 organic consumers and 24 organic producers from 15 regions of Spain invited to participate by Skype in two meetings. In the first meeting, the participants approved the inclusion of definitions for each online shopping item to better understand their meaning. According to the producers and consumers preferences, they were invited to select the key items to be included in the online trading platform. Every item was ranked, from 1 (less important) to 5 (most important). The main items are shown in Table 2.

In the second meeting, items were not only discussed but also adapted to their organic producer and consumeŕs real socio-economic and environmental circumstances. As a result, eight items were deleted by producers and two items by consumers. Different reasons were provided to shrink the number of items. Several examples arose about the relationship of those features with organic consumers' and producers' daily online interactions. Items are shown in Table 3 and Table 4.

Information was sent to 149 organic consumers' communities and 106 organic producers involved in the study by email in November 2018. Emails included a link to the questionnaire in Google Docs.

2.2. Model and hypotheses

According to the results, the producís five attributes with the highest importance were chosen by the research team to study their influence on attitudes and intentions to use organic online shopping. Three of them are directly related to the organic market: ethics and fair trade (EFT); environmental protection and health (EPH); and the economic factor of price/cost (EF). The other two are specifically aligned with online shopping: ease of use (EU) and information reliability (IR). The variables selected are represented in Fig. 1. Data were collected during the first semester of 2019.

Table 3
Items selected by producers.

Constructs	Original Items	Final Items
1. Ethics and Fair trade (EFT)	EFT1: positively affects the environment through an ethical manufacturing process (World Fair Trade Organisation, 2011)	EFT1: positively affects the environment through an ethical manufacturing process (World Fair Trade Organisation, 2011)
	EFT2: fair trade and safe products (Rong-Da Liang, 2014)	EFT2: fair trade and safe products (Rong-Da Liang, 2014)
	EFT3: greater employment for farm workers and fosters cooperation among farmers (Crowder and Reganold, 2015)	EFT3: greater employment for farm workers and fosters cooperation among farmers (Crowder and Reganold, 2015)
	EFT 4: Ethical production, as right model proposed by supplier, has become an example of sustainable production (Seyfang, 2006).	EFT 4: It was deleted because that definition is too general. It needed to concrete what ethical production mean. After an intense debate, producers did not find the exact definition
2. Economic factors (EF)	ECB1: Reduce the cost of production (Baourakis et al., 2002)	ECB1: Reduce the cost of production (Baourakis et al., 2002)
	ECB2: Improving cost efficiency for producers (Doherty and Ellis-Chadwick, 2010)	ECB2: Improving cost efficiency for producers (Doherty and Ellis-Chadwick, 2010)
	ECB3: e-market allows producers to track and store information about consumeŕs purchase history to set easily lower pricing (Taylor, 2003).	ECB3: It was deleted. It is a practice not very spread among organic producers in Spain yet
	ECB4: Due to the increasing global competition e-market has provided an advantage for producers as well as for consumers.	ECB4: It was deleted. Organic market in Spain is an emerging market. Due to the organic demand is extremely low it cannot be said that there is a heavy competition among organic online shopping companies
3. Environmental protection and health (EPH)	EPH1: positive impact on the environment (Bryła, 2016)	EPH1: positive impact on the environment (Bryła, 2016) EPH2: Minimize negative footprint (Padel and Foster, 2005) due to regulations and environmental awareness
	EPH2: Minimize negative footprint (Padel and Foster, 2005)	EPH2: Minimize negative footprint (Padel and Foster, 2005) due to regulations and environmental awareness
	EPH3: Competitive advantages (Paul et al., 2016).	EPH3: Competitive advantages (Paul et al., 2016).
	EPH4: The pressure of strict regulations has preserved the environment (Paul et al., 2016).	EPH4: It was deleted. Regulations is not the only way to preserve the environment. Green awareness as well as corporate social responsibility are other reason to act environmentally.
4. Ease of Use (EU)	EU1: Easy of making a transaction (Collier and Bienstock, 2006)	EU1: Easy of making a transaction (Collier and Bienstock, 2006)
	EU2: Online shopping to compete with traditional retailing (Ozer, 2005)	EU2: Online shopping to compete with traditional retailing (Ozer, 2005)
	EU3: Access to external markets to meet the demands of worldwide clients (Bernal - Jurado and Moral - Pajares, 2010).	EU3: Access to external markets to meet the demands of worldwide clients (Bernal-Jurado and Moral-Pajares 2010).
	EU4: Share wishes for additional information on the websites to justify their online purchase (Bodini and Zanoli, 2011).	EU4: It was deleted. Some Spanish organic platforms do no provide this online service. So, it cannot be generalized to every organic webpage
5. Reliable Information (RI)	RI1: Provide efficiencies to producers (Baourakis et al., 2002)	RI1: Provide efficiencies to producers (Baourakis et al., 2002)
	RI2: Minimal errors during transactions (Verhagen et al., 2014)	RI2: Minimal errors during transactions (Verhagen et al., 2014)
	RI3: Security software as tool to provide reliable information	RI3: It was deleted. The item was included in RI1.
	RI4: Full information about product attributes and services in the pre-purchase stage, purchase and post-purchase	RI4: It was deleted. The item was included in RI2.
6. Attitude of Use (AU)	AU1: Positive attitude to use online shopping (Lal, 2017).	AU1: Positive attitude to use online shopping (Lal, 2017).
	AU2: Online shopping experiences lead attitude to use online shopping (Zanker et al., 2006)	AU2: Online shopping experiences lead attitude to use online shopping (Zanker et al., 2006)
	AU3: Attitude of learning (Einav et al., 2011).	AU3: Attitude of learning (Einav et al., 2011).
	AU4: Customer perception to use online platform depends on the quality and its satisfaction (Bou-Llusar et al., 2001).	AU4: It was deleted. Apart from quality and its satisfaction there are other reasons such as health, family, friends, etc.
7. Intention of Use (IU)	IU1: Online platform to share positive customer experiences (Khalifa and Liu, 2007)	IU1: Online platform to share positive customer experiences (Khalifa and Liu, 2007)
	IU2: Impact of trustworthy sources (Bickart and Schindler, 2001)	IU2: Impact of trustworthy sources (Bickart and Schindler, 2001)
	IU3: Online word and mouth (Kuan et al., 2005).	IU3: Online word and mouth (Kuan et al., 2005).

2.2.1. Ethics and fair trade (EFT)

Ethics and fair trade, known as ethical consumerism, has been endorsed by the World Health Organisation (2014). Ethical consumption helps individuals to make conscious and deliberate personal choices based on personal and moral beliefs.

In the case of organic consumption, those choices are based on respecting specific rules of trade aimed for products grown organically, which positively affects the environment through an ethical manufacturing process (World Fair Trade Organisation, 2011). Organic consumption has rapidly expanded to cover issues of animal welfare, human rights, fair trade, and other related concerns (Auger and Devinney 2007).

Trust and authenticity should permeate that organic processing (Bryła, 2013), from product appearance to labelling and packaging (Bryła, 2015). This strengthens the production, economic development, and social interactions among farmers (Crowder and Reganold, 2015).

Ethics and fair trade mediate the organic producers' relationships when the right information and perceived knowledge are revealed to customers (Teng and Wang 2015). As a result, cooperation among farmers, based on trust, provides solutions to overcome unfair trade and high prices (Alonso and O'Neill, 2011; Essoussi and Zahaf 2008; Szmigin et al. 2006) and predicts positive impact on consumers' purchase intentions (Liang 2016).

Fair trade and safe products link organic consumers and producers through organic e-marketplaces. That fair online trading not only protects the environment but also promotes socio-economic development (Rong-Da Liang, 2014).

This implies not only that organic and ethical awareness among consumers positively affects the demand for organic food consumption (Paul et al. 2016), but also that socio-economic development has become a model proposed for suppliers as an example of environmental production (De Boer, 2003; Hermansen, 2003).

Table 4
Items selected by consumers

Constructs	Original Items	Final Items
1, Ethics and Fair trade (EFT)	EFT1: Cover animal welfare, human rights, fair trade, health (Auger and Devinney, 2007) EFT2: fair trade and safe products (Rong-Da Liang, 2014) EFT3: ethical awareness among consumers affects the demand of organic food consumption (Paul et al., 2016)	EFT1: Cover animal welfare, human rights, fair trade, health (Auger and Devinney, 2007) EFT2: fair trade and safe products (Rong-Da Liang, 2014) EFT3: ethical awareness among consumers affects the demand of organic food consumption (Paul et al., 2016)
2. Economic factors (EF)	ECB1: Reduce the price for consumers (Crowder and Reganold, 2015) ECB2: Consumer's willingness to pay (Didier and Lucie, 2008).	ECB1: Reduce the price for consumers (Crowder and Reganold, 2015) ECB2: Consumer's willingness to pay (Didier and Lucie, 2008).
3, Environmental protection and health (EPH)	EPH1: Healthy awareness among consumers (Bryła, 2016; Sahota, 2018) EPH2: Buy in the organic market for healthy awareness (Mondelaers et al., 2009). EPH3: Eliminates the risk of exposure to chemicals (Bryła, 2016; Sahota, 2018)	EPH1: Healthy awareness among consumers (Bryła, 2016; Sahota, 2018) EPH2: Buy in the organic market for healthy awareness (Mondelaers et al., 2009). EPH3: Eliminates the risk of exposure to chemicals (Bryła, 2016; Sahota, 2018)
4. Ease of Use (EU)	EU1: Easy of finding information or making a transaction (Collier and Bienstock, 2006) EU2: Promote usability (Bodini and Zanoli, 2011) EU3: Save consumer´s time, money and effort (Park and Park, 2009) EU4: Ensure that online platforms are well organised and structured to achieve adequate accessibility and facilitate its use (Janita and Miranda, 2013).	EU1: Easy of finding information or making a transaction (Collier and Bienstock, 2006) EU2: Promote usability (Bodini and Zanoli, 2011) EU3: Save consumer´s time, money and effort (Park and Park, 2009) EU4: It was deleted. The item was included in EU1
5. Reliable Information (RI)	RI1: Reliable functionality to promote online interactions among consumers (Rong-Da Liang, 2014) RI2: Security software (Lee and Lee, 2012). RI3: reliability for e-consumers to purchase on an equal level of trust as at a traditional market (Bauer et al., 2006).	RI1: Reliable functionality to promote online interactions among consumers (Rong-Da Liang, 2014) RI2: Security software (Lee and Lee, 2012). RI3: It was deleted. Included in RI1
6. Attitude of Use (AU)	AU1: Positive attitude towards online shopping (Paul et al., 2016). AU2: Attitudes based on positive experiences to online products (Khalifa and Liu, 2007) AU3: Attitude of learning (Martínez-López et al., 2005).	AU1: Positive attitude towards online shopping (Paul et al., 2016). AU2: Attitudes based on positive experiences to online products (Khalifa and Liu, 2007) AU3: Attitude of learning (Martínez-López et al., 2005).
7. Intention of Use (IU)	IU1: Online platform quality and customer satisfaction (Bou-Llusar et al., 2001) IU2: The quality of the online domain (Zanker et al., 2006). IU3: Online word and mouth (Kuan et al., 2005).	IU1: Online platform quality and customer satisfaction (Bou-Llusar et al., 2001) IU2: The quality of the online domain (Zanker et al., 2006). IU3: Online word and mouth (Kuan et al., 2005).

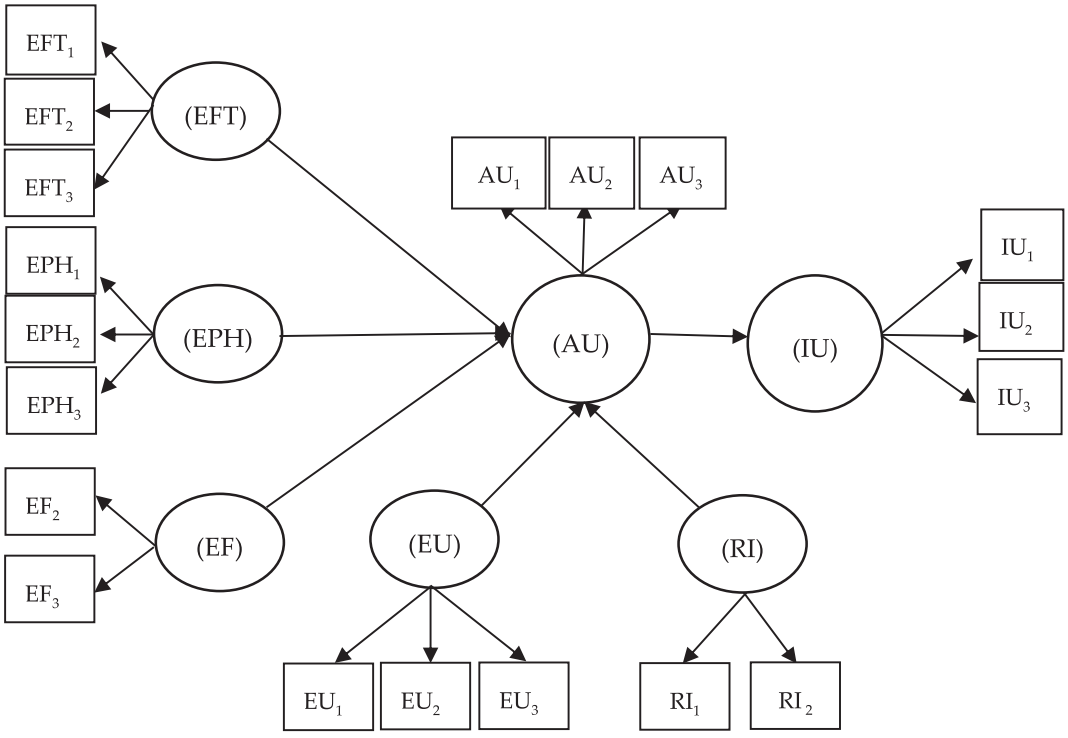


Fig. 1. Structure of the Model.

In other words, environmental production is gradually increasing around the world (Willer and Lernoud 2018), enhanced by consumers' organic experiences over traditional food production (Essoussi and Zahaf 2008).

Consideration of the above leads to the formulation of Hypothesis 1: Ethics and fair trade (EFT) among organic consumers and producers positively affect attitudes and use of organic-related webpages.

2.2.2. Economic factors (EF)

Progressive expansion of the organic food market's economic factors such as price and cost have gradually attracted the interest of scholars (Asche et al. 2015; Bunte et al. 2010; Campbell et al. 2014; Rana and Paul 2017; Rödiger and Hamm, 2015). Price perception (Rödiger and Hamm 2019), willingness to pay (Rana and Paul 2017), and price knowledge (Bunte et al. 2010) have been studied in relation to the cost of production and intention to purchase (Aschemann-Witzel and Zielke 2017).

In organic farming, higher cost of production, such as the cost of certification (Vaarst et al. 2019), implies higher cost for producers and prices that consumers must pay (Mozas-Moral et al. 2016). However, the internet gives retailers a mechanism for improving cost efficiency as well as extending product lines and delivering customized offers by analysing the consumer's willingness to pay (Didier and Lucie 2008; Doherty and Ellis-Chadwick 2010). Thus, the e-market has become an appropriate tool despite its cost of production and its delivery costs, especially for small purchases (Ramus and Asger Nielsen, 2005). As a result, online organic shopping is increasing in popularity among organic consumers due to the lower prices offered by farmers (Crowder and Reganold, 2015).

The use of e-commerce in the organic sector and the adoption of information and communication technologies helps not only to promote products through lower costs (Salleh et al. 2010) but also to study the effects of behaviour on the purchase of organic products (Kriwy and Mecking 2012). In this regard, small and medium-sized organic producers or distributors have room for growth concerning their online sales platforms (Rong-Da Liang, 2014).

Adding to that, the e-market allows producers to track and store information about consumers' purchase history to easily establish lower pricing (Taylor 2003). That information allows them to set prices sensitively so as to attract customers in the market (De Nijs 2013) as well as to fix pricing models based on customer behaviour and their heterogeneous purchase levels (Colombo 2018).

The benefits of e-markets have turned online shopping into an advantage in the global competition scenario for both producers and consumers, where prices have been forced lower so that they are close to the minimum cost of production (Baourakis et al. 2002; Mozas-Moral et al. 2016).

These points reveal several relationships that allow us to formulate the second hypothesis. Hypothesis 2: The lower price of organic products found online positively influences consumers' attitude towards online shopping.

2.2.3. Environmental protection and health (EPH)

Environmental concern is an essential factor for many organic consumers and producers. Organic production is perceived as products grown without pesticide residue, which significantly affects consumers' health (Bryła, 2016; Sahota 2018). Organic products are also considered as therapy to heal incurable diseases (Goetzke et al. 2014; Grubor and Djokic, 2016; Wojciechowska-Solis and Soroka 2017).

Organic production contributes towards protecting the environment (Bryła, 2016; Sahota 2018). In the last decades, companies have been forced to act due to stricter regulations and stakeholder pressures focused on preserving the environment (Paul et al. 2016). The progressive increase in environmental awareness and animal welfare has been studied among organic consumers and producers in terms of minimizing the negative footprint (Padel and Foster 2005) affecting the supply chain in logistics activities (Zissis et al., 2018).

In this context, the e-marketplace helps companies and communities to obtain competitive advantages by assembling organic consumers with a higher level of environmental concern around an online organic market (Padel and Foster 2005). Most of them are moved to buy in the organic market for health awareness, as the need to purchase organic food for well-being and improving the quality of life increases (Mondelaers et al. 2009). This leads to the formulation of a third hypothesis. Hypothesis 3: Environmental benefits positively affect consumers' attitudes towards the use of organic-related online platforms.

2.2.4. Ease of use (EU)

Ease of use, which allows finding information or making an online transaction with the least effort, is another factor on which online customers place importance (Collier and Bienstock 2006).

Ease of use ensures that online platforms are well organised and structured to achieve adequate accessibility and to facilitate its use (Janita and Miranda 2013). Well organised information and communication systems facilitate smaller companies' access to external markets to meet the demands of prospective worldwide clients (Bernal-Jurado and Moral-Pajares 2010). This also reduces the factors that inhibit organic product consumption (Mozas-Moral et al. 2016).

In e-commerce, the accuracy of supplied information is combined with the efficiency of navigation (Bodini and Zanoli 2011). As a result, a growing number of consumers buy food products online due to access to a very wide assortment of products that are often priced competitively (Gębski et al. 2017).

E-commerce also helps producers to compete with traditional retailers by increasing the number of customers (Ozer 2005). It also increases the usefulness for desktop applications (Kamis et al. 2008) by promoting their usability between consumers and producers (Bodini and Zanoli 2011).

Similarly, the easy accessibility of online purchase channels saves consumers' time, money, and effort (Park and Park 2009). Moreover, it allows them to share their wishes for additional information on the online platforms to justify their online purchase and to develop a feeling of being part of a community (Bodini and Zanoli 2011).

Users tend to return to the online platform a second time if they have had a good experience with the online operators regarding their attitude towards users' queries or opinions. Therefore, the ease of browsing a social commerce online platform positively influences individuals' attitude toward using this tool (Lal 2017) and increases their familiarity with the online tool (Gefen et al. 2003). This leads us to propose the next hypothesis. Hypothesis 4: Ease of browsing positively affects consumers' attitudes towards using organic-related online platforms.

2.2.5. Reliable information (RI)

The internet generates a competitive advantage facilitating communication to producers and consumers on an individualized basis (Doherty and Ellis-Chadwick 2010).

The spatial and temporal concept of commercial interchanges is currently evolving. The physical place no longer carries primary value due to network interconnections that make geographical distances disappear (Mozas-Moral et al. 2018). Nevertheless, it is important for e-consumers to be assured of reliability; for them to purchase on an equal level of trust as at a traditional market they must overcome the barrier of not being able to see the product before buying it (Bauer et al. 2006).

In traditional food markets, sensory examination allows consumer to test the products (Childers and Peck 2010; Helmefalk 2016) through touching, smelling, and feeling to determine the freshness or appropriateness of the product (Cho and Workman 2011; Park et al. 2012; Peck and Childers 2006). Physical interaction is highly valued in this type of product and directly affects the purchase decision (Jin and Phua, 2015). Online shopping needs to replace these producťs sensory attributes to reduce the apparent advantage of offline shopping

(Verhoef and Langerak 2001).

Offline and online shopping prompt consumers to behave differently in relation to the intangibility of the product (Orth et al., 2016). Whereas in offline shopping the reliable information comes from personal sensory examination, online shopping is affected by other factors: the customer's purchase intention, the influence of friends and family (social), the consumer's personality (personal), and epistemic factors like knowledge and curiosity (Workman and Cho, 2013).

It is a common belief that perceived tangibility is improved in online shopping when full information about product attributes, such as nutritional quality and the origin of produce, is provided in the pre-purchase stage (Klein 1998; Laroche et al. 2005). In the case of online services, full information also involves easy contact and responsiveness in the case of failures (Zeithaml, 2002).

The phases of the online shopping process should also be taken into account to provide reliable information. During the pre-purchase phase, shoppers establish their quality perceptions through the perceived quality of the service (Biswas et al. 2009; Kim et al. 2011) and the online platform (Kim and Jones, 2009). In the purchase stage, shoppers test the quality of payment channels (Liao et al. 2011) and the ability to buy products with minimal online transaction errors (Verhagen et al. 2014). Adding to that, e-commerce, as a modern business methodology, provides reliability by increasing the speed of delivery service, providing efficiencies to all participants (Baourakis et al. 2002) by increasing the availability of products and making the order delivery more accurate and safer (Bauer et al. 2006). In the post-purchase phase (Wolfinbarger and Gilly 2002), perceived quality is assessed through reliable procedures to increase repeat purchases and post-purchase engagement (Lo and Qu 2015).

Quality services are also combined with digital services. They not only facilitate commercial interactions between producers and consumers but also to provide security software as important role when consumers expose their account information online (Lee and Lee 2012). Mimicking the features of the traditional product is not enough to make online orders. A safe process of exchanging information positively influences customer and producer satisfaction (Szymanski and Hise 2000; Suárez, et al., 2018). This leads us to propose a fifth hypothesis. Hypothesis 5: Reliable access positively affects consumer attitudes toward using organic-related online platforms.

Attitude towards use (AU) and intention to use (IU)

Attitudes among consumers and producers to prompt behaviours towards buying and selling products online have been widely debated. Attitude, as a psychological construct, comprises values (beliefs), cognition (thought), and affection (emotions) in relation to a particular object (Hoyer and Maclnis, 2004).

According to Baron and Kenny (1986), attitude and behaviour are related when they mediate "the intention". Attitudes, first, and intention, secondly, are settled under the theory of reasoned action (Ajzen and Fishbein 1980). That theory proposes correlational studies in which individuals deploy attitudes to achieve outcomes or behaviour as crucial predictors of future behaviour. Much of the research on consumers' eco-buying behaviour is based on this theory (Paul et al. 2016), through which attitude and behaviour are mediated by perceived social and personal norms as feelings of moral obligation to act in accordance with an individual's own value systems (Schwartz, 1977).

In online shopping, the perceived personal values to buy online positively affect the perceived relative advantage in relation to offline shopping. That advantage depends also on the perceived technological complexity by consumers and perceived personal risk, harm, or loss in the process of payment and quality of products (Hansen et al., 2005). Those perceived products behavioural and technological attributes that influence purchase intentions have been empirically analysed in offline and online food shopping (Hansen et al. 2004; Kang et al. 2016; Mortimer et al. 2016).

Attitudes and purchase intentions to buy through online platforms and visiting physical stores are affected by intrinsic and extrinsic factors. For offline food shopping, intrinsic factors are based on attitudes, mood, emotions and behaviour, and hedonic and utilitarian motivations to buy (Akram et al., 2017; Badgaiyan and Verma 2014; Flight et al. 2012; Parboteeah et al. 2009), and external factors, carefully featured in stores, include in-store music (Dubé and Morin 2001), fragrance (Mattila and Wirtz 2001), lighting (Summers and Hebert 2001), and atmosphere (Akram et al. 2016).

In contrast, online food shopping is usually guided by online trends and impulse buying (Floh and Madlberger 2013). Intrinsic factors, such as trust/belief and personal satisfaction in the online platform usage, are essential to respond to that impulse as well as to succeed in the process of information search and the payment (Bou-Llusar et al. 2001). The unplanned and sudden attitude to purchase online is also enhanced by extrinsic factors such as the webpage quality (design, content, and navigation), product availability, ease of use, and visual appeal (van Verhagen and Dolen, 2011) which also positively affects the purchasing intention (Floh and Madlberger 2013).

Attitudes and intention to buy are also linked to experiences. With the increasing use of the internet as a shopping medium, positive experiences are more widely shared among consumers and producers (Khalifa and Liu 2007). Consumers find the e-Market one of the hottest, fastest growing e-businesses on the World due to the rapid adoption of the Internet as a commercial medium among consumers and producers (Silverman 2000). That online innovative ways of marketing persuade consumers in their proposal to get advantages from it (Zanker et al., 2006).

Those experiences positively influence consumers' attitude and intention to use online commerce, which is fed by the attitude of learning in producers (Einav et al. 2011) and consumers (Martínez-López et al., 2005).

Another feature that leads to consumers' purchase intention is trustworthy sources (Bickart and Schindler 2001), which through persuasive online word of mouth leads shoppers to select online platforms over the offline system (Kuan et al. 2005).

These factors are taken into account for insightful *meta*-analyses in which the strength of intention directly affects increased usage behaviour (Warren 2004). This leads to our sixth hypothesis. Hypothesis 6: The attitude toward use positively affects the final intention to engage with organic online shopping.

2.3. "Grupoagrupo" online shopping platform

Twenty-five years ago, a foreign organisation called Sodepaz undertook an international project. The intention was to promote an organic online shopping platform based on fair trade and cooperation among local communities.

Technology as a remedy to raise the level of organic consumption emerged as a pivotal issue to interact with organic communities of consumers and producers. Today, 191 communities of organic consumers periodically interact with 627 organic producers in Spain through the "grupoagrupo" online platform (http://www.grupoagrupo.net/gruposdeconsumo/venta-a-grupos-de-consumo.html). The organisers' principles are food sovereignty, social justice, democratic participation, solidarity, and social citizenship. The online shopping experience aims to promote responsible consumption among organic collectives to positively influence the organic demand.

Through its specific software, producers can update the organic products available every day, which can be purchased through the online platform by organic consumers. This organic e-marketplace allows for easy interactions between both parties. The organic products are transported within the times specified by the producers.

2.4. Population and data collection

In December 2018, 635 organic producers were invited by email and phone calls to participate in the research. Similarly, the research

Table 5
Demographic characteristics of consumers (n = 340) and producers (n = 238).

	Characteristics	Consumers	Producers	Frequency consumers	Frequency producer
Gender	Female	205	66	60%	28%
	Male	135	172	40%	72%
	Total	340	238	100%	100%
Age	18–25	95	29	28%	12%
	26–35	120	71	35%	30%
	36–45	70	61	21%	26%
	46–55	32	49	9%	21%
	56–65	15	21	4%	9%
	Older than 66	8	7	2%	3%
	Total	340	238	100%	100%
Education	Primary School	20	18	6%	8%
	Secondary School	80	32	24%	13%
	High School	140	80	41%	34%
	University	90	95	26%	40%
	PhD	10	13	3%	5%
	Total	340	238	100%	100%

team contacted the boards of directors of 191 organic communities. Those consumers' communities and producers are current and active members of the "grupoagrupo" online platform. A 5-point Likert scale was used (1—strongly disagree, 5—strongly agree) to answer the survey questions.

Data were collected from January to April 2019. In terms of organic producers, 308 were initially interested but 70 questionnaires were invalid, leaving a sample of 238. In the case of consumers, 106 communities were involved, yielding 350 questionnaires; with the exclusion of 10 non-valid questionnaires, the valid sample was 340.

Demographic data include gender, age, and level of education. As Table 5 shows, most of the participants are < 45 and have an educational level equivalent to high school and university. Interesting differences between demographic characteristics and the constructs designed. Either in producers or consumers, females have attributed higher value to *ethics and fair trade* than males. Among them, age has played a key role. We have also discovered that producers and consumers with higher education are more prompted to behave ethically.

Related to *economic factors*, males are more concerned about reducing the cost of production than females among producers. Female consumers tend to lower the prices of the organic food more significantly than male consumers. In relation to the age and education, we have observed that middle aged individuals (36–45) give more value to the organic producťs cost and price.

There is no significant demographic difference between consumers and producers in relation to the *environmental protection and health*. Young consumers and producers are slightly more worried about the risk of chemicals in food, mainly for health reasons but for environmental protection too.

Young consumers and producers attribute significant relevance to online shopping and the security of online transactions compared to traditional retailing. It is also quite remarkable the gap between those who have lower versus higher education. The latter is much prompted to value the *ease of use*. There is barely any difference between males and females.

Reliable information is slightly more valued in females than males. Younger consumers and producers also pay higher attention to reliability because they are more familiar with the online shopping and its usability.

Similar results are drawn from *attitude* and *intention to use*. Attitude of learning and sharing positive experiences among young students is remarkable. As a result, online persuasive word of mouth messages are more rapidly spread at this age than at older intervals of age. They are also more demanding in relation to the quality of the online domain, which gives them higher satisfaction using the online shopping.

3. Results

3.1. Description analysis

Henseler et al. (2016) introduced the structural equation model (SEM) to examine non-observed variables or latent variables within the inner or structural model and to observe indicators in the measurement model to propose research solutions to problems created. Whereas the inner model specifies the relationships between the independent and dependent non-observed latent variables, the outer model specifies the relationships between the latent variables and their observed indicators.

According to Fornell and Bookstein (1982), SEM is very suitable in social sciences and economics and organisational management studies. The model is a good choice when the simultaneous behaviour of dependency relationships is under study.

Within SEM, Henseler et al. (2016) and Hair et al. (2016) assured that PLS path modelling is appropriate for exploratory and confirmatory research involving latent variables. According to Shmueli and Kopplus (2011), causal hypotheses within the explanatory model specify how and why a certain empirical phenomenon occurs whose aim is to predict new or future observations or scenarios.

For PLS path modelling we used SmartPLS (v.3.2.8) software to estimate the results. Within that application, multi-group analysis was chosen to specify the significant differences between organic consumers and producers (Hair et al. 2018).

3.2. Results of the measurement model

Table 6 shows factor loadings that were studied as a preliminary condition to ascertain the reliability and validity of the measurement model. The loadings were > 0.7 for all items, as Carmine and Zeller (1979) have suggested.

Other indicators convey the evaluation of the measurement models, as shown in Table 7. The Cronbach's alpha coefficient was used as the reliability index of the latent variables (> 0.7 were accepted) (Hair et al. 2016). Additionally, the composite reliability was calculated. The convergent validity of the latent variables was evaluated by inspecting the average variance extracted (> 0.5 were accepted).

The discriminant validity of the latent variables was verified using the Fornell–Larcker (Fornell and Bookstein 1982) criterion where examined (Hair et al. 2016) (Table 8).

In addition, simulation was carried out (Table 9) to demonstrate that a lack of discriminant validity is better detected through another technique: the heterotrait-monotrait ratio (< 0.90 were accepted) (Henseler 2017).

Table 6
Loadings.

Consumers								Producers						
	AU	EFT	EPH	EU	EF	IU	RI	AU	EFT	EPH	EU	EF	IU	RI
AU1	0.73							0.71						
AU2	0.78							0.74						
AU3	0.84							0.82						
EFT1		0.73							0.70					
EFT2		0.80							0.73					
EFT3		0.75							0.83					
EPH1			0.76							0.77				
EPH2			0.74							0.70				
EPH3			0.73							0.82				
EU1				0.81							0.73			
EU2				0.77							0.76			
EU3				0.81							0.86			
EF1					0.82							0.78		
EF2					0.88							0.89		
IU1						0.71							0.72	
IU2						0.80							0.80	
IU3						0.84							0.79	
RI1							0.74							0.73
RI2							0.94							0.90

3.3. Results for the structural models

First, according to Hu and Bentler (1998), the global adjustment of the model was evaluated through the standardised root mean square residual indicator (SRMR). A cut-off value of 0.08 for the SRMR is considered to be the most adequate in PLS (Henseler et al. 2016). In this study, the SRMR in organic consumers was 0.073 and 0.059 in organic producers (< 0.08), which means that the model fits the empirical data.

The path coefficients of the hypotheses were studied in the structural model. Bootstrapping of 5000 subsamples was done to verify the statistical significance of each route. The explained variance (R-square) of the endogenous latent variables and the p-value of the regression coefficients (*t*-test) were used as indicators of the explanatory power of the model (Table 10).

4. Discussion

This research tests the intention of using an organic e-marketplace for consumers and producers in an attempt to overcome the lack of demand among organic consumers by improving the online shopper's access to organic products.

The results allowed all the hypotheses to be accepted, except H2 in the consumers' model and H5 in both models, because there's a very high probability the result could have occurred by chance (p-value $>$ 0.05).

The research makes several contributions to our understanding of online shopping by organic consumers and producers in relation to the items which define the attitudes and intention to use the online platform.

4.1. Discussion of results

Organic communities and producers' attitudes and intentions to trade on the e-marketplace were tested through the online platform "grupoagrupo". According to the interviews the research team has conducted, the online platform started many years ago by connecting small organic communities (producers and consumers) in rural and remote areas in Spain. They have organized regular meetings to find out solutions to maintain not only the organic production but also the environmental values, attitudes and behaviour based on ethics, fair trade and closeness.

Moving from rural to urban areas, communities and small producers have maintained their relationships face to face and, afterwards, through online seminars and courses about organic primary production, sustainable agriculture and responsible environmental management in order to form new relationships with local organic operators, build knowledge among existing operators and offer a comprehensive educational experience for prospective organic operators, retailers and consumers.

From the results obtained in the sample, through that reciprocal relationship, shared values and environmental attitudes between organic communities (H6: AU → IU; t = 15.265; p-value = 0.000) and producers (H6: AU → IU; t = 12.182; p-value = 0.000) have positively influenced the intention to buy organic products, confirming H6. Hence, according to the theory of planned behaviour through that online platform, users' original attitudes towards buying and selling through the e-marketplace turn into desirable intention to eventually access the online platform (Ajzen and Fishbein 1980; Paul et al. 2016). In online shopping, those attitudes depend on perceived personal values

Table 7
Reliability, validity of the constructs.

Consumer		rho_A	CR	AVE	Producers			
Variable*	Cronbach Alpha				Cronbach Alpha	rho_A	CR	AVE
AU	0.833	0.836	0.833	0.625	0.806	0.809	0.805	0.580
EF	0.843	0.846	0.844	0.730	0.825	0.835	0.829	0.708
EFT	0.810	0.811	0.809	0.585	0.806	0.810	0.805	0.581
EPH	0.794	0.794	0.794	0.563	0.811	0.816	0.811	0.590
EU	0.833	0.846	0.845	0.645	0.819	0.821	0.819	0.602
IU	0.835	0.840	0.835	0.630	0.847	0.851	0.848	0.650
RI	0.824	0.836	0.833	0.625	0.797	0.820	0.805	0.676

* rho_A = Dijkstra-Henseler; CR = Composite Reliability, AVE = Average Variance.

Table 8
Fornell and Larcker criterion.

Consumers					EU	IU	RI	Producers						RI
	AU	EF	EFT	EPH				AU	EF	EFT	EPH	EU	IU	
AU	0.80							0.82						
EF	0.62	0.85						0.68	0.84					
EFT	0.79	0.57	0.76					0.76	0.59	0.76				
EPH	0.71	0.54	0.55	0.75				0.73	0.56	0.54	0.76			
EU	0.64	0.48	0.52	0.58	0.80			0.70	0.46	0.50	0.66	0.80		
IU	0.70	0.42	0.64	0.63	0.51	0.79		0.72	0.49	0.51	0.65	0.59	0.77	
RI	0.69	0.64	0.61	0.69	0.60	0.52	0.84	0.67	0.68	0.57	0.67	0.63	0.56	0.82

to buying online and a perceived relative advantage in relation to offline shopping. Results show that technological advantage positively influences the purchase intentions, as it has been empirically analysed in offline and online food shopping (Hansen et al. 2004; Kang et al. 2016; Mortimer et al. 2016). This advantage is more valued among young consumers and producers.

From different interviews the research team conducted with organic consumers, a high level of organic awareness in their communities was disclosed. Most of the consumers have chosen a very healthy lifestyle based upon an organic diet, which is a growing-trend, particularly among those communities and society in general. This helped to explain that environmental protection and health in those consumers (EPH → AU; t = 3.245; p-value = 0.001) and producers (EPH → AU; t = 2.025; p-value = 0.043) plays a key role (Bryła, 2016; Sahota 2018). From the interviews, we also detected the sense of pride in consumers based on respecting nature and eating properly. That attitude helps them to be aware of having competitive personal advantages of buying and selling through the e-market—raising their health awareness and improving their quality of life, as well as protecting them from chronic diseases (Mondelaers et al. 2009). In the case of producers, mixed results have been found. On one hand, organic producers are forced to implement strict rules to preserve the environment (Paul et al. 2016), affecting the cost and supply chain in logistics activities (Zissis et al., 2018). On the other hand, there are advantages, such as contributing to producers' reputations and to a sustainable society.

It is also remarkable how they feel a lack of support from public institutions and society. They have strong feelings about being threatened by food corporations and the food industry. Institutions have facilitated those corporations to be settled in urban and rural areas. All those setbacks have made small organic consumers and producers stronger, leading them to gather together around inspirational environmental values and respectful attitudes toward nature. That meaningful mindset is promoted in a culture of ethics and fair trade through online consumers and producers. The data explain how these two factors show the highest level of significance in consumers (H1: EFT → AU; t = 7.090; p-value = 0.000) and producers (H1: EFT → AU; t = 4.039; p-value = 0.000). This endorses the belief of ethical consumerism in that population as the strongest reason to access the organic e-market. Ethics and fair trade also mediate the organic producers' relationships when the right information and perceived knowledge are revealed to customers (Teng and Wang 2015). Trust and authenticity commonly permeate the organic processing (Bryła 2013), from product appearance to labelling and packaging (Bryła 2015). This strengthens the production, economic development and social interactions among farmers (Crowder and Reganold, 2015).

Adding to the environmental and health benefit of organic products, online shopping for them offers an economic advantage for consumers and producers. Usually, organic farming implies higher production costs, such as the cost of certification (Vaarst et al. 2019). The e-marketplace forces down the costs close to the minimum level (Mozas-Moral et al. 2016) by improving the cost efficiency (Doherty and Ellis-Chadwick 2010). Thus, economic factors have become another relevant organic factor which influences the producer's attitude towards accessing the organic e-market in order to equally compete against food corporations and food industry (H2: EF → AU; t = 2.294; p-value = 0.022). From producers' perspective they identify e-commerce as a mean to lower distribution costs, finding the optimal pricing to attract consumers.

From consumer' perspective the attitude to buy electronically organic food is affected by many attributes, mainly related to price strategies which push them to eventually select organic products. According to the results, economic factor is not relevant for the consumers (H2: EF → AU; t = 1.170; p-value = 0.242) due to lower price does not attract more customers. It could be a signal of low quality. Other organic producťs attributes could be more important. Among those ones, Paul and Rana (2012) stressed that economic factors are not always decisive to address organic consumeŕs intention to buy, in fact, "higher price can be paid for the healthy contents and eco-friendly of the product" (p 419). Similarly, in consumers who don't and never buy organic products before healthy content came first in their mind over pricing (Yiridoe, et al, 2005). Following the same argument, older consumers value healthy alternatives over prices (Tsakiridou et al., 2008). Organic attributes such as taste and texture can be also values over price (Girard and Dion, 2010, Wirth et al., 2011).

In the case of the online attributes, ease of use for consumers (H4: EU → AU; t = 2.165; p-value = 0.030) and producers (H4: EU → AU; t = 1.983; p-value = 0.047) simplifies the information search and online transaction process (Collier and Bienstock 2006) and meets the

Table 9
Hetero-Monotrait HTMT.

Consumers					EU	IU	RI	Producers						RI
	AU	EF	EFT	EPH				AU	EF	EFT	EPH	EU	IU	
AU														
EB	0.62							0.68						
EPH	0.80	0.57						0.82	0.59					
EU	0.71	0.54	0.55					0.72	0.56	0.54				
EFT	0.64	0.48	0.51	0.58				0.71	0.47	0.50	0.66			
IU	0.70	0.42	0.64	0.62	0.51			0.72	0.49	0.51	0.65	0.59		
RI	0.70	0.64	0.61	0.69	0.60	0.52		0.67	0.68	0.58	0.67	0.63	0.56	

Table 10
Path coefficients.

	Consumers					Producers				
	β	Lower CI	Higher CI	t Statistic	p-value	β	Lower CI	Higher CI	t Statistic	p-value
H1:EFT → AU	0.481	−0.053	0.211	7.090	0.000	0.497	0.277	0.753	4.039	0.000
H2:EF → AU	0.079	0.357	0.628	1.170	0.242	0.183	0.027	0.341	2.294	0.022
H3:EPH → AU	0.262	0.105	0.417	3.245	0.001	0.218	0.006	0.426	2.025	0.043
H4:EU → AU	0.150	0.019	0.291	2.165	0.030	0.262	0.010	0.530	1.983	0.047
H5:RI → AU	0.083	−0.099	0.271	0.887	0.375	−0.051	−0.327	0.193	0.377	0.706
H6:AU → IU	0.702	0.610	0.786	15.265	0.000	0.727	0.606	0.835	12.182	0.000

demands of prospective worldwide clients who are competing with traditional retailers by increasing the number of customers (Ozer 2005). Results show that online information is well organised which facilitate smaller companies' access to external markets to meet the demands of prospective customer (Bernal-Jurado and Moral-Pajares 2010). This also reduces the factors that inhibit organic product consumption (Mozas-Moral et al. 2016). Eased of finding information (Collier and Bienstock, 2006) and efficiency of navigation (Bodini and Zanoli 2011) is highlighted among young consumers and producers. As a result, a growing number of young consumers buy food products online due to access to a very wide assortment of products that are often priced competitively (Gębski et al. 2017).

Both consumers (H5: RI → AU; t = 0.887; p-value = 0.375) and producers (H5: RI → AU; t = 0.377; p-value = 0.706) concede less relevance to the organic product's reliable information provided through the online platforms. This means that due to the evolving current technology there are minimal barriers to not having to look at the product itself before buying it (Bauer et al. 2006). Additionally, consumers and producers do not have to pay excessive attention to errors committed during online transactions (Verhagen et al. 2014) or the speed of delivery services (Baourakis et al. 2002). It is interesting to observe among consumers that the offlinés perceived tangibility has been improved in online shopping. Full information about organic producťs attributes, such as nutritional quality and the origin of produce, is provided in the pre-purchase stage (Klein 1998; Laroche et al. 2005).

To show the explanatory capacity of the model, Chin (1988) states that the values of R^2 can be "substantial" > 0.67, "moderate" > 0.33, and "weak" > 0.19. This study shows that organic producers have a higher explanatory capacity (R^2 producers = 52.9%) than consumers (R^2 consumers = 49.2%) (see Table 11). This allows us to affirm that the model has moderate explanatory capacity, which is valuable to draw empirical implications for new online business.

The model's predictive relevance expressed by Q^2 values of 0.02, 0.15, and 0.35 indicates small, medium, and high predictive relevance (Stone 1974; Geisser 1974). All the constructs in the model have predictive relevance, since the Q^2 values are all > 0.02 (see Table 12).

4.2. Implications for organic consumers and producers

The results reveal several recommendations that may be interesting for the managers of organic e-markets to attract organic producers and consumers to this "meeting point" between supply and demand.

In the first place, the results confirm the relationship between attitudes and intention to purchase in the e-marketplace. Online managers should work on a producťs organic and online attributes, cautiously caring about the phases of the shopping process to provide reliable information. These professional attentions to an organic producťs online features prompt consumers to behave differently and positively in relation to the intangibility of the product (Orth et al., 2016).

Table 11
Explanatory capacity (R^2).

Constructs Consumers		Producers
AU	0.777	0.848
IU	0.492	0.529

Table 12
Predictive relevance (Q^2).

Constructs Consumers		Producers
AU	0.419	0.424
IU	0.224	0.244

For communities and producers with a high level of environmental awareness and with intense interaction between them, the attitudes towards buying and selling organic products are influenced by almost the same variables, not including economic factors, which are considered relevant only for organic producers. In organic farming, the higher cost of production, such as the cost of certification, is still very relevant (Vaarst et al. 2019) and implies a higher cost for producers and prices that consumers must pay (Mozas-Moral et al. 2016).

The study has also shown the importance of focusing on the online information on fair trade and environmental and health benefits when attracting consumers or groups of consumers to the organic e-marketplace. That has become the main way of differentiating these purchase–sales platforms from traditional competitors. Purchasing on an equal level of trust requires high quality online service (Biswas et al. 2009; Kim et al. 2011) and professional online platforms (Kim and Jones, 2009) to overcome the barriers of not being able to see the products before buying them (Bauer et al. 2006).

Hence, ease of use turned out to be a special variable that directly influences the attitude toward use and, indirectly, the intention to use the online organic platform. This attribute helps producers to compete with traditional retailers by increasing the number of customers (Ozer 2005), and it especially increases the usefulness for desktop applications (Kamis et al. 2008) by promoting their usability between consumers and producers (Bodini and Zanoli 2011).

Small organic producers bring added value to the e-marketplace from the perspective that they help organic communities to supply products directly, overcoming intermediaries located in big food distribution companies. That is why the e-marketplace has supported smaller companies to develop trade operations which were previously reserved for the scope of big chains.

4.3. Limitations and directions for future research

This research is an exploratory study, which has limitations and should be complemented by future research. First, this is the first study that collects data not only from organic producers but organic communities as well. Among those communities, responses have not been homogeneous; some communities have been actively involved whereas others have been more passive in responding to the survey. Second, definitions of producťs organic attributes were discussed within two focus groups. Items might slightly vary depending on the focus groups involved in the study.

In terms of future research lines, several organic consumers belong to the online platform but have not used it for months. As they may assess trade issues differently, it would be interesting to study their views more deeply. Additionally, there may be organic producers who have promoted their organic products through an online platform individually or collectively in communities or geographical territories that might or might not participate in the organic e-marketplace. This type of online advertising may offer different results for these producers than for those producers who actively participate in the organic e-marketplace. Results should be analysed to compare the online influence on consumers.

CRediT authorship contribution statement

Rafael Robina-Ramírez: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Software, Writing - original draft, Writing - review & editing. **Antonio Chamorro-Mera:** Investigation, Supervision, Validation, Writing - review & editing. **Libertad Moreno-Luna:** Investigation, Validation.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Article

Safety and Health Measures for COVID-19 Transition Period in the Hotel Industry in Spain

Rafael Robina-Ramírez [1,*], Jose-Amelio Medina-Merodio [2,*], Libertad Moreno-Luna [1], Héctor V. Jiménez-Naranjo [3] and Marcelo Sánchez-Oro [1]

[1] Department of Business and Sociology, Universidad de Extremadura, 10071 Cáceres, Spain; limorenol@alumnos.unex.es (L.M.-L.); msanoro@unex.es (M.S.-O.)
[2] Department of Computering Science, Universidad de Alcalá, 28801 Alcalá de Henares, Spain
[3] Department of Finance and Accounting, Universidad de Extremadura, 10071 Cáceres, Spain; hectorjimenez@unex.es
* Correspondence: rrobina@unex.es (R.R.-R.); josea.medina@uah.es (J.-A.M.-M.)

Abstract: The health crisis caused by the outbreak of the COVID-19 disease has devastated the worldwide hospitality sector. The current situation has led many countries to implement drastic rules to stop the spread of the virus. According to the Spanish health authority decisions need to be made in the context of uncertainty and lack of knowledgeable experiences through a gradual and asymmetric de-escalation process planned in four phases. Although the vast majority of studies refer to economic risks and impacts on tourist flows and economic income, few of them explicitly investigates safety and health measures that hotel managers should implement to their customers. Over a population of 12,740 hotels, 823 Spanish hotel managers have been involved in a participatory study. With the aim of assessing the actions taken to stop the spread of the virus, empirical research was implemented. A model presented four variables and 13 indicators which have been previously tested among hotel managers in the tourism sector. Five conclusions are drawn from the hypotheses: (1) Mass testing surveillance in customers and employees should be quick, affordable, and homogeneous throughout the European Union. (2) Training measures need to be taken by both public authorities and the private sector to reach a knowledgeable crisis management team with high commitment to the customer's health and safety. (3) Protocols established by public authorities should be observed and adjusted gradually not only in hotels but also in tourist arrivals. (4) Healthy measures need to be periodically updated. (5) Each hotel should set up a surveillance process to guarantee the safety to their customers.

Keywords: COVID-19; tourism industry; transition period; health authorities; pandemic; hotel managers

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1. Introduction

As Spain is the second most popular tourist destination in the world [1], the COVID-19 epidemic has had a devastating effect on the country with more than 27,709 deaths [2]. In this scenario, the tourism industry has been severely harmed as a result of the lockdown to contain the outbreak [3]. It is an unprecedented situation in which global tourism has moved from overtourism to nonexistent touristic activities [4].

In the last two decades several studies have addressed warnings about the role that pandemics play against the tourism sector [5]. To understand the relationship between tourism and pandemics, it is crucial to delve into the role that health security plays in global crisis, not focused on territorial impacts but on international ones [5]. Few studies have addressed this perspective analyzing the impact of air on propagating the coronaviruses [6] and the role that travel plays in relation to the epidemiology and disease surveillance [7,8].

Under the current damaging situation for the tourism sectors, scholars are currently proposing global solutions to flatten the curve by reducing the number of cases and its effect on the tourism industry [9–14]. Although the recovery process of the hospitality

sector from the COVID-19 disease is currently under construction through theoretical proposals [15,16] empirical research is scarce [17] and some solutions have started to be proposed. Among these, the new outbreak of the COVID-19 virus has led many countries to implement drastic restrictive measures [18]. These proposals include closing public spaces, restaurants, and schools as well as restricting any economic activity that induces close physical contact between workers [19].

The European Commission through the document "COVID-19: EU guidance for the progressive resumption of tourism services and for health protocols in hospitality establishments" has established criteria and recommendations for the Member States on the conditions to lift the measures and restore free movement [20]. These criteria have a direct impact on tourism companies since the protection of the health of citizens remains the key priority, including tourism workers and tourists [20].

Since the epidemic peaked in Spain in the last week of April 2020, health authorities have established plans for a gradual transition towards the opening of bars, hotels, and restaurants [21]. However, the little preparedness in the tourism industry combined with doses of uncertainty and lack of knowledgeable experiences about how to face that negative impact has recently not been helpful to the Spanish tourism industry [22].

In the current situation of uncertainty, solutions have been implemented during previous pandemics in the tourism industry [23]. The Institute for Spanish Tourist Quality (ICTE) is developing a draft document with 21 measures to protect workers and tourists. These measures seek normalization to generate confidence in European tourism [24]. Those changes are developing to generate trust among customers in the area of health protection either for customers or employees, strategical technology plans, and post-lockdown strategies [25].

The vast majority of studies refer to economic risks and impacts on tourist flows and economic income [26,27]. Among them economic and financial activities have been classified in policies to reduce the COVID-19 damaging effect [28].

Recent studies have analyzed the social cost and benefits for destination communities in general [29] and destination residents during the COVID-19 crisis [30]. Nevertheless, few of them have explicitly investigated the measures that hotel managers should implement to offer safety and health to their clients [31]. As far as we know, there is no research focused on the tourism companies to stop the spread of the virus.

Unlike other European countries, such as France and Italy, which have announced a schedule of restrictive measures to implement for the reopening of stores and businesses, Spain has used the term 'phases' to be applied in provinces with a low to high rate of infection (Royal Decree-Law 16/2020). In these locations, the de-escalation will be gradual and asymmetrically planned in phases in which movements between provinces or islands are not allowed. From phases 0 to 3, tourism will reach the normal situation that existed prior to the pandemic (Royal Decree 394/2020 of July). Figure 1 shows the de-escalation process during the data collection in June and July. The criteria the Spanish government have used to decide what territories can change from one phase to the next one are the capacity of the health system, the epidemiological situation in the area, the protection measures in public spaces, and the mobility and socioeconomic data of islands or provinces.

Phase 0. Opening of some business (only with previous appointment); restaurants with food delivery service or hairdressers, among others; common relief measures such as letting children go out to play for an hour, individual sports and family walks.

Phase 1. Mobility: possibility of moving within the same province; social gatherings of up to 10 people in private spaces are allowed, always respecting the physical distance; activities in stores will begin in the small shop "in conditions of strict security"; open-air markets, with distance conditions between the stalls; bars and restaurants: the opening of bar and restaurant terraces at 50% of their capacity will be allowed; hotels and tourist accommodation: opening of hotels and other tourist accommodation, excluding common areas and with a preferential schedule for people over 65 years of age; cultural shows

of less than 30 people indoors (with a third capacity) and less than 200 people outdoors; visits to museums limited to one-third of the capacity; agri-food and fishing sector: the resumption of agri-food activity that had been stopped in the decree of the state of alarm will begin; places of worship: they can open with their capacity limited to one third.

Phase 2. Opening of bars and restaurants for table service, with limited capacity; trips to second residences, only if they are in the same province; reopening of shopping malls, prohibiting the stay in common areas or recreational areas; cinemas and theatres with a third of the capacity; cultural activities with less than 50 people seated indoors; educational centers: they may open for reinforcement activities, to ensure that children under the age of six can go to the center if both parents have to work and to ensure the "Selectividad" exams take place, as that is a compulsory exam to access university; weddings for a limited number of attendees; places of worship: the capacity is limited to 50%; hunting and fishing.

Phase 3. General mobility will be made more flexible; the use of masks in public transport will continue to be recommended, as in all previous phases; stores: capacity will be limited to 50%, with the requirement that there be a minimum distance of two meters between people; bars and restaurants: capacity restrictions will decrease but always maintaining the separation conditions between clients; discos and night bars with a maximum capacity of one-third of the usual; opening of beaches in safety and distance conditions. Bullrings: with a capacity limitation that guarantees one person for every nine square meters.

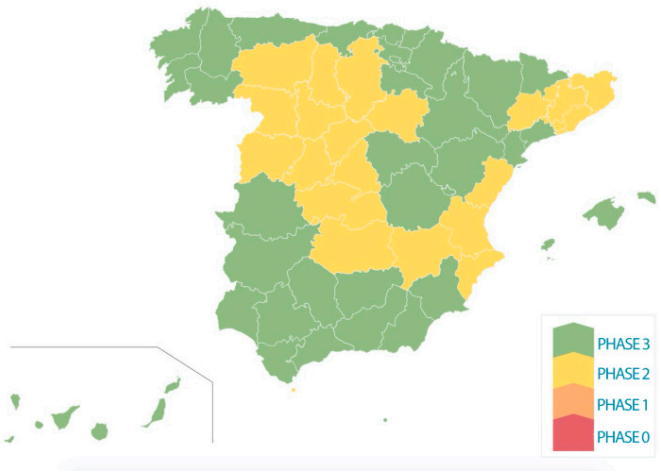

Figure 1. De-escalation process in provinces on 30 June 2020. Notes: The activities allowed in each phase are conveyed in the notes below.

Following a participative methodology, this paper focuses on analyzing what safety and health actions should be taken to stop the spread of the virus in the tourism industry. Due to the ongoing COVID-19 pandemic in Italy in February 2020 and the lockdown in Spain from March to May, a group of Spanish hotel managers decided to collaborate on the study during June and July to delve into its potential consequences in the Spanish tourism industry.

Out of a population of 12,400 hotels in Spain [2], 823 hotel managers were involved in the study. Following a participative methodology, two focus groups were organized to study the hotel managers' perceptions about the effect of the pandemic in the tourism industry. Twenty-three hotel managers were involved in the meetings in the first half of June 2020. Safety and health drivers for the COVID-19 transition period were drawn from the literature review, as well as the items that define those drivers, given the previous experience of tourism managers in crisis management in global tourism [32].

The contribution of this research is twofold. First, following the Structural Equation Model (SEM-PLS) a model of actions to preserve companies from the spread of the virus is presented. Second, hypotheses are proposed from the tourist providers' perspectives to

analyze its correlation and significance as insightful paths to be observed by the tourism industry. The document begins with a brief review of stages of a crisis in the context of the restrictive measures announced by the Spanish Minister of Health. Next, the restrictive measures are studied under the umbrella of the tourism industry. The methodology used in data collection, analysis of results, discussion, and conclusions complete the sections of the work.

2. Materials and Methods

Since the outbreak of the COVID-19 pandemic, hotels, travel agencies, and the media and professionals of the touristic sector in Spain have been warning about the contagious risks of the virus in an interconnected world. However, these warnings were not appropriately followed by the Spanish Government. Delays in taking correct measures have ended up in health and safety crisis management to stop the spread of the virus. As a result, Spain became the second country to have the most cases at one point. Nevertheless, after closing its borders and making repeated announcements to "stay at home", the disease appears to have been apparently reduced.

In this new scenario, close collaboration between the public and private sectors has become crucial, as a combined strategy, health authorities and the tourism sector, to appropriately face the new pandemic.

Several safety and health drivers for crisis planning and management by public–private sector organizations are described in the next sections. Among them, the role of social distancing in the tourism industry, the attention to sanitation measures, and mass testing and technology are playing a pivotal role either for the public or private sector in the tourism industry.

2.1. Stages of the Epidemic Crisis. Drivers for COVID-19 Transition Period (C19TP)

As Ritchie [33] explained, the range of crises in organizations can scale from minor problems, such as staff illnesses, to massive business disruptions due to pandemics and natural disasters. This range can be organized in phases depending on the damage they cause to the organizations [32]. Commonly, cases involving pandemics and disasters are defined in four stages: pre-crisis, crisis, post-crisis, and long-term recovery [34]. From another perspective, Faulkner [35] analyzed crises starting with an emergency phase, with no return point; an intermediate phase, in which recovery will possibly take several years; a long-term phase in which the economy and the market will be restored in a short period of time. The time scale involved in each stage may require different responses and strategies to plan and manage the results [36]. The transition period between each stage can lead to a worsening or a recovery stage [37].

Governments are preparing contingency plans with proactive and strategic approaches based on crises prevention to revive the tourism industry [38]. Cutter [39] proposed three different scenarios: (a) maintenance of essential services to reduce the effect on the economy and social life of the country; (b) extend antiviral treatment to reduce morbidity and mortality; (c) increase the health services to slow down and limit the spread of the virus.

To reactivate the tourism industry, international organizations are developing new studies to analyze the role that the private sector plays in coping with pandemic COVID-19 [40]. As a result, managers have the responsibility to develop tools that they can use to prevent or plan for these crises and drivers to guide them during the transition period. Coordination between health authorities and companies is crucial to go further and take the right decisions to stop the spread of the virus.

In the United Kingdom, business organizations helped the Department of Health (2005) and the Government of Scotland has developed its plan and reaffirmed its leading role in this area [41]. This combined strategy-health authorities and the tourism sector- was used to define drivers stop the SARS pandemic and its influence on the tourism sector in the short- and medium-term [42].

Ritchie [16–33] described several drivers for crisis planning and management by public–private sector organizations that have three central components: prevention–planning, implementation, and evaluation–feedback. Likewise, other measures, such as border control, surveillance, information, education, communication (IEC), antiviral strategy, and vaccination strategy, should be implemented by the governments of the countries [43]. According to Bell [44], the effectiveness of these drivers during a pandemic has not been adequately evaluated during previous pandemics and the scientific evidence is limited.

2.2. The Role of Social Distancing in the Tourism Industry (SD)

The absence of available drugs and the discovery of a vaccine from 12 to 18 months in the future require companies to take social distancing measures [38]. According to the WHO [45], social distancing is one of the main key government measures to manage the COVID-19 crisis. This involves limiting contact between people to reduce viral transmission by maintaining at least 1 m (3 feet) of distance between two people as well as avoiding physical contact and 'nonessential' meetings of more than 500 people abroad and 100 people at home.

Social distancing limits the number of people who infect others through contact, even before they realize they have COVID-19 [46], to help to alleviate pressure on already overburdened healthcare and public health systems [47].

Comparing to other sectors, the tourism industry is more vulnerable to crises or disasters than other industries due to its high risk of infection between workers and tourists, along with repeated face-to-face meetings [48]. It affects the nature of policies and the evaluation process in order to adapt them to the severity of the pandemic [49].

In this scenario, private organizations should reduce physical interactions and take precautionary measures against contagion [50]. These measures include cancelling group meetings; conducting meetings virtually; keeping children away from group settings; promoting online connections between people or social networks to reduce the spread of COVID-19 [51].

In case of contagion, isolation or quarantine becomes another essential factor to be considered by companies [52]. To overcome those risky results, it is the responsibility of tourism companies to guarantee distance during the transition period, with clients being socially connected, whenever the client requests it [53]. In this context, organizations should analyze the services or products consumed by infected people to avoid the spread of the virus [54].

2.3. The Role of Attention to Sanitation Measures: Personal Hygiene and Hospital Infection Control (SHM)

Guidance on the provision of safe water, sanitation, and hygienic conditions has been offered by the WHO since the origin of the spread of the COVID-19 virus [38–55]. According to Luby et al. [56], handwashing reduced the incidence of respiratory infections in children and young adults in previous pandemics. In addition, many people wore masks, which helped prevent virus infection [57]. The use of protective measures plays an important role in offering tranquility to their workers [58].

Since Spain has moved into phases 1 and 2 [59], ICTE and main tourism stakeholders were responsible for developing guidelines to guarantee tourists sanitary and hygienic safety in hotels. These plans detail a whole series of measures to avoid infections, along with action protocols in the case infected people are detected in hotels.

2.4. Mass Testing and Technology (MT) in Hotels

The health authority in Spain has promoted the distribution of COVID-19 tests throughout the country to embark on mass testing to stop the contagious disease. The Spanish authority has also recommended hotels to use rooms, as quarantine centers, to house infected people with few or no symptoms.

As positive cases have been detected in the staff in Spanish hotels, COVID-19 tests are becoming mandatory in the hotels and recommended for tourists. Some hotels have imposed the obligation for guests to quarantine for 14 days after arrival or until they receive a negative COVID-19 test result. Data generated from tests provided by health authorities

and business organizations [60] need to be communicated immediately to those responsible for the treatment and monitoring of the spread [61].

Initiatives to detect infections in companies are currently under development. The Johns Hopkins University Science and Systems Engineering Center has created a real-time monitoring map for following the cases of COVID-19 worldwide [62]. The installation of technological tools can also help in the early detection of outbreaks, allowing public safety to be maximized [63]. The tools include thermal cameras or Internet of Things (IoT) sensors. These sensors would allow tourists to take temperatures in addition to perceiving those who have developed antibodies against the new coronavirus COVID-19 [64]. The IoT devices must support open protocols and, at the same time, the device provider must ensure that data integrity and security are respected during communication and transmission [65].

Actions like this would slow down propagation of the virus and reduce the risk of contagion among tourists from different parts of the world in which it is still active [66,67]. However, accessing data for many companies is a challenge because the information is often considered sensitive for national security reasons, acknowledging that a virus outbreak is an equal threat to national security and the economy.

3. Methodology

3.1. Methodological Framework

Since the first week of June, the lockdown measures in Spain keep on easing thanks to positive results of the past weeks in terms of contagion and disease. This means that more social and economic activities were operational again, although at low levels. The hospitality industry was able to open their touristic activities but with limitations for common areas.

To measure the perception of hotel managers about the current security and health system, the research team contacted with the 19 tourism boards spread among the autonomous regions in Spain in the first week of June by email and phone calls.

The first aim was to get the updated contacts of Spanish hotels. Since the first calls the research team had little responses from the boards, they kept trying until reaching the response from 17 of them a week afterwards. There were no responses from Ceuta and Melilla on the northern shores of Morocco's Mediterranean coast. The list of hotels and contact details reached 12,740 hotels in total. The data was contrasted with statistics provided by the Spanish National Statistics Institute [2]. Table 1 shows the population and the sample of hotels in the study in each region.

Table 1. Population and sample.

Spanish Regions	Population	Sample
Andalucía	2137	128
Cataluña	1889	119
Galicia	1150	51
Castilla y León	1143	80
Madrid, Comunidad de	1118	112
Comunidad Valenciana	884	63
Castilla-La Mancha	725	64
Aragón	703	39
Canarias	543	33
País Vasco	541	28
Asturias, Principado de	429	23
Extremadura	356	15
Cantabria	222	17
Navarra, Comunidad Foral de	219	8
Balears, Islas	141	19
Murcia, Region de	140	15
Rioja, La	130	9
Total	12,470	823

According to the Spanish National Statistics Institute [2] there are two categories in Spanish hotels: "Gold" for hotels, hotel-apartments, hotel-residences, "Paradores Nacionales" and residence-apartments. The second category is called "Silver". It is for hostels, guest houses, and others. Table 2 shows the hotel distributions according to the two touristic categories in Spain.

Table 2. Hotel distributions in Spain.

Categories	Hotels
Gold	
Five-stars	273
Four-stars	1859
Three-stars	1928
Two-stars	1559
One-star	961
Silver	
Three-stars	1581
Two-stars	1054
One-star	3255
Total	12,470

The epidemic prevention by the government has been based on hygienic-sanitary recommendations for medicalized hotels and hotels open for essential services released by the Spanish society of public health (SESA) and health administration (SEMPSPH). In view of the emergency produced by the COVID-19 pandemic and the declaration of a state of alarm by the Government of Spain, although tourist accommodation establishments were closed to the public, it was also decided that some of them were considered essential services to provide accommodation coverage for "professional activities of an essential nature". In addition, the Health Authority has also considered the convenience of converting some hotel establishments into medicalized hotels to accommodate patients affected by COVID-19. For these two types of hotels, the Spanish Society of Environmental Health in collaboration with the Spanish Society of Preventive Medicine, Public Health and Hygiene have prepared a Guide with the set of hygienic-sanitary recommendations that should be considered in the two types of hotels to guarantee that clients and patients are not affected by risks of environmental origin. Thus, the emphasis has been placed on the quality of the water and the prevention of any viral disease; air quality, food safety, and health. With the SESA initiative public health has contributed to the resolution of this pandemic and not only the assistance devices or epidemiological surveillance. In the case of developing contingency plans for new epidemics, professionals of either Environmental Health or Food Safety, will apply their knowledge and experience to successfully address complexity, uncertainty, and ambiguity of public health risks. Table 3 shows the medicalized hotels and hotels open for essential services distributed according to the hotel touristic categories.

Table 3. Medicalized hotels and hotels open for essential services distributed according to the hotel touristic categories.

Medicalized Hotels	Hotels
Five-stars	39
Four-stars	127
Three-stars	121
Two-stars	71
One-star	2
Hotels open for essential services	
Three-stars	6
Two-stars	2
One-star	0
Total	368

Even though there has been no difference between hotels' touristic categories, the distributions of these hotels amongst the Spanish autonomous regions has been released. Table 4 shows that distribution.

Table 4. Medicalized hotels and hotels open for essential services distributed amongst autonomous regions.

Autonomous Regions	Medicalized Hotels and Hotels Open for Essential Services
Andalucía	51
Galicia	49
Castilla-León	36
País Vasco	35
Asturias, principado de	26
Aragón	25
Castilla-La Mancha	23
Comunidad de Madrid	19
Cataluña	19
Extremadura	17
Cantabria	16
Canarias	16
Baleares	14
Navarra	12
La Rioja	6
Ceuta	4
Total	368

3.2. Variables and Questionnaire

From the list of Spanish hotels, we randomly selected and contacted three hotels from every Spanish tourism board at the end of the first week of June to participate in two zoom meetings. A letter was sent to all of them to explain the aim of the research as well as the methodology. A total of 23 out of 51 were willing to be involved in the study. In order to debate with these hotel managers about the drivers for the COVID-19 transition period, a list of items drawn from the literature was proposed.

According to these items, in the first meeting, an interactive debate between hotel managers involved in the research provided detailed information in relation to the proposals offered by experts in the area of health. Four topics were set on the table to be discussed and compared with the original items.

- To involve hotel managers in building protocols by designing mechanisms for gathering participative information to make the best decisions, especially by creating protocols to identify possible symptoms caused by the virus such as implement a temperature control system, ventilation systems, and other hygiene and safety measures.
- To develop and implement a contingency plan by offering an agreement between hotels and hospitals to offer tourist 24/7 medical care and insurance services as way of building confidence and trust. It includes flexible upgrades to offer bigger rooms in case of unexpected quarantines.
- To introduce flexibility measures in cancellation policies and develop a plan for customers to avoid public transportation by ensuring transportation from the airport to the hotel.
- Keep the team updated about the evolution of the virus in the tourist destination involving staff members in the actions taken to prevent the virus.

The debate was especially around how to identify the existing risks in the provision of certain tourist services, what mechanisms exist to gather information that allows them to make the best decisions to adopt in the future transition period, what contingency plan should be designed to consider various phases of evolution in relation to its stakeholders (service providers, authorities, other guides, etc.), and how to assess that contingency plan and its effectiveness.

According to the results of the debate, four latent variables were proposed: C19TP: drivers for COVID-19 transition period; SD: social distancing; SHM: sanitation and healthcare measures; MT: mass testing.

In the second meeting, during the second week of June, the changes in the original items were introduced. After an intense debate, all the items were modified and expanded by the hotel managers (see Table 5).

Table 5. Preliminary study and list of items corrected by the managers.

Indicators	Original Items	Items Eventually Approved
(C19TP1) [68]	Tourists' safety and security to slow down severe damage produced by the virus outbreak	Reopen borders to the tourism sector by providing safe and healthy solutions to tourists
(C19TP2) [21]	Gradual opening of bars, hotels, and restaurants	Developing protocols for the gradual transition period according to the health authority
(C19TP3) [69,70]	Measuring the impact of the health-related pandemic crises on tourism	The health authority should provide affordable solutions for the tourism sector to open the hotels in safe conditions
(SD1) [38]	Security and sanitation measures should be active until a vaccine is developed	Government should guarantee hospital capacity and security measures to stop propagation of the virus
(SD2) [49]	Public health officials should evaluate the measures to stop the virus	Social and sanitation measures should be rapidly modified depending on the seriousness of pandemic
(SD3) [47]	Decisions about testing should be implemented	Expanding testing capabilities is critical for slowing and controlling of the pandemic
(SD4) [51,53]	Hotels should inform the sanitation authorities in the case of infections	Hotels should develop protocols to alert the sanitation authorities
(SHM1) [54]	WHO protocols should be observed at the hotels	WHO protocols should be observed at the hotels and equally evaluated by official agencies for every hotel
(SHM2) [57,71]	Hotels should provide masks in preventing virus infection	The use of masks should be part of the health and sanitation protocol in hotels during the transition period
(SHM3) [58]	Workers should be the safest and the most hygienic	Sanitation protocols affecting work shifts, common spaces, rooms, and interaction with clients should be revised
(MT1) [60]	Government should have a strategy for testing and contact tracing of individuals	Updated tech should be available to hotels to assess worker and tourist protection
(MT2) [72]	Data collection is crucial to increase the available hospital capacity	Hotels should have a protocol about clients infected to be immediately communicated to hospitals
(MT3) [47]	Tech tools maximize public safety in similar scenarios	Companies should develop a strategy of using a comprehensive surveillance system between workers

Each item was then formulated into question mode. The questionnaire had been previously validated through 10 qualitative interviews conducted with hotel managers who were different from the participants in the two focus groups.

In the second half of June 2020, mass mailings were sent to hotels with a link to a Google doc to which the questionnaire was attached. At that time, national authorities started announcing the end of the state of alarm in Spain, which came to an end on 21 June.

The questionnaires were distributed using Free Online Surveys. To avoid missing data the questionnaire was divided in five sections. To move from one section to the next one hotel manager had to match all the responses. Some of them were fulfilled by phone. Therefore, the research team was especially focused on gathering all the responses from the managers.

The research objective of the academic group was to obtain the maximum number of responses from hotel managers. Initially, the research team decided to carry out a stratified sampling based on the hotel's tourist categories. From there, the same number of questionnaires was selected, 100 for each touristic category were sent by emails to hotel managers from five-star hotels to one-star hotels with gold or silver categories. At the end of the sampling period, three conclusions were drawn: (1) Almost 15% of the emails had wrong address. A total of 90% of those wrong addresses were updated. (2) Differences were found between five-star and four-star hotels' responses compared to three-star, two-star, and one-star hotels. (3) The number of total responses was very low to draw significant conclusions.

After these results, the research team decided to extend the sampling to the entire population by sending emails in groups of 50 hotels. To introduce the study to them messages were organized according to the hotel's tourist category.

Of the emails extended to the whole population, 20% were returned due to the wrong addresses and 35% did not respond. Of the other 45%, only 4% approximately responded favorably, 560 questionnaires through Google Forms were collected. In the next week 300 phone calls inviting to hotel managers to complete the questionnaire were undertaken in the last week of June. However, 17 were matched wrongly. The final sample of participating hotels was 843.

3.3. Hypotheses and Model

In accordance with the four constructs designed by the hotel managers, the hypotheses ascertained the relation of the main drivers of hotel managers and the exogenous variables (SHM; MT; SD). The drivers are focused on three items:

1. The effect of reopening borders to the tourism sector by providing safe and healthy solutions to tourists.
2. The development of protocols for the gradual transition period according to the health authority.
3. The installation of affordable solutions for the tourism sector to open the hotels in safe conditions.

Hypothesis 1 (H1): *Sanitation and healthcare measures (SHM) positively influence the drivers for the COVID-19 transition period (C19TP).*

Hypothesis 2 (H2): *Sanitation and healthcare measures (SHM) positively influence social distancing (SD).*

Hypothesis 3 (H3): *Social distancing (SD) positively influences the drivers for the COVID-19 transition period (C19TP).*

Hypothesis 4 (H4): *Sanitation and healthcare measures (SHM) positively influence mass testing (MT).*

Hypothesis 5 (H5): *Mass testing (MT) positively influences the drivers for the COVID-19 transition period (C19TP).*

The proposed theoretical model is shown in Figure 2.

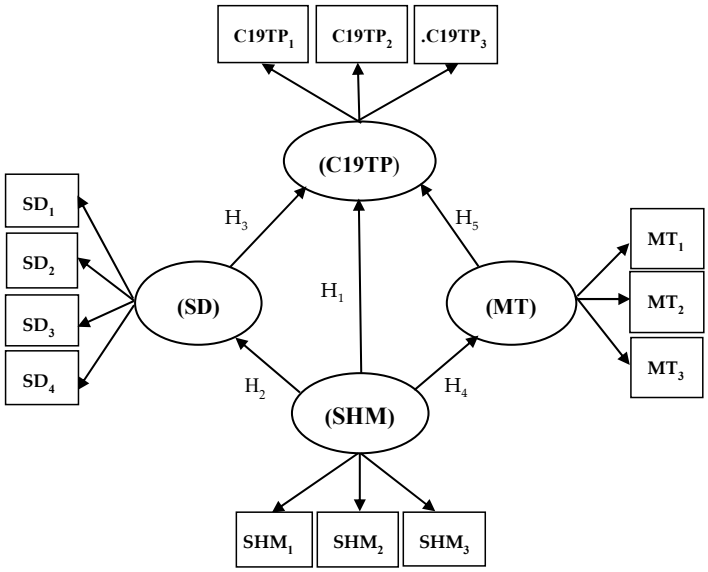

Figure 2. Research model designed. C19TP: drivers for COVID-19 transition period; SD: social distancing; SHM: sanitation and healthcare measures; MT: mass testing.

The information obtained was processed following the parameters of the structural equations (SEM). This statistical technique is observed when dependency relationships are established between latent variables and indicators [73].

For the generation of the statistical model, the PLS (partial least squares) technique applied was SmartPLS 3 Version 26 (SmartPLS GmbH, Boenningstedt, Germany). This version is especially recommended for composite models [74].

4. Results

4.1. Results of the Measurement Model

SEM-PLS modeling was defined based on two approaches: the measurement model and the structural model. To proceed to the analysis of the structural model, it was necessary to analyze the reliability that exists between the indicators and the constructs as well as the validity of the measurement model [75]. In this case, we used reflective elements because they are interchangeable [76]. Reliability was studied in Table 6 by analyzing individual loads or simple correlations of the measures with their respective latent variables, $\geq$0.7 was accepted [77].

Table 6. Loads.

	C19TP	MT	SD	SHM
C19TP1	0.889			
C19TP2	0.829			
C19TP3	0.861			
MT1		0.881		
MT2		0.796		
MT3		0.894		
SD1			0.851	
SD2			0.763	
SD3			0.892	
SD4			0.848	
SHM1				0.798
SHM2				0.887
SHM3				0.898

Cronbach's alpha coefficient and composite reliability were also used as the reliability index of the latent variables. The convergent validity of the latent variables was analyzed through the extracted average variance (AVE) (accepted >0.5). To study the discriminant validity of the latent variables, the Fornell–Larcker criterion was used [78]. This criterion examines whether the square root of the average value extracted (AVE) of each item is greater than the correlations with the other latent variables, as shown in Table 7.

Table 7. Reliability, validity of the constructs.

Statistics	Cronbach Alfa	rho_A	CR	AVE	Fornell–Larcker Criterion			
Variables					**C19TP**	**MT**	**SD**	**SHM**
C19TP	0.824	0.825	0.895	0.740	0.860			
MT	0.820	0.823	0.893	0.737	0.513	0.858		
SD	0.860	0.872	0.905	0.705	0.612	0.426	0.840	
SHM	0.826	0.836	0.897	0.743	0.635	0.534	0.544	0.862

According to [79], it is necessary to implement techniques that better detect the absence of discriminant validity. In this case, the test that was applied is called the heterotrait–monotrait ratio (HTMT). If the relationship for each pair of factors is <0.90, the condition is accepted [80]. Table 8 shows the valid values for the HTMT test.

Table 8. Heterotrait–monotrait ratio (HTMT).

Variables	C19TP	SD	SHM	MT
C19TP				
MT	0.615			
SD	0.720	0.497		
SHM	0.759	0.642	0.637	

4.2. Results of the Structural Model

After examining the measurement model, we moved on to the structural model. For this, the path coefficients of each of the hypotheses were studied. To obtain these values, a starting programme of 5000 subsamples was applied to verify the statistical significance of each route.

The overall fit of the model was evaluated using the standardized mean squared residual standard indicator (SRMR) [81]. SRMR is the average difference between the predicted variances and covariance and those observed in the model. Therefore, a small value reflects a good fit. A cut-off value of 0.08 is considered the most appropriate [82]. In the study, the SRMR was 0.076, which means that the model fits the empirical data [81].

The explained variance (R^2) of the endogenous latent variables and the p value of the regression coefficients (t-test) were used as indicators of the explanatory power of the model [83]. The R^2 values maximize the amount of explained variance obtained for the investigation and led to the following conclusions: 0.67 'Substantial', 0.33 'Moderate', and 0.19 'Weak' [84]. The result obtained explains the positive relationship between the measures to be taken by hotel managers to protect the health and safety of their clients. The amount of variance explained by the drivers for the COVID-19 transition period (C19TP) is R^2 = 52.6%. The evidence, therefore, shows that the presented model has a moderate predictive capacity. This explains the reason the variables of social distancing (SD), sanitation and healthcare measures (SHM), and mass testing (MT) become key factors in introducing the implementation of security and hygiene measures in hotels during the transition period (C19TP).

Table 9 shows the results obtained that allowed us to accept all the hypotheses since there were no statistically significant differences in the relationships between the variables in our model (p value > 0.05).

Table 9. Path coefficients.

Statistics/Variables	β	Lower CI	Higher CI	t Statistic	*p*-Value
MT → C19TP	0.177	0.105	0.258	4.527	0.000 ***
SD → C19TP	0.344	0.258	0.423	8.157	0.000 ***
SHM → C19TP	0.353	0.290	0.412	11.291	0.000 ***
SHM → MT	0.534	0.473	0.595	17.211	0.000 ***
SHM → SD	0.544	0.479	0.606	16.815	0.000 ***

Note: statistical significance: *** $p < 0.001$; n.s: not significant.

Geisser [68–85] and Stone [86] recommended evaluating the Stone–Geisser test as a criterion for evaluating the predictive capacity of the model (Q^2). To determine this in SmartPLS, it is necessary to generate the blindfolding procedure. After the Stone–Geisser (Q^2) test [85,86], the values were as follows: 0.02, 0.15, and 0.35, which indicates small, medium, and high predictive relevance, respectively. As a result, Table 10 shows that endogenous constructions meet (Q^2) >0.

Table 10. Coefficient of determination (R^2) and Stone–Geisser test (Q^2).

Variables	Q^2	R^2
C19TP	0.381	0.526
MT	0.205	0.286
SD	0.204	0.296
SHM	–	–

5. Discussion

The discussion section is organized in three parts. First, according to the model presented a comparative result is highlighted. Second, critiques to the pandemic crisis carried out by the Spanish government. Third, hotel managers' health and safety perceptions depending on the type of hotel.

5.1. Comparative Results Drawn from the Model

The world is currently in the midst of a state of pandemic crisis with devastating consequences for tourism [34]. In the case of Spain, the autonomous communities are going through different phases according to the epidemiological situation each territory is going through. Considering that each phase requires different strategies [36], collaboration between the public and private sectors is extremely necessary to revive the tourism sector [28].

The collaborative model presented in this work is based on a participatory study between hotel managers to implement public sector protocols in order to identify possible symptoms caused by the virus. As a result, "moderate-high" explanatory model with predictive capacity R^2 = 52.6% is presented. The extended study among hotel managers allows us to address two of the three scenarios proposed by Cutter [39]. The collaboration of the private sector is channeled through the contribution to implement safe actions to open the hotels (C19TP3). According to Ritchie [33] those solutions provided by hotel managers to curb the spread of the virus would be prevention–planning (MT2), implementation–surveillance (MT3), and evaluation–feedback (MT1). Among those solutions, the possibility of expanding the capacity to test clients is especially relevant (SD3). Some hotels have signed an agreement with clinics to test clients for antigens, although this measure is still underdeveloped in most of the Spanish territories.

Hotel managers request the public sector to develop efficient actions to face the virus for the tourist arrivals at the hotels. Among them, guaranteeing the capacity and security of hospitals (SD1), controlling border health and safety (C19TP1), implementing new protection measures against new infections (SD2) such as surveilling the WHO policies; request the evaluation of safe water, sanitation, and hygienic conditions in hotels (SHM1) [56].

The predictive relevance (Q^2) (C19TP = 0.381), (MT = 0.205), (SD = 0.204) allows to replicate the research model in other sectors [48], with high degree of contagion between workers and clients, such as the health or agri-food sector where it is necessary to exercise extreme caution to stop the spread of the virus [50].

5.2. Critiques to the Pandemic Crisis Carried Out by the Spanish Government

From hotel managers' surveys, open questions were collected through Google Forms and through phone calls. Common disagreement with the health authority was expressed. The criticisms were focused on four areas: (1) Mobility restriction and economic consequences. (2) Security protocols. (3) Digitization and new technologies. (4) Testing measures.

Statements such as "opening a hotel with severe restrictions on both mobility and capacity would be unfeasible because it could lead to bankruptcy" were criticized in the interviews (3, 7, 23, 32). Some hotel managers asked about "who is going to stay in our establishments? Our neighbors in the area? It is not even allowed to travel even between different provinces" (interviews 18, 27, 33). Others identified the "restrictions with the necessary generation of profit; they said that anyone who has an idea of hotel equipment knows that opening a hotel at 30% means losing money. In order to cover costs, it would have to be at 50% and from then on it would see the benefits and capacity limitations" (interviews 5, 14, 15, 34). Criticism went also around the "lack of understanding about why their hotel establishments are limited in capacity when other sectors, such as, for example, supermarkets or pharmacies, are not" (interviews 16, 25, 31).

In relation to security protocols, not only did they say that it is 'necessary to work on security protocols to guarantee health for our customers' (interviews 1, 6, 27), but also these 'protocols have not yet been communicated to them by the health authorities and they have not yet received health guidelines to follow' (interviews 12, 19, 21, 24). Then, they 'demand more information to know how to comply with the rules of distancing and health depending on the type of premises' (interviews 13, 17, 29, 30). Given this lack of information, hoteliers' associations are proposing concrete measures; they believe that it is the private sector that has to propose the measures to policy makers. Furthermore, 'they advocate a single health protocol for all of Spain and not that each region has its own' (interviews 7, 26, 28, 32).

Health protection also involves the implementation of digital technologies as established by the European Commission [25]. It does not only mean the access by tourists to information on borders and travel, health, and safety conditions in establishments [63]. It is also the use of mobile applications, artificial intelligence (AI), and robotics to monitor the planning of physical distancing in accordance with the data protection law [66] and management of the flow of tourists as well as disinfection and hygiene through the use of robots [63,64]. As a result, 'the new protocols to avoid contagion will impose digitization, specifically nontactile activation methods' (interviews 17, 23, 25, 27). 'Without a doubt, the new technologies are helping them to implement many necessary protocols due to the expansion of the COVID-19' (interviews 2, 4, 11, 12).

In relation to testing measures: 'we will carry out quick tests on our clients through noninvasive temperature controls so that we can guarantee no infections in the hotel' (interviews 8, 13, 14, 33).

5.3. Health and Safety Perception Depending on the Type of Hotels

According to a survey carried out by the DNA (Tourism and Leisure consultancy) during April and May, more than 80% of Spaniards considered the option of traveling despite the shutdown. Over 70% wanted to travel accompanied by their partner or direct family, 30% with friends. The vast majority rejected crowded destinations, preferring the isolated destinations [70]. Therefore, what they value most was safety and health, even more than the price. That perception varied from 'beach hotels', 'rural hotels' and 'city hotels'.

Currently, 'tourists are fleeing from hotels in crowded cities and seek isolation. They prefer being in contact with nature than visiting beaches and big cities' (interviews 12, 19, 21). However, some hotel managers have stated that 'it will be impossible to abandon mass tourism at once, that's why you have to find successful solutions to overcome the risk of contagion' (interviews 4, 10, 15). As a result, hotel managers in coastal places 'should be the first to react to overcrowded places by quickly publishing the protocols of the services, testing tourists and having a health passport' (interviews 11, 35, 36).

On the contrary, rural accommodations have focused on small groups of visitors in isolated places. It should be the main reason to have increased the reservations during the pandemic crisis. 'Since the government said on 28 April that rural establishments could open from 11 May, we began to notice an increase in reserves in the de-escalation period. They have risen significantly: 278% more than in the previous three weeks. Compared to last year we are returning to normal' (interview 23). Moreover, rural accommodations, as small business, are closer to the clients and decisions are faster to implement than big hotels. 'In our rural hotels, we evaluate daily the safety and hygiene measures in the rooms; in the breakfasts, wide distance and change of the buffet system; the partitions in the receptions; gloves, masks and hydroalcoholic gels scattered where necessary' (interviews 11, 14, 15, 22). 'In addition to the measures imposed by the health authority, we are going to do in our rural hotel everything we can think of, apart from thorough cleaning, we are ready to overcome every unplanned result to provide safety and health to our clients' (interviews 9, 13, 16, 27).

Table 11 shows what relevance hotel managers give to the safety and health measures in relation to the three types of hotels. Rural hotels have conveyed slightly higher interest than beach and city hotels in providing these measures almost in every indicator. It might be explained due to the closer relationship with clients due to their small business in order to avoid the spread of the virus and their interest to protect their own small business. Most of them are directly managed by the owners.

Table 11. Hotel manager's perception depending on the types of hotels.

	Beach Hotels	Rural Hotels	City Hotels	1 Star Hotels	2-Star Hotels	3-Star Hotels	4-Star Hotels	5-Star Hotels
C19TP	4.1	4.5	3.9	3.8	4.3	4.5	4.5	4.7
SD	4.5	4.8	4.2	3.9	4.0	4.6	4.7	4.6
MT	4.3	4.3	4.4	3.3	3.6	4.2	4.4	4.5
SHM	4.5	4.9	4.6	3.9	4.1	4.6	4.8	4.8
Total	203	386	153	56	122	240	199	125

6. Conclusions

Within the de-escalation phases proposed by the health authorities in Spain, it is necessary to guarantee health security in the tourist services that are provided to avoid the spread of the virus with new infections. Through a participatory methodology, hotel managers proposed a series of measures to be considered by these authorities. Three theoretical and four empirical conclusions are drawn from the results.

According to the results obtained from the path coefficients, all the hypotheses were accomplished, with high levels of significance. They were measured through Student's *t*-test and *p*-values. Therefore, the relationships between constructs in the model presented are strong. This close relationship between the latent variables allows us to draw five conclusions ordered according to the size of the Student's *t*-values.

The strongest relationship between variables corresponds to Hypothesis 4. It measures the incidence between sanitation and healthcare measures (SHM) and mass testing (MT) (SHM $\rightarrow$ MT; $\beta = 0.534$; $T = 17.211$). This relationship explains how health protocols proposed by the WHO to hotels affect the private sector's responsible implementation. The enhancement of sanitary measures in hotels does not only refer to having a sanitary protocol of action approved by the private sector to prevent infections and relocate those

infected, hotels must also develop their surveillance standards to avoid contagion, amongst them mass testing is the most valued. Hotel managers valued the ability to detect the employees and customers' health status to avoid contagion. Aligned with these proposals, several interviews to manager directors show that tests should be quick, affordable, and homogeneous throughout the European Union (interviews 14, 16, 27). If those measures are effectively implemented in the hospitality sector, it would help to plan the tourist season for the coming months (interviews 4, 18, 25, 39).

The hotels' second priority is conveyed in the Hypothesis 2, which shows the relationship between sanitation and healthcare measures (SHM) and social distancing (SD) (SHM → SD; β = 0.544; T = 16.815). The results covey that social distance and healthy measures in hotels have been shown as the most effective in preventing infections [29] which efficiently helps to reduce the number of infected patients in hospitals [30]. According to the hotel managers those measures have to be appropriately trained to reach a knowledgeable crisis management team to demonstrate high commitment to the customer's health and safety (interviews, 1–6, 9–16, 18, 22, 28, 31).

The third conclusion is related to the influence of sanitation and healthcare measures (SHM) in the definition of the drivers for the COVID-19 transition period (C19TP) (SHM → C19TP; β = 0.353; T = 11.291) reported in Hypothesis 1. The current health and sanitary protocols established by public authorities should be observed and adjusted gradually without delay to the seriousness of the pandemic (interviews 4, 7, 10–18, 22–30). In order to curb a surge in coronavirus infections those measures should be applied not only in hotels but also in tourist arrivals in Spain. The control should be delivered by testing passengers from other countries, mainly from the risk ones (interviews 2, 5, 11, 16, 23, 29, 30)

The fourth conclusion refers to the relationship established in Hypothesis 3: social distancing (SD) influences the drivers for the COVID-19 transition period (C19TP) (SD → C19TP; β = 0.344; T = 8.157. Social distance and healthy measures need to be periodically updated, mainly for common areas as has been expressed by more than 90% of the hotels interviewed.

The fifth conclusion shows the influence of mass testing (MT) in drivers for the COVID-19 transition period (C19TP) (MT → C19TP; β = 0.177; T = 4.527). Every hotel has to deliver its own strategies to guarantee security and regain the trust of customers. These strategies include not only the availability of mass testing to customer but also setting up a surveillance process for staff shifts, daily individual protection equipment, disinfection of common areas and rooms, washing frequencies, distancing between reception and collection areas, food handling protocols, determining capacity in common areas, etc. (interviews 4–9, 12, 14, 15, 22, 28–32). Moreover, every hotel should collaborate immediately with the health and sanitation authority. A protocol to deal with this situation should be provided to customers. Some Spanish hotels are already offering this possibility through the checking-in, and they are also providing secluded rooms where private doctors perform viral tests for COVID-19 (interviews 3–11, 18–24, 32–34).

Two future research lines will be addressed. First, it is also relevant to consider the tourist authorities' interests to introduce participatory methods to face the economic crisis with the tourism industry. Second, hotel managers' behaviors will be studied to ascertain their level of agreement to develop the touristic decisions drawn from the potential participative programme. According to Schwartz [87], hotel managers' attitudes, norms, responsibilities, and behavior will be analyzed. From Schwartz's theory, personal beliefs, moral obligation, and behavior could be linked to the measures Spain needs to overcome the pandemic crisis [88].

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Review

The Impact of the COVID-19 Pandemic on Social, Health, and Economy

Vicente Javier Clemente-Suárez [1,2,3,*], Eduardo Navarro-Jiménez [4], Libertad Moreno-Luna [5], María Concepción Saavedra-Serrano [6,7], Manuel Jimenez [8], Juan Antonio Simón [1] and Jose Francisco Tornero-Aguilera [1,3]

1 Faculty of Sports Sciences, Universidad Europea de Madrid, 28670 Madrid, Spain; juanantonio.simon@universidadeuropea.es (J.A.S.); josefranciso.tornero@universidadeuropea.es (J.F.T.-A.)
2 Grupo de Investigación en Cultura, Educación y Sociedad, Universidad de la Costa, Barranquilla 080002, Colombia
3 Studies Centre in Applied Combat (CESCA), 45007 Toledo, Spain
4 Facultad de Ciencias de la Salud, Universidad Simón Bolívar, Barranquilla 080005, Colombia; enavarro27@unisimonbolivar.edu.co
5 Faculty of Business, Finances and Tourism, Universidad de Extremadura, 10071 Cáceres, Spain; libertadml@unex.es
6 Faculty of Social Sciences, Universidad Europea de Madrid, 28670 Madrid, Spain; Mariaconcepcion.saavedra@universidadeuropea.es
7 Grupo de Investigación "Gestión Sostenible de las Organizaciones en los Ámbitos Financiero y Económico", Universidad Europea de Madrid, 28670 Madrid, Spain
8 Departamento de Didáctica de la Educación Física y Salud, Universidad Internacional de La Rioja, 26006 Logroño, Spain; manuel.jimenez@unir.net
* Correspondence: vctxente@yahoo.es; Fax: +34-911-413-585

Abstract: In late December 2019, a series of acute atypical respiratory disease occurred in Wuhan, China, which rapidly spread to other areas worldwide. It was soon discovered that a novel coronavirus was responsible, named the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2, 2019-nCoV). The impact of the COVID-19 pandemic on the population's health is unprecedented in recent years and the impact on a social level even more so. The COVID-19 pandemic is the most large-scale pandemic on earth this century, and the impact in all life sectors is devasting and directly affected human activity in the first wave. The impact on the economy, social care systems, and human relationships is causing an unprecedented global crisis. SARS-CoV-2 has a strong direct acute impact on population health, not only at the physiological level but also at the psychological level for those who suffer it, those close to them, and the general population, who suffer from the social consequences of the pandemic. In this line, the economic recession increased, even more, the social imbalance and inequity, hitting the most vulnerable families, and creating a difficult context for public institutions to address. We are facing one of the greatest challenges of social intervention, which requires fast, effective, and well-coordinated responses from public institutions, the private sector, and non-governmental organizations to serve an increasingly hopeless population with increasingly urgent needs. Long-term legislation is necessary to reduce the vulnerability of the less fortunate, as well as to analyze the societal response to improve the social organization management of available resources. Therefore, in this scoping review, a consensus and critical review were performed using both primary sources, such as scientific articles, and secondary ones, such as bibliographic indexes, web pages, and databases. The main search engines were PubMed, SciELO, and Google Scholar. The method was a narrative literature review of the available literature. The aim was to assess the effects of the COVID-19 pandemic on population health, where the possible interventions at the health level are discussed, the impact in economic and social areas, and the government and health systems interventions in the pandemic, and finally, possible economic models for the recovery of the crisis are proposed.

Keywords: COVID-19; social care; community management; recovery; vaccines; health

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1. Background

In late December 2019, a series of atypical acute respiratory events occurred in Wuhan, China, which rapidly spread to other areas worldwide. It was soon discovered that a novel coronavirus was responsible, named the severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2, 2019-nCoV) due to its high homology (~80%) to SARS-CoV, which caused acute respiratory distress syndrome (ARDS) and high mortality during 2002–2003 [1]. Further on, it was designated as COVID-19, and considered as a pandemic by the World Health Organization (WHO) in mid-March 2020 [2]. To date, there have been 163 million cases, with 3.39 million deaths reported worldwide [2,3]. We conducted the present review with the aim to analyze the effect of the COVID-19 pandemic on population health, and the possible interventions at the health level are discussed, the impact in economic and social areas, and the government and health systems interventions in the pandemic, and finally, possible economic models for the recovery of the crisis are proposed.

Methodology

To reach the study objective, a consensus and critical review were performed using both primary sources, such as scientific articles, and secondary ones, such as bibliographic indexes, web pages, and databases. The main search engines were PubMed, SciELO, and Google Scholar. The method was a narrative literature review of the available literature. The narrative review is a comprehensive, critical, and objective analysis of the current knowledge on the present topic. It is an essential part of the research process and helps to establish a theoretical framework and focus or context for future research and interventions. The following exclusion criteria were used: (i) studies with old data (out of the COVID-19 timeframe), (ii) present inappropriate topics, being not pertinent to the main focus of the review, and (iii) PhD dissertations, conference proceedings, abstracts, and unpublished studies. We included all the articles that met the scientific methodological standards and had implications within any of the subsections in which this article is distributed.

2. Impact of COVID-19 on Health

The main concern of SARS-CoV-2 is not its mortality, but the rapid and easy transmission, which is via droplets (generally 5–10 μm) that have a short lifetime in the air and infect the upper respiratory tract, or finer aerosols, which may remain in the air for hours [4]. Therefore, the first line of affection and contention is the upper respiratory tract, and the advance of the virus will first lead to respiratory system affection [5]. However, SARS-CoV-2 virus affection occurs in different systems and tissues of the body, not only in the lung. As so, the heart, liver, kidneys, gastrointestinal tract, spleen, lymph nodes, skin, and placenta have also been affected by this virus [6]. Evidence of microvascular damage such as thrombi, endothelium, and complement activation was not limited to the lungs, being also found in the heart, liver, kidneys, gastrointestinal tract, skin, adrenal gland, and prostate, possibly reflecting systemic hyper-inflammation in these cases [7].

This holistic organic condition will depend greatly on which stage or phase of viral affection the patient is in. In this sense, 3 stages of increasing severity are well-differentiated [6]. The first stage is eminently characterized by the SARS-CoV-2 infection phase, where the patient may develop flu-like symptoms, mainly due to the viral infection itself. During this phase, if the viral process is not contained by the immune system itself, patients may start to develop viral pneumonia, requiring hospitalization, or even mechanical ventilation. In the uncontrolled advance of the viral affection, we would arrive at a second stage in which pulmonary inflammation and coagulopathy can be developed consecutively but often overlap. Likewise, it is during this stage that the famous "cytokine storm" occurs, in which the inflammatory biomarkers such as C-reactive protein, ferritin, Interleukins I and 6, and D-dimmer tend to exponentially and uncontrollably rise, increasing the risk of acute respiratory distress syndrome and unfavorable clinical course [8]. Finally, the most critical is the third phase, in which the patient's life is in danger when fibrosis appears [9].

Regardless of the pattern of viral SARS-CoV-2 infection progression, as with any viral affection, the symptoms can vary greatly from one subject to another. In the first instance, the WHO affirms that worldwide, the bulk of the infected population (approximately 80%) is asymptomatic. They enter phase one experiencing slight symptoms, such as a flu-like virus, or no symptoms [10]. The other 20% report signs of fever, dry cough, dyspnea, arthralgia, and myalgia [11]. Other symptoms may include the loss of taste and loss of smell as markers of mild to moderate infection [12]. Less common symptoms include headache, hemoptysis, rhinorrhea, and gastrointestinal symptoms such as abdominal pain, diarrhea, and nausea. In more severe cases (phase 2), lymphopenia [13] arrhythmias, acute kidney injury, as well as the production of blood clots can occur, ultimately causing a pulmonary embolism and thrombosis [14]. The magnitude of symptoms and the advance from one stage to another is related to the health status before infection. As such, elderly men and people with underlying cardiovascular, respiratory disease, and cancer [15], obese individuals [16], and those with diabetes mellitus [17] are more susceptible to infection. Nevertheless, the relative importance of these health conditions is yet unknown.

The acute effects of the virus are well-documented by researchers, but chronic effects are still pending to be discovered and discussed. In this line, it was found that patients that successfully passed the viral infection could present symptoms of fatigue, persisted cough, shortness of breath, headache, and joint pain [18]. Additionally, an imaging test after several months from SARS-CoV-2 recovery suggests lasting damage to the heart muscle, even in people who experienced only mild COVID-19 symptoms, which may increase the risk of heart failure or other heart complications in the future [19]. The lungs are also affected depending on the type of pneumonia suffered, which could cause long-standing damage to the alveoli, which may lead to scar tissue and long-term breathing problems [20]. Additionally, the authors are discussing neurological and brain-related pathologies, since the viral affection could cause strokes, seizures, and Guillain-Barre syndrome, increasing the risk of developing Parkinson's and Alzheimer's diseases [21,22].

Another field to be explored and discussed is the psychological consequences of COVID-19, which authors predict is going to be the next so-called pandemic [23]. A large perception of fear, despair, and death has been spread worldwide. The unknown consequences, symptoms, and condition of the virus, the lack of a vaccine, and the collapse of the economic system, which is leading to a worldwide recession, are causing fear among society since we are facing the most serious pandemic of the last hundred years [24]. The dramatic and exponential increase in infections, which could only be approached by drastic decisions such as confinement and quarantine of the entire population, have forced a radical change in citizen lifestyle. Now, the so-called "second wave" is yet to come, thus creating a never-ending nightmare, which irremediably will cause issues at a psychological level of millions of citizens.

3. Herd Immunity or Vaccine as a Solution

The concept of herd immunity refers to the immune ratio between individuals in a population. Applied to a naive community, a certain pathogen will propagate among hosts in an unchecked manner following effective exposure of susceptible hosts to infected individuals. However, if a part of that community has immunity to that exact pathogen, the likelihood of effective contact between infected and susceptible hosts is reduced, since many hosts are immune and, therefore, cannot transmit the pathogen [25]. Therefore, if the fraction of susceptible subjects in that community is too low, the pathogen cannot spread, which will lead to slow-down its prevalence and its incidence curve. Here is where the concept of herd immunity threshold takes place, employing the specific point in which the portion of susceptible individuals falls below it. Above it, the herd immunity will take effect, protecting those susceptible individuals from infection [26]. This concept has marked and consolidated the bases for vaccines and their applications, vaccination programs cost analysis, and the eradication of diseases such as smallpox and infectious diseases such as polio and diphtheria [27].

However, it is essential to contextualize and address from an epidemiological perspective the characteristics of reproduction and expansion of the actual virus. Recent studies have estimated its reproduction range (R0) from 2.2 to 4.71 [28]. These values may vary according to governmental public health measures taken among the different phases of the pandemic, as well as the different methods used to calculate it (e.g., the pandemic growth rate of the curve, serial interval) and the validity of the underlying assumptions, different scenarios, and levels of zoonotic exposure [26]. Based on the dynamics of the relationships established, in the absence of a vaccine, in the protective measures and treatment alternatives, it is logical to assume that at the beginning of the SARS-CoV-2 spread in a native community with random contacts and 0 people recovered nor immune, there will be a rapid growth in infected cases, explaining the high reproduction range number.

Actual Susceptible–Exposed–Infectious–Removed (SEIR) models show that the characteristics of the present pandemic now represent some major challenges to public health, institutions, and governments, related not only to the dynamics of propagation and contagion but also to the great impact on the population (morbidity and lethality). The exponential rise in the number of infected persons demands a volume of health services that exceeds the capacity of health systems, as it has been seen in France, Italy, Spain, the United Kingdom, the United States, and Ecuador, among others [29]. Therefore, it is necessary to design and implement innovative and integrative interventions that without neglecting the study of the immune dynamics, generate the population immunity [26]. Otherwise, if counter measurements are not taken in a non-immune scenario, it would lead to over 7.0 billion infections and 40 million deaths globally for the year 2020 [30]. In this line, another important measure to evaluate the impact of SARS-CoV-2 spread is the overall case fatality rate (CFR). The CFR is the proportion of deaths attributed to a certain disease among all individuals diagnosed with it in a specific period. Regarding the COVID-19 pandemic, its CFR can be between 0.25% and 3.0% of a country's population, numbers difficult to accept [31].

Current mathematical and epidemiological analysis affirms that herd immunity is not the answer to stop the novel SARS-CoV-2 and the COVID-19 pandemic. Although it is the simplest and fastest solution in the absence of a vaccine, and understanding the long process until one is available, the ethical and moral weight is too high to pay. Therefore, pandemic suppression measures are the only viable and safe strategies at the current stage of the COVID-19 pandemic until a vaccine is available. Some major successful examples of mitigation measures are from China and South Korea [32,33], which were able to implement extremely intensive measures, some of them questioning the human and civil rights of their citizens. Among these measures were mandatory and strictly enforced quarantine, huge amounts of resources devoted to contact tracing, electronic surveillance of citizens' movements, etc. Yet, the cultural and interpopulation differences are too great for these measures could be implemented in the western territory. However, to date, the city of Wuhan, the SARS-CoV-2 birthplace, is now one of the safest places on earth and is declared "COVID-19-free" [34].

In between all the chaos and uncertainty, in mid-November, both Pfizer and Moderna [35] laboratories announced that they had the candidates for the virus vaccine. Opening so, a new window of hope, but full of uncertainty and concerns, as follows.

Will it be enough for everybody?—Countries have already purchased the maximum number of doses possible, as so, they are preparing for distribution to the right population target. Under the WHO ACT-Accelerator framework, worldwide, countries will be receiving doses for 3%, then 20% of the population, ultimately scaling up to full coverage [36].

Why am I not getting the vaccine first?—Governments are the ones that decide which are the priority population and risk groups to receive the vaccine. Risk groups will be the main ones to receive it. What we have learned from the SARS-CoV-2 first wave, during the mandatory confinement stage, is that the lack of information and transparency from governments generates tension, discomfort, emotional and psychological instability, and

irritability [37]. Thus, governments need to be strictly clear in their transparency portal, so citizens understand from the very first moment who will receive it and who will not.

Will there be equity among countries?—The COVAX facility is specifically designed to ensure that there is equitable access to vaccines globally [38]. However, for the SARS-CoV-2 vaccine, the demand is huge. Added to that, the normal schedules for vaccination worldwide and its distribution still need to run on time, plus the cold chain necessary to be maintained to preserve the SARS-CoV-2 vaccine may complicate its global distribution.

What are the risks?—Thief, corruption, weaponizing the vaccine, and black-market. Some countries are well-known for their lack of transparency and lacking well-functioning regulatory systems, which can lead to the apparition of falsified vaccines on the black-market, led by a lack of stocks of a certain product as well as the despair of governments. A clear example would be the dubious management of the government of Spain, when they bought three times above the market price Chinese rapid tests, which were fake [39]. This would be devastating for the vaccine, fueling skepticism and disruption, worsening the pandemic, and ultimately costing lives. As so, there is a powerful risk that vaccines may become a weapon with which powerful states attempt to wield geopolitical influence. A clear example would be the Russian Sputnik V vaccine, where the motivation was nationalism and not science since this vaccine was realized before phase 3 vaccine trials.

Any health-related risks? I am not getting vaccinated—Recent studies trying to assess the ratio of vaccination intention among the general population have revealed that there are some major concerns [40]. However, current literature extensively covers vaccine efficacy and safety [41,42]. These concerns could hamper the achievements of the scientific community and its attempts to disseminate the vaccine. Thus, there must be a strong act of education, information, and intervention to increase COVID-19 vaccine compliance rates in the entire population. However, personal autonomy and decision-making are some of the fundamental principles that doctors swear by in their code of ethics. Likewise, it would be an attack against fundamental human rights to force vaccination [43]. Thus, the personal decision should always be prioritized. Even so, it remains to be seen the decision of countries and governments, since, for example, to belong to the army corps of the United States of America, it is mandatory to be vaccinated against some infectious diseases [44]. The same could happen for the general population.

4. Economic Impact of COVID-19

The COVID-19 pandemic outbreak has brought an unprecedented crisis, evolving from a health and social shock to the deepest global economic recession in nearly a century, causing more than double the impact of the 2008 financial crisis [45,46]. The quarantine and self-isolation policies imposed by many countries around the world to contain the spread of cases [47] has led to a halt for many businesses, reducing employment and economic activity worldwide [48,49]. As a result, regions have been affected by significant negative gross domestic product (GDP) growth rates and higher inequality and poverty rates [50] (Figure 1). The International Monetary Fund (IMF) [50] for 2020 forecasts a negative global growth of −3.5%, with a higher drop in real GDP in advanced economies (−4.9%) than in emerging markets and developing economies (−2.4%). Asia will have the first regional recession in almost 60 years. The economies of the United States, the United Kingdom, and Japan are projected to contract −3.4%, −10.0%, and −5.1%, respectively. Likewise, the IMF estimates a −7.2% economic recession in the eurozone, with Spain experiencing the greatest decrease in its real GDP (−11.1%) in the area, followed by Italy (−9.2%) and France (−9.0%). The economic growth of −7.4% is expected in Latin America and the Caribbean. Figure 1 shows the growth rates of real GDP in 2020 for 30 selected economies that account for approximately 83% of the world output, according to IMF estimates.

According to the last World Economic Outlook [51,52], the global economy is showing unprecedented figures in recent history, shrinking by −4.4% this year. The economies of the United States and Europe are projected to contract between −18% and −13%, and the European Commission predicts a −7.8% recession in the eurozone, with Spain experiencing

the greatest decrease in its real GDP (−12.4%) in the area, followed by Italy (−9.9%) and France (−9.4%). The drop in Latin America and the Arab States is estimated at −11.4% and −10.6%, respectively [53].

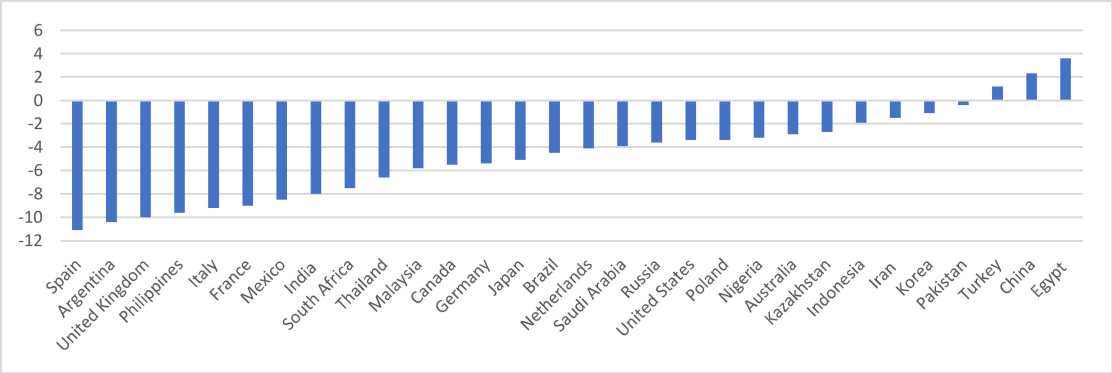

Figure 1. Real GDP growth in selected economies (%). 2020. Source: International Monetary Fund, World Economic Outlook, January 2021 Update.

Additionally, the aid programs allocated during the pandemic by governments to health systems and the most vulnerable economic sectors have caused an increase in public spending and, consequently, a rise in the budget deficit, despite the counter-cyclical effects that in a period of crisis the automatic stabilizers could have on the deficit. This larger budget deficit will entail an increase in public debt that will prove difficult to sustain in the long run, if the level is currently too high. According to the IMF [54] assessments for 2020, gross public debt as a percentage of GDP will reach 101.1% in the eurozone, 108.0% in the United Kingdom, 131.2% in the United States, and 266.2% in Japan. However, the fiscal stimulus should not always be understood as a negative phenomenon for the economy, since according to Keynesian theory, higher public spending increases aggregate demand and, consequently, economic growth.

Worldwide, the economic contraction has led to a catastrophic hit to the global labor market. Millions of people are losing their jobs or facing reductions in their working hours. As many countries adopt strict quarantine policies, most companies have implemented an indefinite hiring freeze and many businesses have been forced to close [53]. The global job losses are estimated to be 495 million in the second quarter of 2020, a considerably larger decline than the 195 million estimated in April for the same quarter [55], reflecting the worsening situation in many parts of the world. According to the last ILO Monitor (2020), 94% of the world's workers are currently facing a workplace closure measure in their countries or a decrease in their working hours (Figure 2). The sectors that have seen the largest increase in unemployment are those that require physical presence at the workplace, like the service sector, where these employees tend to be younger and female [56]. Therefore, the pandemic is also compounding existing inequalities, disproportionately hitting women and the most vulnerable population groups [52].

Global impacts on the economy and job losses disproportionally affect low-skill workers and those already living in disadvantaged conditions, pushing an additional 71 to 100 million people into extreme poverty, reaching 684 million globally [57]. Under a lockdown, people in low-income groups have less ability to work from home, having a higher probability of unemployment and exposure to COVID-19 [51]. This crisis has accelerated the need for using technologies to get essential supplies and receive essential services [48]. For many companies, adopting different forms of e-commerce will be the only option to survive, but the unequal access to technologies will affect communities' ability to deal with the crisis [58]. The education system worldwide is also experiencing the most severe shock in history. In at least 147 countries, schools and universities have moved to learning online. This has affected at least 463 million learners around the globe,

mainly due to a lack of access to the technology needed for learning at home, increasing learning losses and dropouts [59].

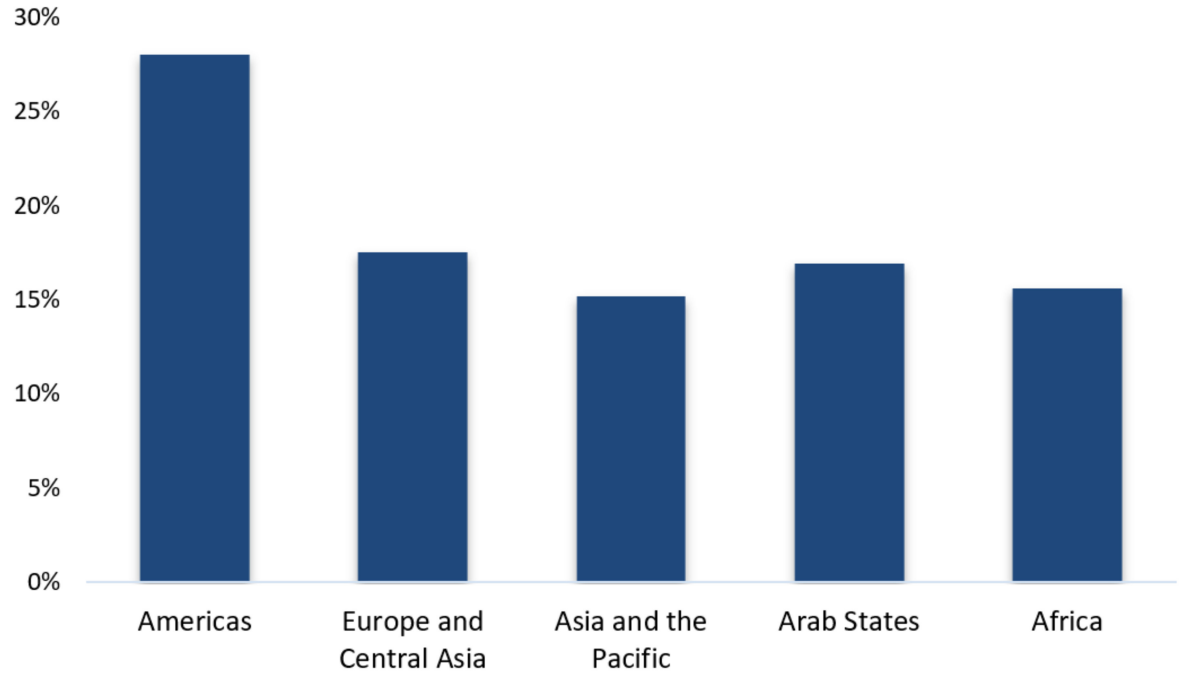

Figure 2. Reduction of working hours, second quarter 2020, by region. Source: Data from ILO Monitor Sixth edition.

In most vulnerable households, income often depends on one person, increasing the risk of the whole household falling into poverty. As for the situation for single parents, 78.4% of whom are women, it is especially difficult if they struggle with work and caring for children when schools are closed [52]. The devastating consequences warranted Human Development to decline worldwide for the first time since 1990, reversing the progress made in reducing global poverty and increasing inequality [60]. In this context, women are facing the crisis' frontline, threatening fragile gains on human rights and gender equality [61]. Globally, women on average do three times as much unpaid care and domestic work as men, a situation that intensifies with school closures [52]. Furthermore, lockdown measures and restrictions affect women's vulnerability since violence and sexual assault have doubled since the outbreak, resulting in a shadow pandemic [48].

5. Social Impact of COVID-19

The global disruption of the COVID-19 pandemic has altered the social, health, and economic life of more than 170 countries, leaving hundreds of millions infected and three million deaths. To scientific knowledge, there are no effective treatments to adequately combat the disease, only the vaccines developed, and a scientific effort unknown as of today could bring us closer to the desired herd immunity [26]. SARS-CoV-2 has revealed many shortcomings promoted by globalization, suggesting the need to review production systems (e.g., deforestation, intensive agriculture and livestock, progressive global warming) that reduce the distance between species, increasing the probability of zoonoses [62]. Hence, massive communities of people [63], social inequalities and economic vulnerability of a very important part of the population, and massive holiday and business trips increase the probability of the rapid spread of new viruses. It does not seem that investment in public health in the most industrialized countries and economic aid to developing countries is sufficient for effective control, and much more rigorous strategies are necessary to achieve joint and effective responses [64]. It is important to program ethical and equitable strategies, and social policies developing care interventions based on high-quality scientific data to minimize their social impact on the most disadvantaged groups.

The total cost of the SARS-CoV-2 pandemic has not been determined yet. Some mathematical models have suggested figures close to 16 trillion dollars destined mainly for health spending, infrastructure, and economic aid for the most vulnerable people [65,66]. Therefore, it should not be tackled solely from microbiology, virology, or public health perspectives. It is also necessary to know how economic markets behave and how society responds if we want to keep future viruses with pandemic potential under control [67]. Some studies have analyzed the reduction of respiratory infections related to the frequent use of masks [68,69], especially in the face of a pathogen with high percentages of asymptomatic or pre-symptomatic patients who retain a remarkable transmission capacity [70,71]. Other studies have focused on the risk of transmission on domestic and international flights and other confined spaces [72,73]. However, if you want to respond adequately, it could be very important to know what aspects of human behavior, such as resistance to comply with public health recommendations, relaxation after confinement, or lack of support for population sectors most vulnerable, are determinants of a pandemic evolution [74,75].

Social distancing in medical care and ageing residences has shown efficacy in controlling transmission [76,77]; however, we know very little about the impact that social isolation, during the different confinements in the most pronounced peaks of local infection by COVID-19, had on the segments of the population of more advanced age [78]. The impact that a sedentary lifestyle and lack of regular moderate–vigorous physical activity will have on the general population, mainly in the middle-aged population, has not been analyzed enough [79]. The lack of this information keeps society in the 21st century away from multifactorial designs that make it possible to face future zoonoses or potential viral mutations with greater effectiveness and solvency. It is necessary to understand that we are facing a scenario on which to build future social intervention strategies because it does not seem that this will be the last virus with pandemic potential that we will have to face in the coming decades [80]. It is necessary to know more to be able to implement effective social intervention programs, for this requires an exhaustive collection of data that allows to recognize and reject the mistakes made and register the most effective actions implemented, especially focusing on three related factors with the spread of the virus during the SARS-CoV-2 pandemic: minority ethnic groups, socio-educational level, and domestic violence.

Some studies have indicated that there is an increased risk of virus transmission and a greater probability of severe and critical symptoms based on ethnicity [81–84]. Even among healthcare personnel, black or Asian doctors and nurses had a higher probability of infection and severe symptoms [85,86]. Hence, it does not seem that economic inequalities and low scientific knowledge in healthcare can explain why some ethnic groups were more affected [74,87], instead it seems that they are characteristics that can be extended to the entire population. Therefore, low educational level, extreme overcrowding at home, low socioeconomic level, and economic inequalities would not explain why some ethnic groups suffered more severe symptomatology of COVID-19 [87–90]. However, social networks have spread hate speech, false or doubtful information, humiliation, and language of social rejection on minority racial groups [91], sometimes based on real social conflicts (e.g., "Black Lives Matter" movements) and other times encouraged through false profiles with the sole objective of generating greater inequalities and promoting xenophobia [92]. Coping with strategies to control racist discourse through the Internet whilst respecting the right to freedom of speech is necessary, being the responsibility of the entire society to act against any type of intentional stigmatization. It is important to point out that the most socioeconomically vulnerable people do not have sufficient political representation in public institutions. Their needs and opinions may not be properly addressed and defended. Unemployment, industries shutdowns, and severe economic difficulties in some families, unprecedented since the Great Depression, represent an insurmountable obstacle if hate speech targets these groups. It could be necessary to find direct support and specialized monitoring by social services and better legislative action to avoid it [92,93].

Social isolation is not only a problem of public health aggravated during preventive confinement. In uncertain situations or social crises, interpersonal violence increases [94]. The fight against the virus has had negative social consequences that have been linked to violence in the domestic environment [95]. Economic insecurity and lack of resources is an inherent stressor in many of the reactive and disruptive behaviors [96]. The burdens of household work (e.g., education and childcare) and other unpaid chores have mainly been an added effort to the working hours of the female gender. In addition, the loss of jobs during the pandemic have increased tension and stress within the family environment [97], increasing the risk of gender violence and child abuse. Recent studies have suggested an increase in hospital admissions for head trauma due to physical abuse in minors [98] and worse mental health in adolescents [99]. We must not forget that negative experiences lived during childhood and adolescence have an impact on mental health, especially in young people with low economic resources [100]. As has been suggested, fear and uncertainty increase the polarization of different types of domestic violence, including a higher incidence of suicides [48].

We are facing one of the greatest challenges of social intervention, which requires fast, effective, and well-coordinated responses from public institutions, the private sector, and non-governmental organizations, to serve a population increasingly hopeless and with increasingly urgent needs [101]. Long-term legislation is necessary to help reduce the vulnerability of the less fortunate, such as intervention programs that mitigate the difficulty of access to housing [102,103]. The lower socioeconomic level is susceptible to a higher risk of infection, serious illness, and mortality from COVID-19. They are the most sensitive group and, therefore, this group should also be the ones that receive more precise intervention policies. Financial aid programs could reduce the economic recovery timing of the most vulnerable families from 11.8 to 6.7 months [101]. The study of the impact of the SARS-CoV-2 pandemic should not be limited to the biomedical field. Knowing how society responds, how social organizations manage available resources, and the socioeconomic costs of social distancing could be essential to improve intervention plans before the appearance of new viruses with pandemic potential appear. An in-depth analysis, leaving aside political rivalries, could detect the structural problems that have exacerbated social needs and hampered economic recovery. There are many gaps in the data transmitted by some countries regarding care and social intervention, suggesting the need for greater institutional and political transparency if we want to find effective programs to minimize social and economic costs to future viral challenges.

6. Public Health Institutions Interventions

The COVID-19 pandemic has put health systems around the world to the test as never seen before in the history of mankind [103]. The infection has forced institutions to make decisions based on public health, analyzing the relationship between diseases at an individual level and how to reinforce the concept for collective protection with quarantine, which is a notably individual measure.

In addition to the implications for health and loss of millions of lives, the educational system has been disrupted, causing millions of people—mainly scholars and university students—to cease their education. It has changed social life with closures, curfews, and other strict measures, aiming to contain the virus globally. Additionally, this novel situation is happening in the context of the implementation of the Agenda 2030 for Sustainable Development [104], where public health employees are shown to be critical [4].

The pandemic has brought a lot of questions about the forms of social and economic organization that many countries have adopted in the last 40 years. This affects all operation levels in every state, from the health systems' structure to the individual freedom in each country. The largest and most disabling pandemic in the last 500 years (since the bubonic plague, not even the Spanish flu) has put self-care, hospital capabilities, and governments' reactions to the test. Public health is now at the top of their priorities, now including epidemiology as a high-need discipline.

Among the working lines which can contribute to countries' decision-making about the COVID-19 pandemic, as well as new diseases, including epidemic viral-like coronavirus, literature highlighted the following.

- The adoption of a public health surveillance system for early detection and rapid response. Using an infectious disease model, the prevention of infection involves identifying the individual carrier of the virus to prevent others from getting infected, thus breaking the infection chain. In the case of coronavirus, since there is no treatment or vaccine available yet, the previous premise is crucial [26]. This strategy requires a strong surveillance capacity to be able to detect early cases and to be able to implement preventive measures. However, in most developing countries, epidemiological and laboratory capacity remain weak and need to be urgently strengthened. In Latin American countries, such as Colombia, there is a general shortage of trained human resources who can track the infection, and most of them depend on unstable job contracts or they are owed weeks and even months of wages [105]. This situation needs to change urgently, and the role of public health workers must be recognized [103].
- Risk communication and community participation. The role of the media is essential to ensure that public health measures are implemented effectively, and that people follow the advice provided by the government. This includes regular communication to the public of credible and evidence-based information through daily press conferences about the latest situation updates, associated risks, and actions taken. Risk communication is a key aspect for shaping the course of an pandemic and empowering people to make the right decisions. To encourage protective behavior, individuals need information that is appropriate, accurate, and easy to understand. This can help to limit the spread of misinformation causing panic or hysteria. It is essential to have a comprehensive risk communication strategy that is ethical and useful in the local context [106]. This strategy should be developed in collaboration with social scientists and experts in risk communication. The psychological impact of the pandemic has also been studied [107]. An effective strategy must also address this problem. Both local and national rulers should be responsible and be aware that their opinions outside scientific knowledge can lead to misinformation for the citizens [107,108].
- Protecting vulnerable groups in society. There is currently evidence that the disease affects all age groups but is disproportionately severe among older people and those with underlying conditions, such as hypertension, cardiovascular diseases, and diabetes. Therefore, there is a clear message that the elderly and people with underlying comorbidities must be protected in society and the family environment, so they are not exposed. Geriatric centers must be actively tracked for both the elderly and workers, and medical treatment must be guaranteed if needed.
- Implementation of incentives for research, technological innovation, and development of appropriate health technologies for COVID-19 (medical equipment, respirators, reagents, protective equipment, etc.), promoting cooperation between countries.
- Search information for the diagnosis, surveillance, and prevention of COVID-19. Identifying those that are based on scientific evidence, which can support and feed the processes of policymaking and decision making, and dismissing false information for the general population.
- Mobilization of public health institutions networks for the organization of shared research, human resources training, and technical assistance-cooperation appropriate for the situation.
- Professionalization of health professionals and epidemiologists under direct contracting schemes with official public health entities and not through outsourcing with hospitals and contact tracing centers.
- Strengthen laboratory testing capacity, biosafety protection awareness, and technical training, and carry out health education and publicity, as well as communication of risks to citizens [109].

7. Economic-Financial and Labor Outlook after COVID-19

The efforts to contain the coronavirus outbreak are essential not only to protect lives but to prevent a possible collapse of health services. While strictly necessary, these measures have caused production interruptions and plummeting demand for many goods and services, forcing companies around the world to suspend or reduce their operations, with huge impacts on workers and the economy. According to the International Labor Organization (ILO), the total or partial closure measures of businesses have affected almost 2.7 billion workers, representing around 80% of the world's workforce [110]. In countries with high employment precariousness (mainly Asia and Latin America), informal workers, excluded from social protection services, were forced to make a tough and tragic decision: disobey the rules of the legal imposition of quarantine and social restrictions to be able to work and earn a salary, exposing themselves and others to the virus, or obey the measures of suppression, remaining in social isolation, and starve [111].

In general, 6% of working hours have been decreased on average for the second half of 2020, which is equivalent to 195 million hours of full-time workers [112]. In this line, businesses related to tourism, hospitality, food service, retail, and manufacturing sectors have been hit especially hard, and a large portion of their workforce is still vulnerable to layoffs regardless of the level of closure at their jobs. The domino effect of rising unemployment is exacerbating the strain on country economies and is expected to lead to a global recession [113]. Authors believe that the recession will have an impact on the GPD, ranging from 3% to 6% depending on the country, with a median decline in 2020 of −2.8%, and in certain scenarios, a fall of more than 10–15% [114].

Therefore, labor policies and programs have been of vital importance at the time of sustaining the great fall of the financial, economic, and labor markets. Labor market policies and programs, often delivered through public employment services, have been instrumental in reducing layoffs, preserving jobs, facilitating employment in essential products and services, and maintaining people connected to the labor market, including disadvantaged workers in the informal sector [115]. However, regardless of these short-term measures, a long-lasting impact in the job market is expected, making it greatly difficult for employers and workers to navigate the labor market in the ensuing recession, particularly in the economies with large informal labor markets [111]. A closer connection between public policy measures to ensure business continuity, active labor market support, and social protection systems can help governments prevent more people from falling into poverty and unemployment. While the emphasis should be on job creation measures, support to businesses of all sizes should be linked to productivity goals, preservation of employment and income, as well as to the reallocation of labor during the recovery [116]. Likewise, there are collectives and risk groups which are faced with a special unfavorable position concerning the labor market in the current pandemic context—women, youth, migrant workers, and older workers. Thus, specific interventions in the labor market and broader access to public employment services are essential to maintain the employability and job readiness of these groups. Thus, inclusive and gender-sensitive approaches can accelerate recovery and foster labor market participation.

Many constraints hinder economic recovery and job creation. Unemployment is one of the most important factors due to its impact on the physical and psychological health of the citizens of a country. Some strategies have been proposed that could mitigate the costs derived from the economic impact of the COVID-19 pandemic. Hensher [117] suggested two options for economic recovery. First, state employment programs are funded through contracting for public works and promoting economic development. Second, a universal basic income that reduces the economic, social, and psychological trauma, with social assistance that allows the most vulnerable families or those at risk of social exclusion to face the expenses necessary to survive. Finland promoted a basic income on 2000 people with good results, and in 2020, Spain approved a basic vital income from which, to date, some 850,000 families have benefited.

The pandemic has left a deep wound in the health of populations and highlighted a series of questions regarding the formal social and economic structure that many countries in the world have adopted for the last 40 years, which has had an influence at all levels, from the structure of health systems to individual freedoms in each of the countries. To date, a series of conclusions can be drawn, highlighting some lines of work, so that in the case of future waves of the virus, or in the extraordinary event of another pandemic, the response and efficiency of the governments stay at their best.

- Adoption of a public health surveillance system for early detection and rapid response.

This strategy requires a strong surveillance capacity to be able to detect all cases early and take preventive measures. However, in most developing countries, epidemiological and laboratory capacity remains weak and needs to be urgently strengthened. In low- and middle-income countries, there is a general shortage of first-line clinical personnel to treat suspected cases of covid19 (doctors, nurses and assistants) and their working conditions are often unstable, they lack basic biosafety equipment (in some countries such as Venezuela has documented the reuse of gloves and face masks among medical personnel) and in some cases they are owed up to months and years of salary (for example in Colombia). [105].

- Risk communication and community participation.

The role of the media is essential to ensure that these public health measures are implemented effectively, and that people follow the advice given by the government. This includes regular communication to the public of credible and evidence-based information through daily press conferences on the latest situation update, trends, associated risks, and actions being taken. Risk communication is a key aspect of shaping the course of a pandemic and empowering people to make the right decisions. To encourage protective behavior, individuals need information that is timely, accurate, and easy to understand. This can help limit the spread of misinformation that would otherwise cause panic or hysteria. It is essential to have a comprehensive risk communication strategy that is ethical and useful in the local context [106]. This strategy should be developed in collaboration with social scientists and experts in risk communication. The psychological impact of pandemic has also been documented [107]. An effective strategy must also address this problem. Both local and national rulers must be responsible and be aware that their opinions outside of scientific knowledge can lead to misinformation of their governed [108].

- Protecting the vulnerable in society.

There is now a consensus that the disease affects all age and condition groups but is disproportionately severe among older people and those with underlying conditions, such as hypertension, cardiovascular disease, and diabetes [26]. Therefore, there is a clear message that the elderly and people with underlying comorbidities must be protected in society and a family environment and not unduly exposed. Geriatric centers must be actively tracked by both the elderly and workers, and the taking of samples, timely delivery of results, and medical treatment must be guaranteed.

- Strengthening of scientific and medical institutions

Adoption of incentives for research, technological innovation, and production of appropriate health technologies for COVID-19 (medical equipment, respirators, reagents, protective equipment, etc.), promoting cooperation between countries, is needed. Regarding human resources, the professionalization of health professionals and epidemiologists under direct contracting schemes with official public health entities and not through outsourcing or indirect contracting schemes with hospitals and contact tracing centers is required to find suspected cases of COVID-19. It is necessary to mobilize the structuring networks of public health institutions for the organization of shared research, training of human resources, and technical assistance-cooperation appropriate to the situation. Additionally, it is important to strengthen laboratory testing capacity, biosafety protection awareness, and technical training, carry out health education and publicity, and communication of risks to citizens.

In a review of the measures and governmental strategies implemented by Europe and Latin America, we can find how in Latin America, before the pandemic, the International Monetary Fund (IMF) had forecast a growth of 1.6% in Latin America. On March 18, when the health emergency had been declared in the Americas, Credit Suisse forecast a 1.5% contraction of gross domestic product for Latin America in 2020, the largest since 2009, when the region contracted by 2%. By the end of 2020, ECLAC estimates a regional recession of −1.8% with various risks of losses and a fall in regional exports of −10.7% [118]. Latin America is the region of the world most economically affected by the COVID-19 outbreak, and before the health crisis it was already experiencing the lowest economic growth in decades, thus a special focus is placed on the economic impact and policies adopted [119]. To face this situation, the countries have adopted different measures to alleviate the economic crisis and job losses in the region: Renegotiation of external debt with international creditors, borrowing with multilateral organizations (such as the World Bank), postponement or reduction of the social security payments by the employer, reduction of personal and business taxes, financing of low interest to companies in productive sectors such as food, medical supplies, personal hygiene products, and essentials, for working capital and/investments and remote work, freezing of basic items in the family basket (for example, food and personal hygiene), subsidies for the unemployed in small and medium-sized companies (SMEs), among others (Table 1).

In Europe, according to the ILO, the percentage of work hours lost during 2020 was 4.1% in the first quarter, 18.1% in the second quarter, and 11.4% in the third trimester. It has been the second most affected region in the world in the first three quarters of 2020, only surpassed by Latin America. The measures taken to face the health and job loss crisis have been consistent in most European countries. On 2 April 2020, the European Commission established the European Instrument for Temporary Support to Mitigate the Risks of Unemployment in an Emergency (SURE), aimed at helping workers maintain their income and companies to support themselves, adapted the European Aid Fund for the Most Disadvantaged to ensure that food supplies can continue to arrive where they are most needed, specific aid to agricultural and fishing workers, and specific aid to management of the public health worth 3 billion euros [120]. So far, the combined response of the European Union (EU) countries has been 3.7 trillion euros distributed in joint measures by the countries, their central banks, and private banks [121]. Table 2 summarizes the measures adopted by countries of the European Union belonging to the OECD. Countries such as Japan have also been included.

Table 1. Detail by country of the economic impact and main policy measures adopted.

Country	Renegotiation of External Debt	Take International Loans with Multilateral Banks	Take Loans to Face Health Situation	Postponement of Social Security Payment by Employers	Financing Essential Sectors of the Economy	Working Capital Loans to SMEs	Refinancing of Mortgage and Consumer Debts to Individuals for Variable Terms	Tax Relief for the Hotel Sector	Approval of Disbursement to Banks by the Central Bank to Finance Personal and Business Loans	Temporary Unemployment Benefit
Brazil	x	x		x	X	x			x	x
Colombia	x	x		x The social security system guarantees the payment of a work disability to the worker infected by COVID-19 and empowers the general population to telework	X	x	x		x	x
Costa Rica			x	x		x			x	x
Dominican Republic						x	x	x	x	x
Ecuador	x	x		x				x	x	
El Salvador							x Refinancing payments for up to 2 years in public services.			
Guatemala		x	x					x	x	
Honduras	x	x	x	x	x	x	x			
México				x	x at 0% interest	x			x	
Panamá							x			x.
Perú				x	x	x				x
Uruguay				x	x	x			x	

Source: OECD Key Policy Actions in the Face of the Coronavirus (COVID-19) in Latin America and the Caribbean: Socio-economic Consequences and Policy Priorities. OECD [54].

Table 2. Summary of social and employment policy measures taken by countries to help workers and companies face the effects of COVID-19.

Country	Confinement Measures	Reducing Worker Exposure to COVID-19 in the Workplace	Financial Aid to Sick Workers and Their Families	Income Support for Quarantined Workers Unable to Work from Home	Income Assistance for People Who Lose Their Jobs or Self-Employment Income	Helps Companies Adjust Working Time to Retain Jobs	Financial Support to Companies Affected by the Drop in Consumer Demand	Changes in the Regulation of Dismissals	Helps Economically Insecure Workers Stay Home
Austria	x	x	x	x	x	x	x		x
Belgium	x	x	x	x	x	x	x		x
Czech Republic	x	x	x	x	x	x	x		x
Denmark	x	x	x	x	x	x	x		x
Estonia	x	x	x	x	x	x	x		x
Finland	x	x	x	x	x	x	x	x	
France	x	x	x	x	x	x	x	x	
Germany	x	x	x	x	x	x	x		x
Greece	x	x			x	x	x	x	x
Hungary	x	x		x	x	x	x		x
Iceland	x		x	x	x	x	x		x
Ireland	x	x	x	x	x	x	x		x
Italy	x	x	x	x	x	x	x	x	x
Japan	x	x	x	x	x	x	x		x
South Korea	x	x	x	x	x	x	x		x
Latvia	x	x	x	x	x	x	x		x
Holland	x	x		x	x	x	x		x
Norway	x		x	x	x	x	x		x
Poland	x	x	x	x	x	x	x		x
Portugal	x		x	x	x	x	x		x
Slovakia	x		x	x	x	x	x	x	x
Spain	x	x	x	x	x	x	x	x	x
Sweden	x	x	x	x	x	x	x		x
United Kingdom	x	x	x	x	x	x	x		x

Source: Policy responses to the COVID-19 crisis. OECD [54].

8. What Can History Teach Us?

Alessandro Manzoni, in his famous book The Betrothed (Italian origin: I promessi sposi) [122] written in 1827, tells in one of his chapters how the protagonist Renzo arrived in Milan at the height of the plague epidemic in 1630. Walking through the streets of an uninhabited and inhospitable city heavily hit by the disease, he finally sees a passer-by whom he approaches to ask him about a street, taking off his hat as a sign of courtesy, while the stranger, frightened because he thought he was an "untore" (those people who according to ancient tradition were believed to transmit this deadly disease), takes out a cane with a sharp iron tip and cries out desperately for the protagonist to leave [123]. Through Manzoni's [123] brilliant description we can understand how the plague and the fear of its spread radically transformed the way people related to each other in the seventeenth century, provoking fear, mistrust, and generally limiting their contacts among a population that was afraid of their peers. Unfortunately, the effects of COVID-19 that have hit our cities has made us live again in a situation very similar to those narrated by the Italian writer.

There is no doubt that infectious diseases have played a fundamental role in shaping our societies throughout history. Diseases and epidemics such as the Black Death, Spanish flu, Cholera, Smallpox, Malaria, Ebola, Human Immunodeficiency Virus infection and Acquired Immune Deficiency Syndrome (HIV/AIDS), SARS, avian flu, and recently COVID-19 have impacted our societies, showing how vulnerable they can be to such threats. Through the study of epidemics, we can analyze how they have affected not only individuals but also have had a direct effect on demographic transformations, economic crises, religions, wars, revolutions, or on the very development of the public health system [123].

To answer the question of what historical analysis of epidemics over the last four centuries can teach us and, consequently, to be able to try to understand and anticipate the possible effects that our society may suffer from the impact of COVID-19, it is first necessary to understand the lessons that the great pandemics that have devastated humanity have taught previous generations. Populations have repeatedly responded to the multiple pandemics of plague by fleeing from cities, abandoning bodies unburied, causing chaos and unrest, or seeking solutions in religion and the help of the deities. However, at the same time, the authorities were also able to implement in some of these cities highly effective measures such as the appointment of powerful public health officials, who developed actions such as periods of confinement (quarantine), and created lazarettos and sanitary cordons.

It has been estimated that the Spanish influenza epidemic (so-called because Spain was the only country not to censor reports of the spreading epidemic) broke out in the summer of 1918 and killed 50 million people worldwide. Unfortunately, most doctors assumed that it would behave similarly to previous flu epidemics and dismissed it as a nuisance. It took a few years for scientists to understand that the flu was not a bacterium but a viral infection [124]. The uninterrupted movement of military personnel during World War One was one of the causes of the rapid spread of the contagion. In contrast, the other great twentieth-century epidemic, HIV/AIDS, has sickened 1,018,428 and killed nearly 583,300 Americans since the 1980s [125].

AIDS is believed to have originated in Africa where monkeys and apes harbored the simian immunodeficiency virus, which could be transmitted to humans, since the 1950s. In the 1980s, the HIV/AIDS epidemic had a devastating impact on the United States because of globalization, invasive modern medical technology (hypodermic needles, blood Banks, and invasive surgical techniques), the effects of homophobia (identification of HIV as a "gay plague"), and because of a prolonged period during which the country's political leaders refused to address the growing public health emergency [126].

The 2002–2003 SARS pandemic became the first major health threat of the twenty-first century. Emerging in China's Guangdong province in November 2002, SARS jumped as a global threat in March 2004 when the World Health Organization (WHO) declared a global travel alert. By July, the disease had been contained, affecting 8098 people, and causing

the death of 774. However, SARS demonstrated the vulnerability of the global system to a respiratory disease capable of spreading from person to person without a vector, it spread easily by air travel, and it had symptoms that closely resemble those of other diseases.

From 1976 to 2014, Ebola appeared in several areas of West and Central Africa, but the impact of the epidemic in the summer of 2014 was particularly devastating, as it moved from the remote forest regions of Central Africa to trigger an epidemic in Sierra Leone and eventually crossed the Atlantic to threaten citizens in Europe or the United States. It is important to note that the economic consequences of this pandemic were profound, hitting the public health systems hard and devastating sectors of great importance to the economy of these African countries, such as tourism, causing high levels of unemployment and poverty, similar effects to those already being suffered in many areas of the planet because of the impact of COVID-19 [127].

The study of these epidemics and pandemics shows how quickly medical knowledge can be nullified by the appearance of new pathogens and how, in the absence of laboratory knowledge and effective vaccines and treatment drugs, such epidemics have an unusual power to cause panic, hysteria, and fear.

Historical analysis of the impact of these diseases has taught us lessons that we have not always been able to remember and keep present in our societies. In a global world such as ours, epidemics are and will become global. Microbes understand no borders and responses to their devastating effects must therefore be global. There is nothing to suggest that new pandemics will not strike in the future. The process of climate change and population growth, together with the increase in social inequalities and the multiplication of the mobility of large masses of the population, are factors that will most probably be at the origin of the next pandemics we will have to face.

History shows us that maintaining a strong public health system makes it possible to reduce the impact of these diseases on our societies. As McMillen has mentioned, if we keep health systems woefully overburdened, the effects of pandemics will be much worse because of the limited possibilities that governments will have to respond adequately [127].

The late-nineteenth century laboratory revolution paved the way for the new era of modern medicine in which we are currently living. Major discoveries in biomedicine, such as those of German bacteriologist Robert Koch and his French counterpart, Louis Pasteur, who in the 1880s proved that tuberculosis was a bacterial infection, have enabled us to develop effective therapies and understand how to prevent infections. For this reason, it is important to strengthen research activities to improve diagnostics, treatment, and prevention, and to improve the understanding of the biology of infectious disease agents. However, it would also be a mistake to think that simply knowing the identity of a pathogen and the etiology of a disease is enough to control an epidemic.

However, at the same time as we are attacking the germs, we also need to improve social conditions, reduce the enormous inequalities that exist on our planet, and fight poverty with the same energy. History has also taught us for centuries that the worse the social conditions, the more devastating the effects of epidemics and pandemics are on these populations.

9. Possible Models of Economic Recovery

The current coronavirus crisis has led to a strong contraction of economies worldwide (explained in Section 3), a crisis derived not only from the public policies of lockdown but also from other protectionist measures designed to mitigate the effects of COVID-19 on health systems that were not prepared for this unexpected situation. This measure resulted in a sudden reduction in sales for businesses, leading to the destruction of jobs, as well as increased inequality and poverty.

Along with fiscal policy measures approved by governments to reduce the negative impact of the coronavirus pandemic on economic activity, central banks in advanced economies have responded quickly to the crisis, injecting liquidity into money markets and buying bonds to preserve both financial stability and effective transmission of monetary

policy [54,127–136]. For example, the European Central Bank [137] decided to temporarily launch the Pandemic Emergency Purchase Program (PEPP).

In the Euro Area (EA), the effects of the economic shocks derived from the crisis have not been symmetrical for all Member States, with Spain, Italy, and France being the most affected. The position of these countries at the beginning of the pandemic was quite weak, with very high public debt and with clear signs of not having fully recovered from the previous EA sovereign debt crisis. To recover, they should redesign their economic growth model, focusing on sustainability and digitization, in line with the trading model proposed by the European Commission [138]. This new sustainable economic model could boost growth, within a new international economic order.

As a result of the massive administration of effective vaccines against COVID-19, once the population is immunized, lockdowns and restrictions will be reduced, and stability and return to normality will be back. Thus, companies will regain confidence in their long-term business projects, laying the foundations for increased dynamics of economic growth, an economic order which will be based on the reopening of economies, the reactivation of international trade, and the deceleration of the process of deglobalization, that has already begun.

However, there is great uncertainty about the true nature of the change that will take place until that new international order is reached. Gruszczynski [129] argues that, once the pandemic is over, there could be a structural change in the process of economic globalization, whereas Altig et al. [130] highlight that, owing to the great uncertainty generated by the crisis, rapid economic recovery cannot be expected.

On the other hand, the COVID-19 crisis could act as a catalyst for changes in policies, both in the short and long term [131], as it has made governments and institutions react and become aware of the need for a structural change in their growth models along various dimensions: economic, social, and environmental. At the Online Ministerial Meeting that took place on 3 September 2020, between some of the ministers and high-level officials of the signatory Parties to the United Nations Framework Convention on Climate Change (UNFCCC) and the European Commission on behalf of the European Union (EU), an agreement was reached to implement a recovery plan based on various measures: short-term emergency measures to face the most immediate shocks of the pandemic, medium-term socio-economic measures to focus on the environment, and long-term measures to redesign a more sustainable and more resilient economic system. In this line, Japan plans to promote the use of renewable energies and digital governance in greenhouse gas emissions management, whereas the United Kingdom aims to strengthen both its industry while respecting the environment, and the construction sector through technological innovation, taking into consideration digitization, as well as energy transition measures [139].

In the United States, after the November 2020 elections, the president-elect has announced an economic recovery plan based on investments in research and development, technological innovation, renewable energy, and electric vehicles, amongst other investments. In the EU, the Recovery Plan for Europe, adopted in July 2020 by the European Council [140], is based on the measures presented by the European Commission a month before, and its financing will be articulated through the "2021–2027 Multiannual Financial Framework" and the "Next Generation EU", an instrument which will be linked to the European Semester. This recovery instrument will be financed with funds (750 billion euros in 2018 prices) raised on the capital markets through bonds issued by the Commission on behalf of the Union.

These funds will be allocated to Member States (390 billion euros in grants and 360 billion euros in loans, in 2018 prices) to finance: the necessary investments and reforms to deal with the crisis (672.5 billion euros managed through the "Recovery and Resilience Facility"), the relaunch of the economy through incentives for private investment, and the creation of a new EU4Health prevention program based on the lessons of the crisis. The requirement for the Member States to be able to access this funding is that they present a national recovery plan. Furthermore, the European Commission [138] has identified the

priority of investing in job creation and protection, as well as in sustainability to achieve a fairer, greener, and more digital Europe. Digitization should be promoted in all areas of the economy and society to ensure that in the coming years, recovery is fairer and more socially inclusive. As a growth strategy, the Commission highlights the "European Green Deal", which aims to make the economy of the EU Member States sustainable through measures that turn climate and environmental challenges into opportunities [141].

This more sustainable model could be developed within the framework of the circular economy, introduced by the EU some years ago. Going one step further, the European Commission [138] has recently proposed a new action plan for the circular economy, that aims to promote an even more sustainable economic growth model in the EU. The transition towards a circular economy involves a paradigm shift, insofar as it allows more efficient use of resources, besides respecting and caring for the environment to a greater extent than in the traditional linear economy. The objective of this new plan is to achieve sustainable development in its three dimensions, economic, social, and environmental, in line with the concept of sustainability of Korhonen, Honkasalo, and Seppälä [133]. Finally, it should be noted that some recent studies have analyzed possible models for economic recovery. Thus, using the "computable general equilibrium model", Lahcen et al. [134] argue that a good strategy for economic recovery could be based on energy efficiency measures in the construction sector through public subsidies. However, this model has its limitations, since the study was developed for a small open economy, as it is in the case of Belgium.

10. Conclusions

SARS-CoV-2 has a strong direct acute impact on population health, not only at the physiological level but also at the psychological level for those who suffer it, those close to them, and the general population, who suffer the social consequences of the pandemic. In this line, the economic recession increased, even more so, the social pressure. At the social level, the economic impact hit the most vulnerable families, creating a difficult context for public institutions to address. We are facing one of the greatest challenges of social intervention, which requires fast, effective, and well-coordinated responses from public institutions, the private sector, and non-governmental organizations to serve an increasingly hopeless population with increasingly urgent needs. Long-term legislation is necessary to reduce the vulnerability of the less fortunate, as well as to analyze the societal response to improve the social organization management of available resources.

A possible line of future research in relation to the economic recovery model proposed by the European Union during the pandemic could consist of a comparative analysis of the results obtained by the Member States. This analysis of results could be statistically contrasted, through a panel data model, according to the degree of compliance with the recovery plans submitted by the Member States and the funding received from the European Union. In addition, the impact of COVID-19 pandemic on mental health population must be consider since it would also affect the social, health and economy worldwide [142–144].

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Gestión de políticas de sostenibilidad en organizaciones académicas: El caso de la Universidad de Extremadura

Rafael Robina-Ramírez
Universidad de Extremadura
rrobina@unex.es

Libertad Moreno Luna
Universidad de Extremadura
limorenol@alumnos.unex.es

Resumen: *El objetivo de esta investigación es conocer las actuales políticas de sostenibilidad en la Universidad y proponer un nuevo modelo que contribuya a aumentar la conciencia medioambiental de los alumnos de la universidad las áreas de economía y empresa. Para desarrollar la conciencia medioambiental entre estudiantes (DCM) se han determinado 3 factores a partir de un proceso de análisis y validación de variables entre estudiantes universitarios. Estos factores son: la Formación de profesores en sostenibilidad (FPS), actividades de concienciación medioambiental (ACM) e incorporación de competencias medioambientales transversales (CMT). La metodología aplicada para analizar el modelo estructural fue el Modelo de Ecuación Estructural (SEM) a través del paquete informático SmartPls-3. La muestra estaba formada por 420 estudiantes pertenecientes a las Facultades de Económicas y la Facultad de Empresa, Finanzas y Turismo de la Universidad de Extremadura. Los resultados de la encuesta arrojan datos que justifican la introducción de políticas de sostenibilidad en la Universidad tanto a nivel profesorado como alumno. Dichas políticas deberían resaltar la importancia de dotar de contenido a la competencia transversal dirigida a la protección medioambiental entre los futuros empresarios de nuestro país.*

Palabras clave: *sostenibilidad; estudiantes; Universidad; empresas; Extremadura*

Abstract: *The aim of this research is to study the management of sustainability policies in the University of Extremadura and to identify the most important factors in developing the environmental awareness of students of business, finance, economics and tourism. Three factors have been analyzed within the framework of sustainability policies in the academic field: teacher training, environmental awareness activities and transversal environmental competences. The methodology used was the Structural Equation Model of the SmartPls-3 software package. The sample consisted of 420 students belonging to the Faculties of Economics, Business, Finance and Tourism of the Universidad de Extremadura. The survey found that selected constructs influenced the main objective of the University's sustainability policies, which is to increase environmental awareness among its students. The study particularly highlights the importance of the transversal competence, which seeks to promote environmental protection among future entrepreneurs in Spain.*

Keywords: *Sustainability; students; University; companies; Extremadura*

1. Introducción

De acuerdo con la UNESCO (2010) la era industrial moderna es responsable de la contaminación ambiental de la superficie y la atmósfera de la Tierra. Esta devastadora transformación contribuye a una creciente escasez de agua y recursos en el planeta (ONU, 2018), llegando a hoy en día a ser un problema prioritario (UNESCO, 2015).

El énfasis de las organizaciones internacionales sobre el deterioro medioambiental (ONU, 2015) ha provocado, entre otras medidas, que el sector empresarial y académico se hayan unido en la búsqueda de soluciones el insostenible modelo de producción y consumo actual (AACSB International, 2015). Este modelo devastador de desarrollo económico y medioambiental ha conducido a una situación crítica de la que no será fácil salir (Colín, 2003).

Como contrapartida, se han propuesto medidas de desarrollo sostenible tanto por parte de académicos y responsables de la formulación de políticas (UN, 2012; Beland Lindahl, 2016; Ull, *et alii*, 2010; Robina, 2016) desde la perspectiva ambiental, económica y social (Giddings *et alii*, 2002). La educación ha sido uno de los elementos clave para mejorar dicho desarrollo sostenible (Vare y Scott, 2007).

En el ámbito educativo, el desarrollo sostenible se ha identificado como la preservación de los recursos naturales (perspectiva ambiental) en cooperación con las comunidades que residen alrededor de dichos recursos (perspectiva socioeconómica) (Rauch, 2002; Giddings *et alii*, 2002; Ramírez, Seeliger y Di Prieto, 2016). Sin embargo, todavía no se han encontrado evidencias sobre el papel transformador de la educación medioambiental entre aquellas comunidades, especialmente entre las generaciones futuras (Cicmil, Ecclestone y Collins, 2007).

El cambio hacia un consumo más sostenible sólo puede lograrse a través de un trabajo educativo continuo, tanto en las escuelas y universidades como en las empresas (Colín, 2003; Landrum y Edwards, 2011; UNESCO, 1997; Zealand, 2004; Robina, Merodio y McCallum, 2020) y esto requiere mejoras significativas en la forma en que pensamos y actuamos (UNESCO, 2014). Esta actitud responsable hacia el medioambiente se ha introducido en el ámbito académico con el objetivo de lograr una sociedad medioambientalmente sostenible (UNECE, 2005; UNESCO, 2005, 2010, 2014).

El ámbito de la universidad, donde se promueve la investigación y el desarrollo de la cultura (Aznar *et alii*, 2014) la enseñanza de valores medioambientales y actitudes en defensa de la naturaleza es de vital importancia (Cincera y Krajhanzl, 2013).

Las experiencias en ámbitos educativos basadas en planes de estudio y en la mejora del conocimiento medioambiental entre estudiantes ha tenido un efecto limitado en la transformación de las actitudes de los estudiantes (Olsson *et alii*, 2016; Boeve-de Pauw y Van Petegem, 2011, People and Work Unit, 2007; Robina-Ramírez y Medina-Merodio, 2019). En concreto, en las facultades de empresa y finanzas la educación medioambiental no ha conseguido integrar todavía la sostenibilidad en los programas de estudio universitarios (Hart, 2009; Landrum y Edwards, 2011).

Sin embargo, solo en algunos países desarrollados con alta conciencia del daño de la falta de concienciación sostenible han comenzado a apostar por un sistema educativo en el que se incluyen materias relacionadas con el respeto al medio ambiente (Tilbury, 2011).

Con el objetivo de introducir nuevas políticas de sostenibilidad en la Universidad en las áreas de economía y empresa el estudio pretende responder a la pregunta: ¿qué factores educativos permiten mejorar las actitudes de los estudiantes universitarios hacia el medioambiente?

La novedad del artículo se centra en la propuesta un modelo de desarrollo de la concienciación medioambiental entre estudiantes universitarios como guía de las políticas de sostenibilidad en la Universidad. A partir de la metodología SEM-PLS diversas relaciones de causalidad entre variables han sido propuestas con implicaciones teóricas y prácticas tanto para la investigación explicativa (confirmatoria) como para la predictiva (exploratoria) de fenómenos sociales como la enseñanza de sostenibilidad (Henseler, Hubona y Ray, 2016; Hair *et alii*, 2017).

2. La enseñanza de sostenibilidad ambiental en las Universidades

En las últimas décadas, la enseñanza de sostenibilidad en España ha sido escasa, más basada en la conservación de los recursos naturales para protegerlos del agresivo crecimiento económico en las últimas décadas (Gutiérrez, Benayas y Calvo, 2006). Así lo recoge expresamente el *Libro blanco de la educación ambiental en España* (Calvo y Corrales, 1999, p. 23) expresando la necesidad de un cambio en la mentalidad de los productores y empresarios que gestionan dichos recursos.

Este lento proceso de cambio de la conservación y protección hacia la enseñanza del desarrollo sostenible pretende integrar el desarrollo sostenible en todo el sistema educativo universitario (UNESCO, 2014).

A consecuencia de este cambio de mentalidad un escaso número de universidades empezaron a embarcarse en adoptar un comportamiento más responsable

(Waas *et alii*, 2010) firmando declaraciones nacionales e internacionales en defensa de prácticas sostenibles a través de la docencia, investigación y divulgación (Lozano *et alii*, 2013; Wright, 2002, 2004; Waas *et alii*, 2010). En el ámbito universitario, e aumento en la concienciación medioambiental podía venir introducido a través de tres pilares básicos: docencia, la investigación y la vida universitaria Capdevila (1999) o bien en la mejora de la gestión de los aspectos ambientales en los edificios y en el campus, gestión y minimización de residuos, movilidad y transporte o también a través de una cuidada comunicación y sensibilización ambiental (Solís, 2008).

En España, debido al diferente posicionamiento ante la sostenibilidad medioambiental por parte de diversas universidades (Alba *et alii*, 2012) la Asamblea de la Conferencia de Rectores de las Universidades Españolas (CRUE) aprobó por unanimidad en 2002 la creación del "Grupo de Trabajo de la CRUE sobre la Calidad Ambiental y el Desarrollo Sostenible" (CRUE, Valladolid, 2005) cuyo principal propósito fue la sensibilización ambiental en las universidades (Geli, 2002).

Esta sensibilización consiste en involucrar a la comunidad universitaria y plantear estrategias y campañas ambientales a todos los niveles de la institución con escasos resultados hasta la fecha (Alfie, 2003; Dagiliūtė, 2018).

Una de las principales estrategias ha sido la introducción de la enseñanza medioambiental como competencias transversales en la Universidad.

2.1 La introducción de la sostenibilidad entre las competencias transversales influye positivamente en el aumento de la conciencia medioambiental entre los alumnos

El de 29 octubre (BOE, 2007) por el que se establece la ordenación de las enseñanzas universitarias oficiales en su preámbulo menciona que "los planes de estudios conducentes a la obtención de un título deberán, por tanto, tener en el centro de sus objetivos la adquisición de competencias por parte de los estudiantes".

Desde las perspectivas de los empresarios, las competencias son entendidas como el eje de la política de selección entre los nuevos aspirantes (Delors, 1996). De este modo, la calificación se combina con la capacitación mediante competencias aprehendidas. Las empresas demandan así no solo conocimientos técnicos-profesionales, sino también competencias que llevan a saber hacer y ser (Zarifian, 1999).

De esta forma, el actual sistema de competencias transversales permitiría introducir la sostenibilidad en cada una de las asignaturas de los planes de estudio mediante la aplicación de metodologías, técnicas y recursos pertinentes (Aznar *et*

alii, 2014; Martínez *et alii*, 2007). Así, el Real Decreto 1393/2007, seguidamente se afirma que "se debe tener en cuenta que la formación en cualquier actividad profesional debe contribuir a la protección medioambiental" ya sea a nivel individual o como empresa (Robina-Ramírez, *et alii*, 2019).

Esta regulación gubernamental permite introducir la cultura de la sostenibilidad en las aulas y en la investigación. De este modo, la enseñanza de la sostenibilidad pasaría a ser uno de los principales desafíos y retos a promover en las universidades (Cebrián *et alii*, 2014; Hidalgo *et alii*, 2012). Al fin y al cabo, la universidad desempeña un papel fundamental en la labor educativa y en la trasmisión de valores (Ferrer, 2004; Robina Ramírez y Suárez, 2019) y actualmente, dada la amenaza de agotamiento de recursos naturales, la sostenibilidad se ha convertido en un valor en alza a proteger (Alfie, 2003).

Las competencias educativas en el área medio ambiental realizan una doble función entre los estudiantes. De un lado, permite adquirir unas actitudes que relacionen la naturaleza con la sociedad, y de otro proporciona una capacidad holística de la complejidad que supone relacionar el mundo del trabajo y el mundo natural, la ética pública y la ética personal, la producción y respeto al medio ambiente (Mora Penagos, 2011).

Para relacionar el medioambiente con la dimensión social, laboral y empresarial algunos estudios han identificado diferentes perspectivas de competencias medio ambientales en diseños curriculares y planes de estudios. Entre ellas la resolución de problemas medioambientales, la visión científica del medio ambiente, y la relacional medio ambiente-ciudadanía (Vicent y Focht, 2009). A tenor de lo expresado se plantea testar las dos siguientes hipótesis:

H_1. La introducción de competencias medioambientales transversales influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

H_2. La introducción de competencias medioambientales transversales influye positivamente en la formación del profesorado de la universidad.

2.2 La formación de profesores en desarrollo sostenible influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

En el proceso de involucrar a la comunidad universitaria el profesorado juega un papel esencial como responsables de la educación de los alumnos en las universidades (Alba, 2007). Sin unos profesores bien formados medioambientalmente sería complicado sensibilizar a los alumnos en una conciencia de respeto a la naturaleza (Holmberg and Samuelsson, 2006).

El reto es, por tanto, integrar la sostenibilidad no solo en la enseñanza regular de los alumnos e investigación, sino también en las operaciones propias a realizar en los campus universitarios, es decir entre los gestores de la propia universidad (Lozano, 2013; Dagiliūtė *et alii*, 2018).

Para ello es necesario aportar una visión estratégica en materia de educación para el desarrollo sostenible (Cebrián *et alii*, 2014), tanto en la conexión de la sostenibilidad con las diferentes materias a impartir como en el plan de formación que reciben los profesores (Vilches y Gil, 2007).

Este plan estratégico requiere proporcionar los recursos financieros necesarios para integrar la educación sobre la sostenibilidad en los planes docentes y de investigación (Cebrián *et alii*, 2014) en un contexto de respeto de su libertad académica para enseñar e investigar en temas relacionados con la sostenibilidad (Cebrián *et alii*, 2014).

Este proceso de liderazgo en la universidad debe estar acompañado también por la asignación adecuada de responsabilidades y recompensas entre los profesores (Vilches y Gil, 2012). El sistema de incentivos permite a los docentes responder a las necesidades cambiantes de la sociedad (Lozano, 2006). A modo de ejemplo, Aznar *et alii* (2014) propone ítems pertinentes en los cuestionarios de evaluación de la docencia, como sistemas gratificantes que reconozcan y recompensen las buenas prácticas en sostenibilidad (Aznar, 2014).

Estos sistemas de incentivos permitirían adaptar las tradicionales metodologías de docencias muy distanciadas de la cultura sostenible (Vilches y Gil, 2012) ausentes durante décadas en los procesos de formación de muchos docentes (Macarrón, 2012). Esta estrecha relación entre la formación del profesorado y el desarrollo de la conciencia medioambiental entre los estudiantes de la universidad nos lleva a plantear la siguiente hipótesis.

H_3. La formación medioambiental del profesorado influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

2.3 La incorporación de actividades paralelas sobre concienciación medio ambiental influirá positivamente en el aumento de la conciencia medioambiental entre los estudiantes

Parte de la misión de la universidad es formar individuos conscientes, responsables y con una actitud positiva de cambio frente al medio ambiente (Alfie, 2003). Motivo por el cual comprender cómo valoran los estudiantes las políticas y enseñanzas medioambientales sirve como indicador para medir la participación y

actitud de los estudiantes en las posibles iniciativas de sostenibilidad (Nejati y Nejati, 2013).

Hasta la fecha encontramos diferentes estudios que han explorado las percepciones de los estudiantes sobre las medidas de sostenibilidad emprendidas en la Universidad (Nejati y Nejati, 2013; Larrán *et alii*, 2018; Alonso-Almeida *et alii*, 2015).

Entre esos estudios Alonso-Almeida *et alii* (2015) afirma que los alumnos universitarios españoles tienen una alta percepción sobre temas de sostenibilidad. Esta alta percepción medioambiental contrasta con una escasa formación sobre la defensa de recursos naturales y protección del medio ambiente impartida en las universidades (Dagiliūtė *et alii*, 2018; Martínez, 2008). Es por ello por lo que Martínez (2008) destaca el elevado gap existente entre la alta percepción sostenible de los alumnos y su baja participación en iniciativas medioambientales y sostenibles.

Para ello es interesante conocer cuáles son los factores relevantes que permitirán aumentar el índice de participación en actividades medio ambientales de los estudiantes con el objetivo de introducir las mejoras necesarias en el sistema educativo (Seto-Pamies, 2016). A partir de ahí será necesario formular y adaptar planes de estudios adecuados para influir de manera correcta en los estudiantes y en sus actuaciones en materia de sostenibilidad (Dagiliūtė *et alii*, 2018).

Algunos ejemplos pueden ser campañas de concienciación, ciclos de conferencias, cine, teatro, exposiciones, actividades promovidas por los equipos de dirección de los centros o mejor aún, por las asociaciones de estudiantes concienciados de la importancia del respeto hacia el medio ambiente en cada una de las actividades que desarrollan (Solís, 2008).

Entre las iniciativas que los alumnos sugieren para aumentar la conciencia medioambiental y participación podemos citar algunas como invitar a expertos y líderes en sostenibilidad para explicar la importancia del respeto al medio, así como la incorporación de casos prácticos en las diversas asignaturas (Pamies, 2016).

Especialmente importante es el desarrollo de la conciencia medioambiental en las áreas de empresa y finanzas de la Universidad (Robina Ramírez y Palos-Sánchez, 2018b). La futura actividad empresarial en la mayoría de los casos está abocada a un impacto negativo en el medio ambiente. En estos casos, la toma decisiones en las empresas debe ir conectada al respeto al medio ambiente (Matten y Moon, 2004). En este sentido, como señalan Jiménez y Aldeanueva (2016), las empresas que incorporan la sostenibilidad al diseñar sus estrategias son valoradas positivamente, por la sociedad, ya que, teóricamente, se trata de organizacio-

nes comprometidas con una administración más justa y eficiente de los recursos que ofrece el planeta.

De ahí la importancia de que los futuros gerentes aprendan a gestionar estos impactos (Jallow 2010; Robina Ramírez y Palos-Sánchez, 2018a; Cornelius *et alii*, 2007; Waples *et alii*, 2009; Kerr y Hart-Steffes, 2012). Después de todo se espera que las universidades se comprometan con las comunidades y beneficien a la sociedad en general (Lukman y Glavic, 2007).

Para evaluar al papel que juegan estas actividades de concienciación medioambiental en el ámbito universitario se pueden formular las siguientes hipótesis:

H_4. La introducción de competencias medioambientales transversales influye positivamente en la organización de actividades universitarias de concienciación medioambiental.

H_5. La organización de actividades de respeto a la naturaleza influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

3. Metodología

3.1. Definición de variables

La tercera sección destaca la metodología de investigación para contextualizar los objetivos del trabajo mediante la definición de las variables, la muestra, las hipótesis del estudio y la propuesta del modelo de estudio.
De acuerdo con la revisión de la literatura del trabajo se eligieron por un grupo de profesores y alumnos diversos constructos para, a partir de ahí, poder definir diversas políticas de sostenibilidad en la Universidad.

Para ello dos "focus groups" fueron organizados para presentar los constructos, así como definir los indicadores. A partir de ahí se fijó en el segundo focus group una metodología de validación de cada uno de los indicadores.

En la primera reunión un grupo de 8 profesores y 12 alumnos debatieron son los indicadores o ítems y los constructos presentados, seleccionados estos a partir de la revisión de la literatura. Los cuatro constructos fueron aprobados. Sin embargo, los indicadores fueron modificados. Dos ítems fueron eliminados y otros dos corregidos para hacerlos más inteligibles a los alumnos.

Los constructos seleccionados fueron cuatro: 1. Desarrollo de la conciencia medioambiental entre estudiantes (DCM). 2. Formación medioambiental del profesorado (FPS). 3. Competencia medioambiental transversal (CMT). 4. Actividades de concienciación medio ambiental (ACM).

Los indicadores relativos a cada uno de los constructos fueron:

1. Desarrollo de la conciencia medioambiental entre estudiantes (DCM): (DCM1) Incidencia de las políticas de sostenibilidad en la conciencia medioambiental de los estudiantes (Cicmil, Ecclestone y Collins, 2007; People and Work Unit, 2007), (DCM2) incidencia de las competencias medioambientales en la conciencia medioambiental de los estudiantes (Cincera y Krajhanzl, 2013; Aznar et al, 2014; AACSB International, 2015), (DCM3) la introducción de asignaturas sobre medioambiente incide en la conciencia medioambiental de los estudiantes (De la Cuesta, 2004; Colín, 2003; Hart, 2009; Landrum y Edwards, 2011).
2. Formación medioambiental del profesorado (FPS). (FPS1) Formación de docentes deberían estar formados en temas de sostenibilidad (Alba, 2007), (FPS2) Concienciación medioambiental a través de las asignaturas impartidas (Holmberg and Samuelsson, 2006), (FPS3) Integridad del profesorado en torno a su conducta medioambiental (Lozano, 2013), (FPS4) Incentivación del respeto del medioambiente entre los alumnos (Dagiliūtė *et alii*, 2018; Aznar, 2014).
3. Competencia medioambiental transversal (CMT). (CTM1) Introducción una cultura de respeto hacia la naturaleza de manera transversal en la Universidad (Cebrián *et alii* 2014; Alfie, 2003), (CTM2) Incidencia de la competencia medioambiental transversal en la futura gestión de empresas (Alfie, 2003; Mora Penagos, 2011), (CTM3) Complemento de los conocimientos teorico-prácticas con las nociones aprendidas en las competencias medioambientales transversales (Vincent y Focht, 2009)
4. Actividades de concienciación medio ambiental (ACM). (ACM1) Análisis de casos prácticos como mecanismo para aumentar el compromiso con el medioambiente (Seto-Pamies, 2016; Dagiliūtė *et alii*, 2018), (ACM2) La incorporación de ciclos de conferencias, cursos, exposiciones contribuye a concienciar medioambientalmente a los estudiantes (Solís, 2008; Pamies, 2016; Matten & Moon, 2004), (ACM3) Actividades de concienciación en la universidad para tomar decisiones responsables sobre el uso de los recursos naturales (Jiménez y Aldeanueva, 2016.)

Con el objetivo era validar cada uno de los ítems así como recoger la opinión de profesores y alumnos en el segundo "focus group" se convocó a un mayor grupo de profesores y alumnos procedente de las diferentes áreas de conocimiento. En total fueron 22 profesores y 64 alumnos. Todos los ítems fueron aprobados por más del 80% de los participantes, superando así la cifra de 70% inicialmente establecida de validación. En la tabla 1 se muestran los porcentajes obtenidos finalmente.

Tabla 1. Validación de los ítems.

Items	Profesores	Alumnos
DCM1	90%	81%
DCM2	91%	83%
DCM3	95%	82%
FPS1	90%	94%
FPS2	91%	93%
FPS3	87%	92%
CTM1	94%	99%
CTM2	93%	95%
CTM3	90%	94%
ACM1	85%	91%
ACM2	86%	90%
ACM3	84%	87%

Los ítems se transformaron en preguntas medidas través de la escala de Likert de diez puntos utilizada para indicar el grado de importancia de los factores, desde 1 ("totalmente en desacuerdo") a 10 ("muy de acuerdo") (Allen, 2007).

3.2 Población y muestra

La población a la que nos dirigimos fue de 1800 estudiantes en la Facultades de Económicas y 1450 en la Facultad de Empresa, Finanzas y Turismo. Para seleccionar el modo de llegar a todos los alumnos se dirigieron dos cartas a los decanos de ambas facultades explicándole el objetivo de la investigación. A partir de ahí se procedió a enviar un correo electrónico a todos los profesores de cada una de las áreas de conocimientos pidiéndoles su colaboración para acceder a sus clases y explicar directamente el objetivo de la investigación. Un 60% de los profesores dela Facultad de Económicas de Badajoz accedió colaborar con el desarrollo de la investigación en sus clases. En el caso de la Facultad de Empresa, Finanzas y Turismo el porcentaje subió al 85%.

Durante la realización de la actividad de investigación los alumnos tenían plena libertad para abandonar la clase. La muestra obtenida fue de 455 estudiantes. Finalmente, 35 cuestionarios no fueron correctamente rellenados por lo que tuvieron que ser eliminados. La muestra definitiva fue de 420 alumnos (ver tabla 2).

Un 55% de los alumnos participantes fueron mujeres. La mayoría de los alumnos (91%) tenían menos de 22 años. El mayor porcentaje de ellos está estu-

diando Administración de la Empresa (35%). Entre el total de participantes un 60% estudia primer y segundo curso.

Los cuestionarios fueron recogidos en dos campus distintos de la Universidad de Extremadura. La participación de los alumnos en la investigación se desarrolló a lo largo del mes febrero y marzo de 2019. Se seleccionó este período de muestreo porque coincide con el comienzo del segundo semestre. Ello facilitó que los alumnos puedan participar sin estar sujetos a las presiones de los exámenes.

Tabla 2. Variables relacionadas con la adscripción de los estudiantes en la Universidad

Información	N=420	Porcentaje (%)
Genero		
Masculino	191	45%
Femenino	229	55%
Total	**420**	**100%**
Edad		
18 años o inferior	139	33%
19-20 años	107	25%
21-22 años	96	23%
Más de 23	78	19%
Total	**420**	**100%**
Titulación		
Administración de Empresas	149	35%
Económicas	124	30%
Finanzas y Contabilidad	85	20%
Turismo	62	20%
Total	**420**	**100%**
Curso		
1º	142	34%
2º	108	26%
3º	92	22%
4º	72	17%
Master	6	1%
Total	**420**	**100%**

3.3 Hipótesis y modelo

Las hipótesis recogidas en la revisión de la literatura se exponen a continuación. Estas se pueden visualizan en el modelo estructural de constructos expresado en la Figura 1.

H_1. La introducción de competencias medioambientales transversales influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

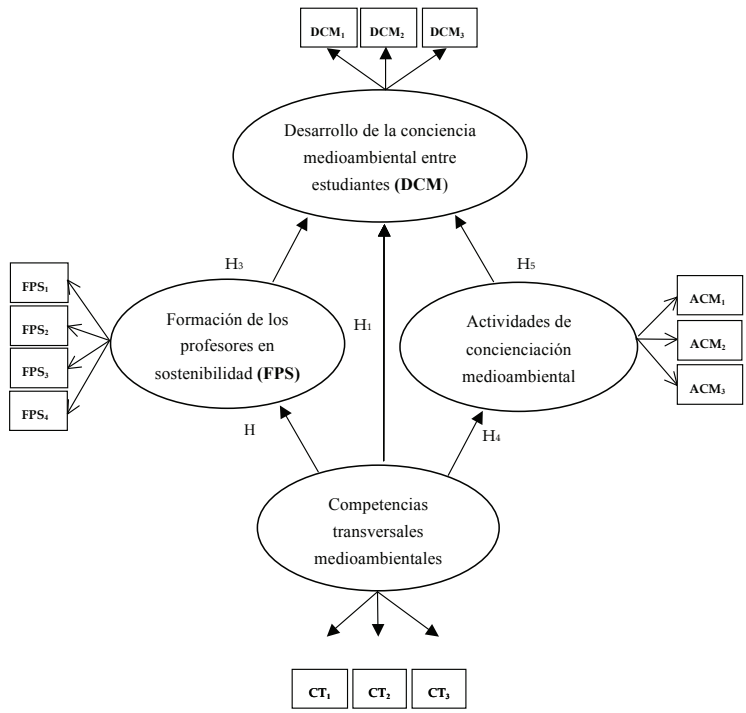
H_2. La introducción de competencias medioambientales transversales influye positivamente en la formación del profesorado de la universidad.

H_3. La formación medioambiental del profesorado influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

H_4. La introducción de competencias medioambientales transversales influye positivamente en la organización de actividades universitarias de concienciación medioambiental.

H_5. La organización de actividades de respeto a la naturaleza influye positivamente en el aumento de la conciencia medioambiental entre los alumnos de la universidad.

Figura 1. Modelo estructural.



Los datos obtenidos a través de los cuestionarios se analizaron utilizando la herramienta informática SmartPLS 3 la cual es especialmente recomendada para modelos compuestos o construcciones (Rigdon, Sarstedt, Ringle, 2017). Esta técnica estadística se aplica cuando los datos se estructuran en una serie de relaciones de dependencia interrelacionadas entre las variables latentes y los indicadores (Sarstedt, Hair, Ringle, Thiele, Gudergan, 2016).

4. Análisis de los resultados

4.1 Resultados del modelo de medida

El enfoque PLS está definido por dos modelos: el modelo de medición y el modelo estructural. Como paso preliminar al análisis del modelo estructural, es necesario analizar la confiabilidad y validez del modelo de medición (Hair *et alii*, 2016). El procedimiento para la evaluación de los modelos de medición de los elementos reflectantes se muestra en la Tabla 5. La confiabilidad se evaluó mediante el examen de cargas individuales o correlaciones simples de las medidas con sus respectivas variables latentes (se aceptó ≥ 0.7). El coeficiente alfa de Cronbach se usó como un índice de confiabilidad de las variables latentes.

Además, se calculó la fiabilidad compuesta. La validez convergente de las variables latentes se evaluó a través de la inspección de la varianza promedio extraída (AVE) (aceptado> 0.5). La validez discriminante de las variables latentes se verificó utilizando el criterio de Fornell-Larcker (Fornell y Bookstein, 1982) al examinar si la raíz cuadrada del valor promedio extraído (AVE) de cada ítem estaba por encima de las correlaciones con las otras variables latentes.

La Tabla 3 también muestra que la raíz cuadrada de la varianza promedio extraída (AVE) para cada construcción es mayor que su correlación más alta con cualquier otra construcción.

Tabla 3. Confiabilidad, validez de los constructos.

Variables	Alfa de Cronbach	rho_A	CR	AVE	Fornell-Larcker Criterion			
					DCM	CT	ACM	FPS
DCM	0.855	0.862	0.856	0.665	0.816			
CT	0.834	0.835	0.835	0.627	0.535	0.792		
ACM	0.852	0.855	0.852	0.657	0.757	0.702	0.811	
FPS	0.853	0.854	0.851	0.589	0.654	0.486	0.753	0.767

* rho_A=Dijkstra-Henseler, Rho_A; CR=Composite Reliability, AVE=Average Variance

Además, según Henseler, Ringle y Sarstedt (2015), se realizó una prueba para demostrar que la falta de validez discriminante se detecta mejor con otra técnica. Esta prueba se llama relación heterotrait-monotrait (HTMT). La Tabla 4 muestra que las relaciones HTMT para cada par de factores fueron <0.90 (Henseler, 2017).

Tabla 4. Heterotrait-Monotrait Ratio (HTMT)

Heterotrait-Monotrait Ratio (HTMT)				
	DCM	CT	ACM	FPS
DCM				
CT	0.536			
ACM	0.755	0.701		
FPS	0.652	0.482	0.749	

4.2 Resultados del modelo estructural

Después de examinar el modelo de medición, se analizaron las relaciones entre las construcciones. Se estudiaron los coeficientes de trayectoria de las hipótesis. Se realizó un programa de inicio de 5000 submuestras para verificar la significación estadística de cada ruta. La varianza explicada (R^2) de las variables latentes endógenas y el valor p de los coeficientes de regresión (prueba t) se utilizaron como indicadores del poder explicativo del modelo (Tabla 5). Los resultados obtenidos nos permitieron aceptar todas las hipótesis, ya que no hubo diferencias estadísticamente significativas en las relaciones entre las variables en nuestro modelo (valor de p> 0.05).

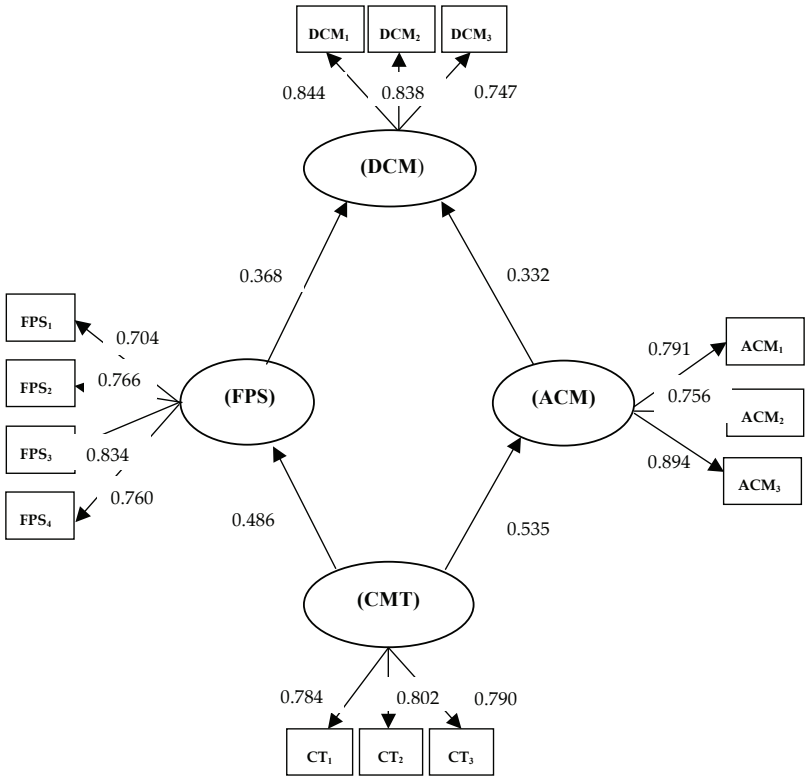
Tabla 5: Path coefficients

Hypotheses	β	Lower CI	Higher CI	t Statistic	p-value
H_1 CMT → DCM	0.346	0.181	0.506	4.133	0.000
H_2 CMT → FPS	0.486	0.342	0.611	6.926	0.000
H_3 FPS → DCM	0.368	0.168	0.543	3.977	0.000
H_4 CMT → ACM	0.535	0.398	0.663	7.721	0.000
H_5 ACM → DCM	0.332	0.188	0.471	4.643	0.000

Statistical significance: * p <0.05; ** p <0.01; *** p <0.001; n.s: not significant.

The following figures (Figure 2) show the result for the model and the hypotheses that were analyzed in the model.

Figura 2. Resultados del algoritmo PLS



Nota: DCM: Desarrollo de la conciencia medioambiental entre estudiantes. CMT: Competencias medioambientales transversales. FPS: Formación de los profesores. ACM. Actividades de concienciación medioambiental.

4.3 Test de bondad de ajuste para el modelo

Primero, se evaluó el ajuste general del modelo utilizando el indicador residual medio de la raíz cuadrada estándar (SRMR). Hu y Bentler (1998) definen la SRMR como la discrepancia media cuadrática media entre las correlaciones observadas y las correlaciones implícitas en el modelo. SRMR se puede utilizar para evaluar el ajuste general de un modelo de investigación en PLS y evitar una especificación incorrecta del modelo (Henseler, Hubona, Ray, 2016). Un valor de corte de 0.08 para SRMR se considera el más apropiado en PLS (Henseler, Hubona, Ray, 2016). En este estudio, el SRMR fue de 0.068, lo que significa que el modelo se ajusta a los datos empíricos (Hair *et alii*, 2016).

Los valores de R^2 (ver Tabla 6) obtenidos para la investigación llevaron a las siguientes conclusiones: 0.67 "Sustancial", 0.33 "Moderado" y 0.19 "Débil" (Chin, 1988). El resultado obtenido para la variable principal dependiente en el modelo de intención de uso (DCM) fue R^2= 77.1%. Por lo tanto, la evidencia muestra que el modelo presentado tiene una capacidad predictiva sólida o sustancial. Esto explica por qué tanto las actividades de concienciación medioambiental (ACM) como la formación del profesorado en temas medioambientales (FPS) son dos factores que contribuyen en un mejor desarrollo de la conciencia medioambiental entre los estudiantes (DCM).

Tabla 6. Coeficiente de determinación (R^2) y prueba de Stone-Geisser (Q^2)

Constructo	Q^2	R^2
DCM	0.435	0.771
CT		
ACM	0.146	0.287
FPS	0.103	0.236

La técnica de Blindfolding consiste en omitir parte de los datos de un constructo dado durante la estimación de los parámetros y luego tratar de estimar lo que se omitió de los parámetros estimados (Chin, 1998). De esta manera, la relevancia predictiva del modelo se estudió mediante el uso del, se demostró que el modelo tiene capacidad predictiva. Como puede verse en la Tabla 6, todas las construcciones endógenas cumplen con Q^2> 0. Siguiendo la prueba de Stone-Geisser (Q^2) (Stone, 1974; Geisser, 1974; Hair *et alii 2016.*) establecen valores de 0.02 como valores pequeños, valores de 0.15 como valores medios y valores 0.35 como valores grandes para considerar validez predictiva del modelo) los valores se fijan en tres pasos; 0.02, 0.15 y 0.35. Indica relevancia predictiva pequeña, media y alta. Como resultado, todas las construcciones tienen relevancia predictiva, ya que los valores de Q^2 son todos mayores que 0.02.

5. Discusión

Debido al escaso el número de universidades que han implementado enseñanzas para un comportamiento medioambiental responsable en España (Lozano *et alii*, 2013) nuevas experiencias educativas se han planteado para desarrollar la conciencia medioambiental en la universidad (Boeve-de Pauw y Van Petegem, 2011, Olsson *et alii*, 2016; People and Work Unit, 2007; Robina-Ramírez y Medina-Merodio, 2019).

En este sentido, el estudio propone un modelo significativo que permita abrir nuevas vías de enseñanza de sostenibilidad en la Universidad y mejorar las actitudes medioambientales de los estudiantes. Para ello se han testado cuatro variables latentes entre la comunidad de estudiantes en las Facultades de Economía y de Empresa, Finanzas.

A partir de los datos obtenidos, el modelo estructural ha resultado muy significativo con un coeficiente de determinación, R^2=77.1%. (R^2 >0,67) (Chin, 1988).

Al mismo tiempo, el modelo expresa una alta capacidad predictiva alta (Q^2 = 0. 435). El modelo genera predicciones precisas sobre los potenciales resultados en nuevas observaciones (Shmueli y Koppious, 2011), lo cual es interesante para replicar el estudio en otras Facultades.

Todas las hipótesis del modelo (H1 a H5) son significativas y, por lo tanto, son aceptadas. Esto significa en primer lugar que el desarrollo de competencias medioambientales transversales en las áreas de economía y empresa influyen positivamente en desarrollo de la conciencia medioambiental (H1: CMT→DCM; β = 0.34; t = 4.133). Estos datos corroboran el contenido de la valoración realizada por alumnos y profesores en el proceso de validación de la encuesta. Alumnos expresaron que "la adquisición de competencias es lo que realmente va a ser valorado en un futuro por la empresa", otros argumentaron que "los conocimientos sin competencias profesionales y medioambientales adquiridas no se traducirán en la consecución de puestos de trabajo". Otro alumno afirmó que "solo los conocimientos sobre la necesidad de proteger el medioambiente no son suficientes, es necesario aprender a desarrollar actos concretos de defensa y respeto hacia el medio ambiente". Estos ejemplos recogidos en las entrevistas cualitativas con los alumnos durante el segundo focus group nos aportan una perspectiva muy interesante para enseñar sostenibilidad a través de metodologías y técnicas transversales en la universidad (Aznar *et alii*, 2014; Martínez *et alii*, 2007).

No solo implicaciones teóricas de extraen de estas conclusiones, prácticas también. Así, estas competencias medioambientales podrían ser incluidas en diseños curriculares y planes de estudios. Entre ellas figuran la resolución de problemas medioambientales, la visión científica del medio ambiente, y la relacional medio ambiente-ciudadanía (Vincent y Focht, 2009). Para ello es necesario llegar a una conexión de la sostenibilidad con las diferentes materias a impartir como en el plan de formación que reciben los profesores (Vilches y Gil, 2007) como parte de una visión estratégica en materia de educación para el desarrollo sostenible (Cebrián *et alii*, 2014).

En segundo lugar, los resultados muestran como la incorporación de competencias medioambientales transversales en la Universidad influiría positivamente en la mejor formación de los profesores en responsabilidad medioambiental (H2: CMT→ FPS; β = 0.486; t = 6.926), y en la puesta de marcha de actividades de concienciación medioambiental (H4: CMT→ACM; β = 0.535; t = 7.721).

En relación a la incidencia de competencias medioambientales transversales (CMT) en la formación de los profesores (FPS), las entrevistas realizadas fueron muy clarificadoras. En la línea de los expresado por Holmberg and Samuelsson, (2006), en relación a la necesaria formación medioambiental del profesorado, los alumnos destacan por un lado el "escaso interés del profesorado por sensibilizar a los alumnos en sostenibilidad" y por otro, "la ausencia de políticas en la propia universidad que ayuden a los alumnos a entender la importancia de gestionar sosteniblemente los recursos". Aspectos ampliamente debatidos por Lozano, (2013) y Dagiliūtė *et alii*, (2018) en la misma línea argumental.

Por otro lado, en relación con la incidencia de competencias medioambientales transversales (CMT) en la práctica de actividades de concienciación medioambiental (ACM), se puede afirmar que la alta percepción que tienen los universitarios en temas de sostenibilidad (Alonso-Almeida *et alii*, 2015) no se corresponde con una escasa oferta de actividades medioambientales. En concreto los alumnos se refieren a actividades de limpieza de ríos, ciclo de conferencias, etc. Es patente que, como señala un estudiante, "la falta de claridad de ideas y liderazgo por parte del profesorado para incorporar actividades de concienciación y respeto de la naturaleza". Este giro hacia el respeto medioambiental debería comenzar por la asunción de responsabilidades y tareas estructuradas desde la dirección de la Universidad (Vilches y Gil, 2012).

6. Conclusión

La primera conclusión a la que llegamos con este trabajo de investigación es el escaso eco que hasta la fecha ha tenido la competencia sobre la protección medioambiental desarrollada en el Real Decreto 1393/2007. En concreto en las facultades de economía y empresa.

En segundo lugar, y como consecuencia de la primera conclusión, la falta de recursos económicos y académicos concretados en efectivas políticas de sostenibilidad en la Universidad. A juicio de los alumnos no solo escasean las referencias medioambientales en la enseñanza transversal de las asignaturas las áreas de economía y empresa sino también es llamativa la ausencia de políticas de sostenibilidad en la Universidad conocidas por los alumnos (Nejati y Nejati, 2013; UN, 2012; Beland Lindahl, 2016; Ull, *et alii*, 2010). Para ello sería necesario es-

tablecer políticas y programas formativos transversales para insertar contenidos de defensa del medio ambiente en aquellas asignaturas más relacionadas con la gestión de empresa y gestión de recursos naturales.

El tercer objetivo está relacionado directamente con la filosofía empresarial impartida actualmente en las facultades de economía y empresa. Los alumnos afirman que "la maximización del beneficio y la reducción de costes son los únicos criterios utilizados para la toma de decisiones empresariales". Junto a ello, otros alumnos añaden que "si la protección del medioambiente genera un mayor coste, prevalece el criterio económico sobre el medioambiental". Aspectos ambos que señalan la gran distancia existente entre la maximización económica y el respeto del medio ambiente (Matten y Moon, 2004). Estas afirmaciones son un botón de muestra de la gran responsabilidad que la universidad tiene actualmente de formar estudiantes que actúen de forma consecuente con el medio ambiente (Cornelius *et alii*, 2007; Waples *et alii*, 2009).

Diversas limitaciones en la realización del estudio deben ser señaladas. En primer lugar, la reacción negativa de parte del profesorado para recibir formación que les permitan incorporar ejemplos de conductas medioambientalmente responsables en las asignaturas que actualmente imparten. De hecho, casi un 40% de los profesores preguntados no se mostraron abiertos para recibir una formación medioambiental que les permita incorporar la perspectiva medioambiental en sus clases. En segundo lugar, encontramos la misma falta de interés en los directivos de la Universidad para recibir formación oportuna que les permita desarrollar estrategias de sostenibilidad que permita hacer un uso más racional de los recursos.

A modo de conclusión, esta investigación ha revelado como los alumnos son proclives a recibir nociones y organizar actividades que les permitan desarrollar un modelo de desarrollo más habitable en consonancia con entornos medioambientales responsables. Sin embargo, a nivel educativo aún estamos lejos de este objetivo. Las principales barreras se erigen desde el profesorado y la dirección de la universidad. Sin embargo, el cambio de mentalidad ya existe entre los jóvenes alumnos, aunque actualmente está lastrado por una generación de docentes que aún se rigen por modelos de enseñanza más en criterios economicistas. El reto está en transformar a los educadores de la universidad a partir de modelos de enseñanza medioambiental entre los futuros dirigentes de empresas en nuestro país.

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