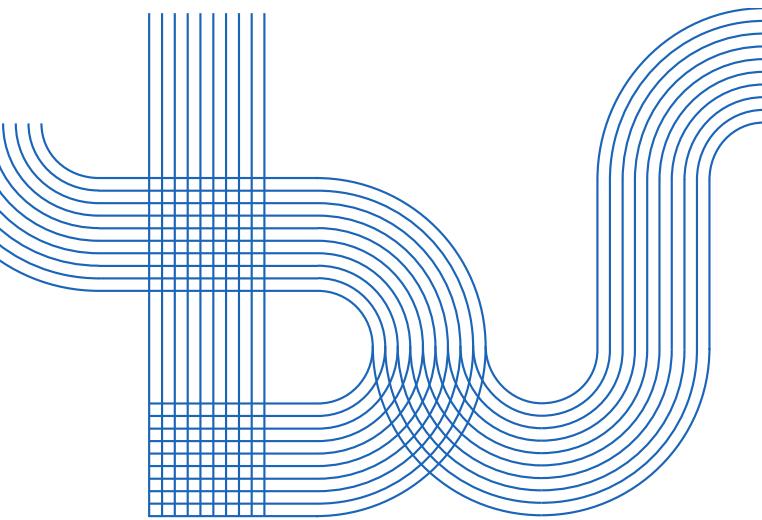


PENSA EN VERDE !

DEPOSITA OS TEUS TRABALLOS EN
INVESTIGO

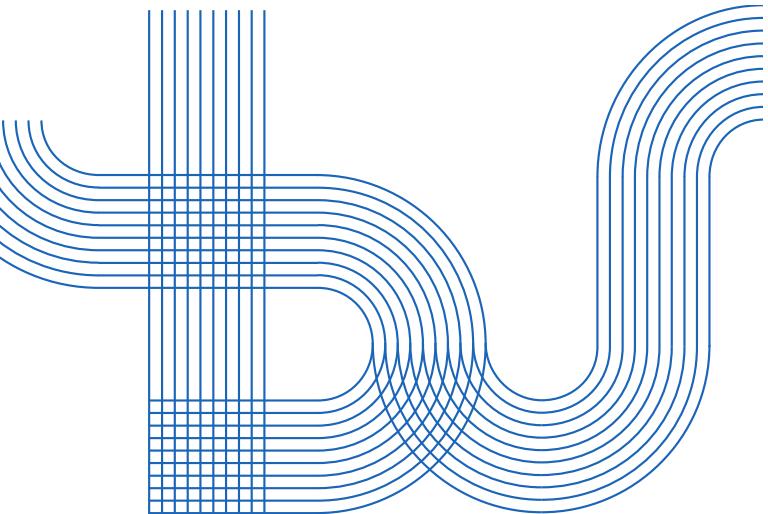
Semana Internacional do Acceso aberto, 25-31 de outubro de 2021

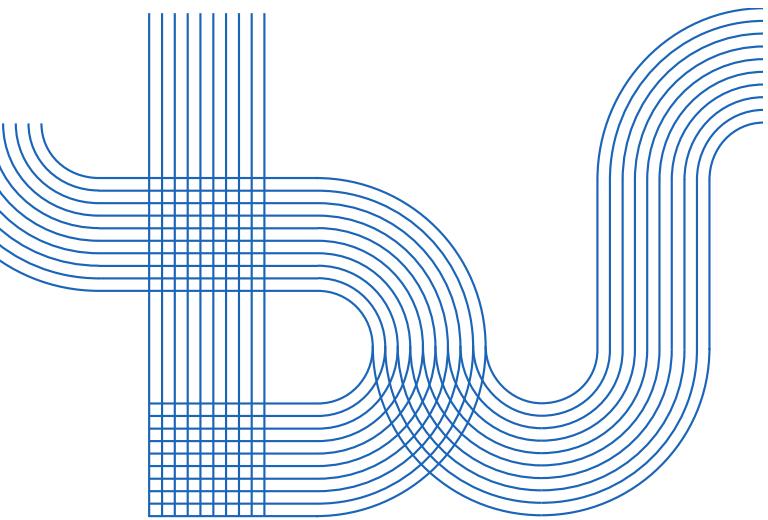
Obradoiro impartido por Carmen Barros – Área de Repositorio Institucional Investigo



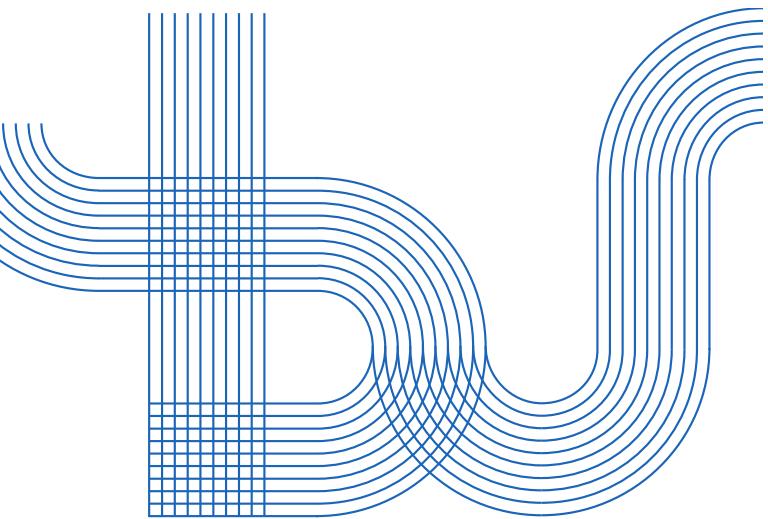
BLOQUE 1: ACLARANDO CONCEPTOS
BLOQUE 2: POR QUE EN INVESTIGO
BLOQUE 3: QUE, QUEN, COMO DEPOSITAR

OBXECTIVOS FORMATIVOS

- 
- ✓ Aclarar conceptos relacionados co acceso aberto
 - ✓ Explicar os beneficios de depositar os documentos no repositorio institucional Investigo
 - ✓ Familiarizar os participantes co uso do repositorio
 - ✓ Identificar as políticas de autoarquivo dos editores
 - ✓ Resolver dúbidas relacionadas co depósito de publicacións en Investigo



BLOQUE 1: ACLARANDO CONCEPTOS



Open Access & Free Access

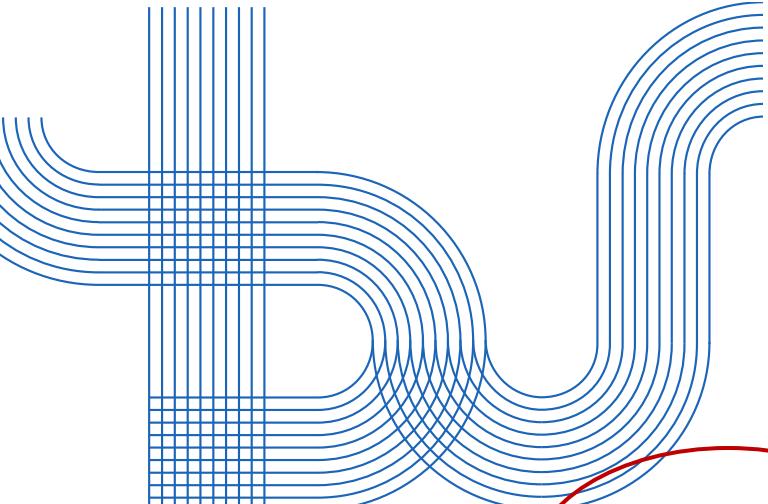
Open Access & Free Access



Open access articles will always have **license** which allows reuse of the work by third parties.

- Refírese a documentos dixitais accesibles en liña a través de Internet
- Os contidos son gratuitos e son accesibles para todos/as
- Acceso inmediato aos contidos
- Permiten a súa reutilización e difusión
- O uso e explotación das obras defínese mediante licenzas
- Garantízase o recoñecemento da autoría e a integridade da obra

Open Access & Free Access

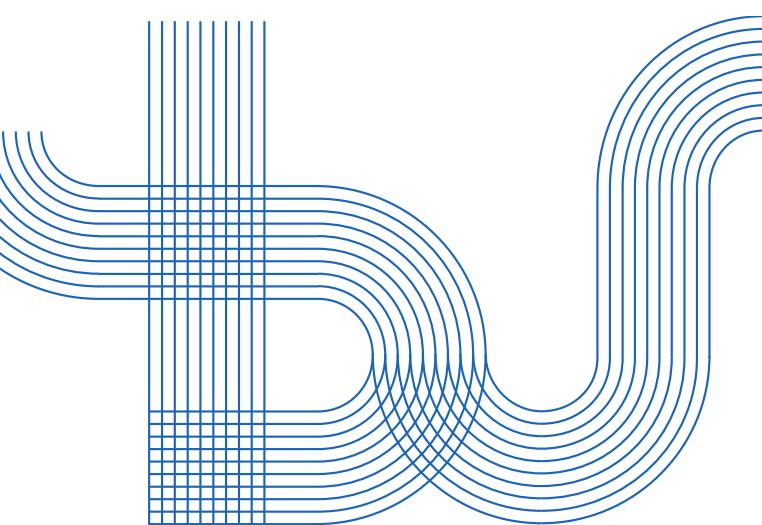


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Read & reuse

Open Access & Free Access



COMPUTATIONAL
ON MATHEMATICAL
METHODS

RESEARCH ARTICLE |  [Free Access](#)

Behavior characterization of viscoelastic materials for the finite element method calculation applying Prony series

José A. López-Campos, Abraham Segade, Enrique Casarejos, José R. Fernández 

First published: 19 February 2019 | <https://doi.org/10.1002/cmm4.1014> | Citations: 3

Only rights to read

Comp and Math Methods. 2019;1:e1014.
<https://doi.org/10.1002/cmm4.1014>

wileyonlinelibrary.com/journal/cmm4

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Acceso abierto ≠ Pago por publicar

Publicar en abierto, non implica necesariamente "*pago por publicar*". Existen diferentes modelos para a publicación en acceso abierto.



Acceso abierto diamante: <http://amelica.org/>



Conocimiento Abierto
sin fines de lucro propiedad de la academia



Acerca de AmeliCA » Servicios » Acceso Abierto Diamante Principios y Valores Quiénes somos » Preguntas Frecuentes



AmeliCA/Redalyc

INFRAESTRUCTURA ABIERTA PARA IMPULSAR LA PUBLICACIÓN EN ACCESO ABIERTO DIAMANTE

iAyúdanos a llegar
al objetivo!

Démosle una oportunidad a la "ciencia como bien común"

Invierte en Acceso Abierto

AmeliCA en números

246

1,915

581

607

9,825

20

175

ca.org Revistas en el índice

Revistas en AURA

Editores capacitados

Miembros de

Artículos a texto

Instituciones

Instituciones editoras



Principios e valores



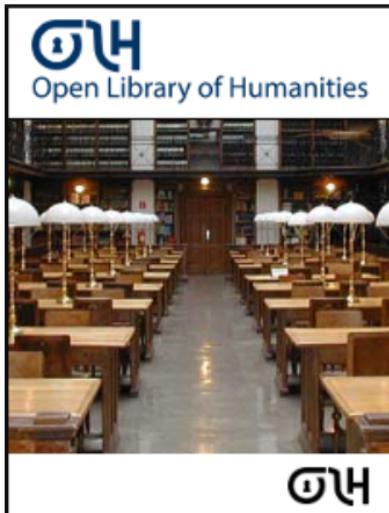
1. El conocimiento científico generado con fondos públicos es un bien común y el acceso a él es un derecho universal.
2. Se debe fortalecer el modelo de publicación abierta, propiedad de la academia, sin fines de lucro, sustentable, con métricas responsables, no subordinado y sin pago por procesamiento o publicación (APC).
3. El Acceso Abierto no tiene ningún futuro ni sentido sin una evolución en los sistemas de evaluación a la investigación que valoren la publicación por sus propios méritos y no por el lugar en donde se publica.
4. La consolidación del Acceso Abierto exige la transición a la comunicación científica digital.
5. La inversión económica en el Acceso Abierto debe ser coherente con su beneficio a la sociedad.
6. La sustentabilidad del Acceso Abierto debe basarse en esquemas de trabajo cooperativos y en una cobertura horizontal de costos.
7. Es necesario reconocer la diversidad de las revistas científicas y detener las presiones que buscan homogeneizarlas.
8. Las revistas deben permitir que el autor retenga los derechos de su obra y eliminar sus políticas de embargo.
9. El impacto social de la ciencia es la base de la existencia del Acceso Abierto.
10. Es necesario respetar las diferentes dinámicas de generación y circulación de conocimiento por área, especialmente en el caso de las Ciencias Sociales y las Humanidades.

<http://amelica.org/index.php/principios-y-valores/>

Modelo consorcial de acceso abierto: Open library of Humanities: <https://www.openlibhums.org/>



Home News About ▾ Resources ▾ Academics ▾ Journals Contact Support OLH ▾



Open Library of Humanities

The *Open Library of Humanities* journal publishes internationally-leading, rigorous and peer-reviewed scholarship across the humanities disciplines: from classics, theology and philosophy, to modern languages and literatures, film and media studies, anthropology, political theory and sociology. Our articles benefit from the latest advances in online journal publishing, with high-quality presentation, annotative functionality, robust digital preservation, strong discoverability and easy-to-share social media buttons. We are now dedicated to publishing [Special Collections](#) focused on a particular topic or theme, and so no longer accept general submissions; see full information on [how to apply](#) to guest edit a special collection. Our

Filter

Filter

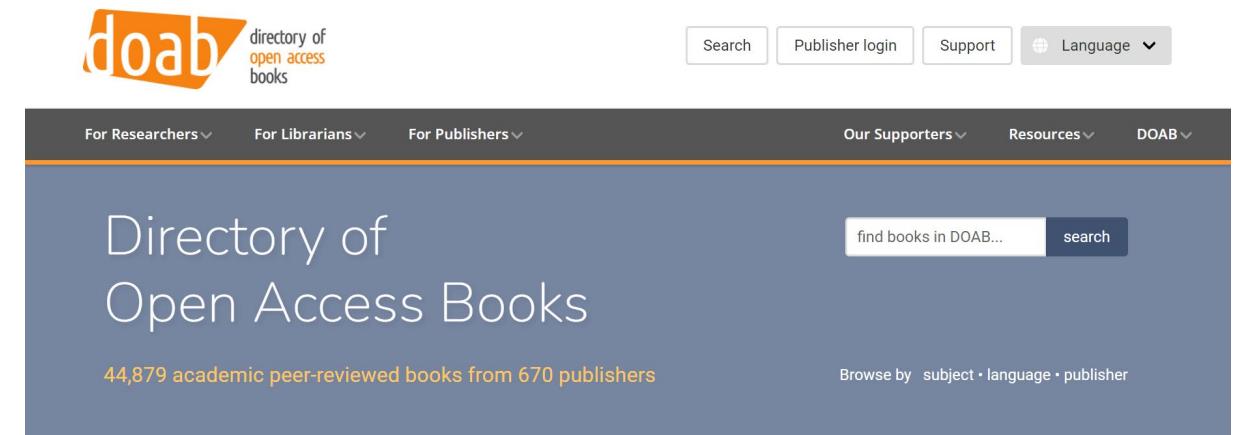
Buscadores de revistas e libros en acceso abierto

DOAJ: directorio de revista de acceso abierto: <https://doaj.org/>



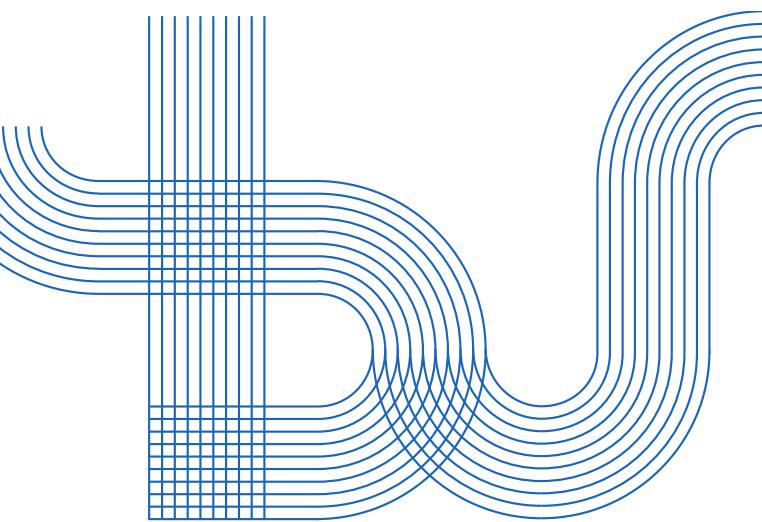
The screenshot shows the homepage of DOAJ (The Directory of Open Access Journals). At the top is a dark header with the DOAJ logo (an orange square with white lines) and the word "DOAJ". Below the header are three navigation links: "SEARCH", "DOCUMENTATION", and "ABOUT". A decorative graphic of blue concentric arcs is on the left side. The main content area has a white background with the text "THE DIRECTORY OF OPEN ACCESS JOURNALS" in red. Below this, a large call-to-action button says "Find open access journals & articles." Underneath the button are two radio buttons: one selected for "Journals" and one for "Articles". At the bottom is a search bar with a yellow "SEARCH" button.

DOAB: Directorio de libros de acceso abierto: <https://www.doabooks.org/>



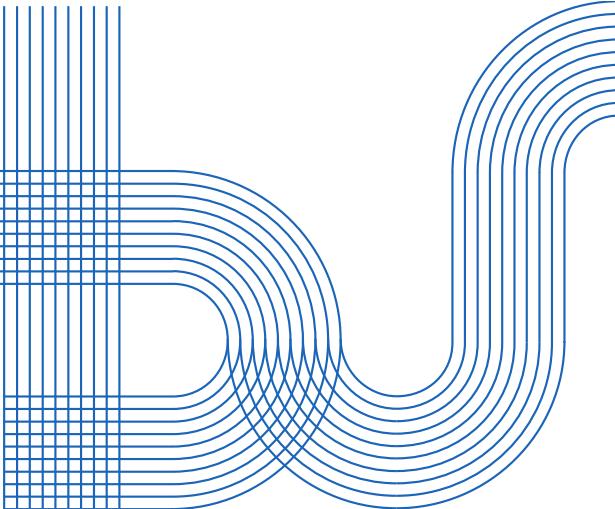
The screenshot shows the homepage of DOAB (Directory of Open Access Books). At the top is a dark header with the DOAB logo (orange text "doab" with "directory of open access books" below it). Below the header are four navigation links: "For Researchers", "For Librarians", "For Publishers", "Our Supporters", "Resources", and "DOAB". The main content area has a dark blue background with the text "Directory of Open Access Books" in white. Below this, a subtext says "44,879 academic peer-reviewed books from 670 publishers". At the bottom right are links for "Browse by subject • language • publisher". On the right side of the main content area is a search bar with a "find books in DOAB..." placeholder and a "search" button.

Gold & Green Open Access



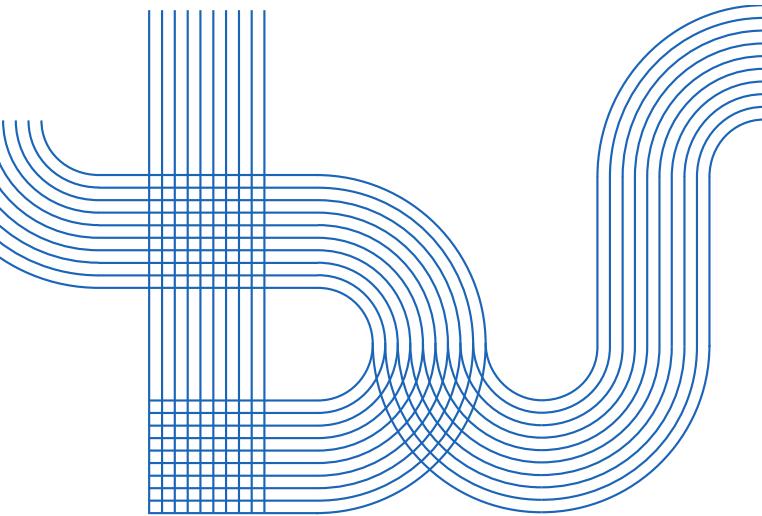
As vías do acceso aberto

Gold & Green Open Access



- ✓ Revistas de acceso abierto
- ✓ Revistas híbridas

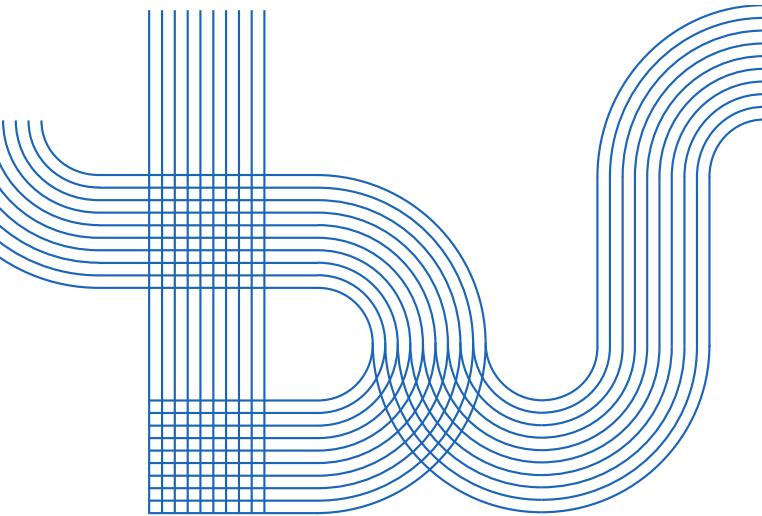
Gold & Green Open Access



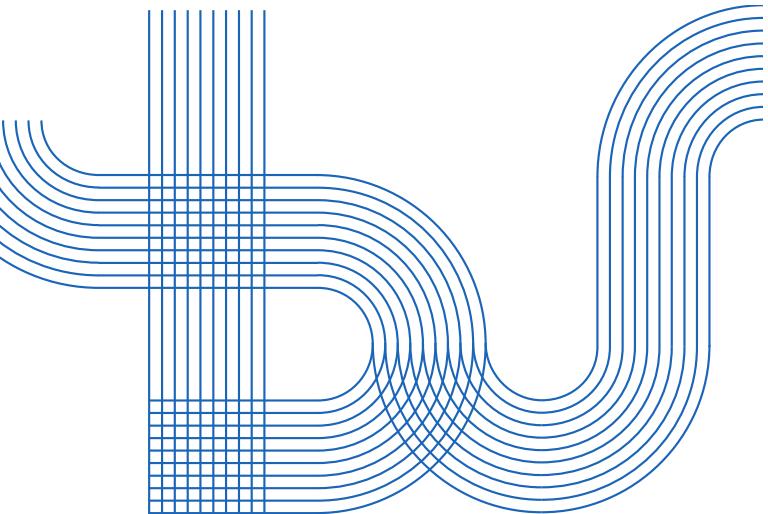
REPOSITÓRIOS

- ✓ Institucionais
- ✓ Temáticos: RePEC, ArXiv.org, SSOAR
- ✓ Multidisciplinares: zenodo

Gold & Green Open Access



Gold & Green Open Access

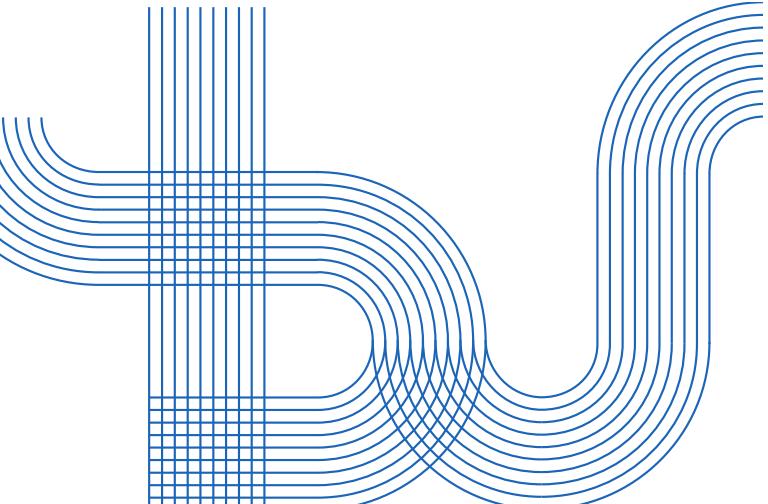


Gold OA: Publicación en revistas OA ou revistas híbridas

COMPLEMENTARIAS

Green OA: Autoarquivo nun repositorio

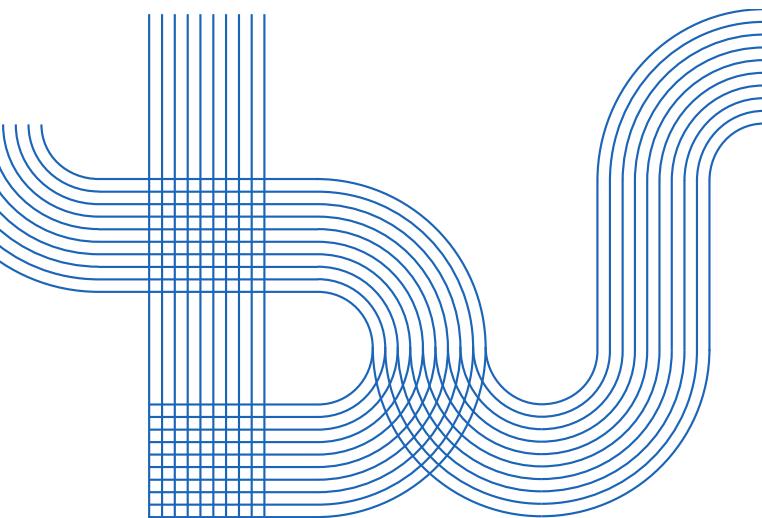
Publicación e Autoarquivo



Se publico en acceso abierto, por que vou depositar unha copia do artigo no repositorio?

Preservación e Visibilidade

Publicación e Autoarquivo

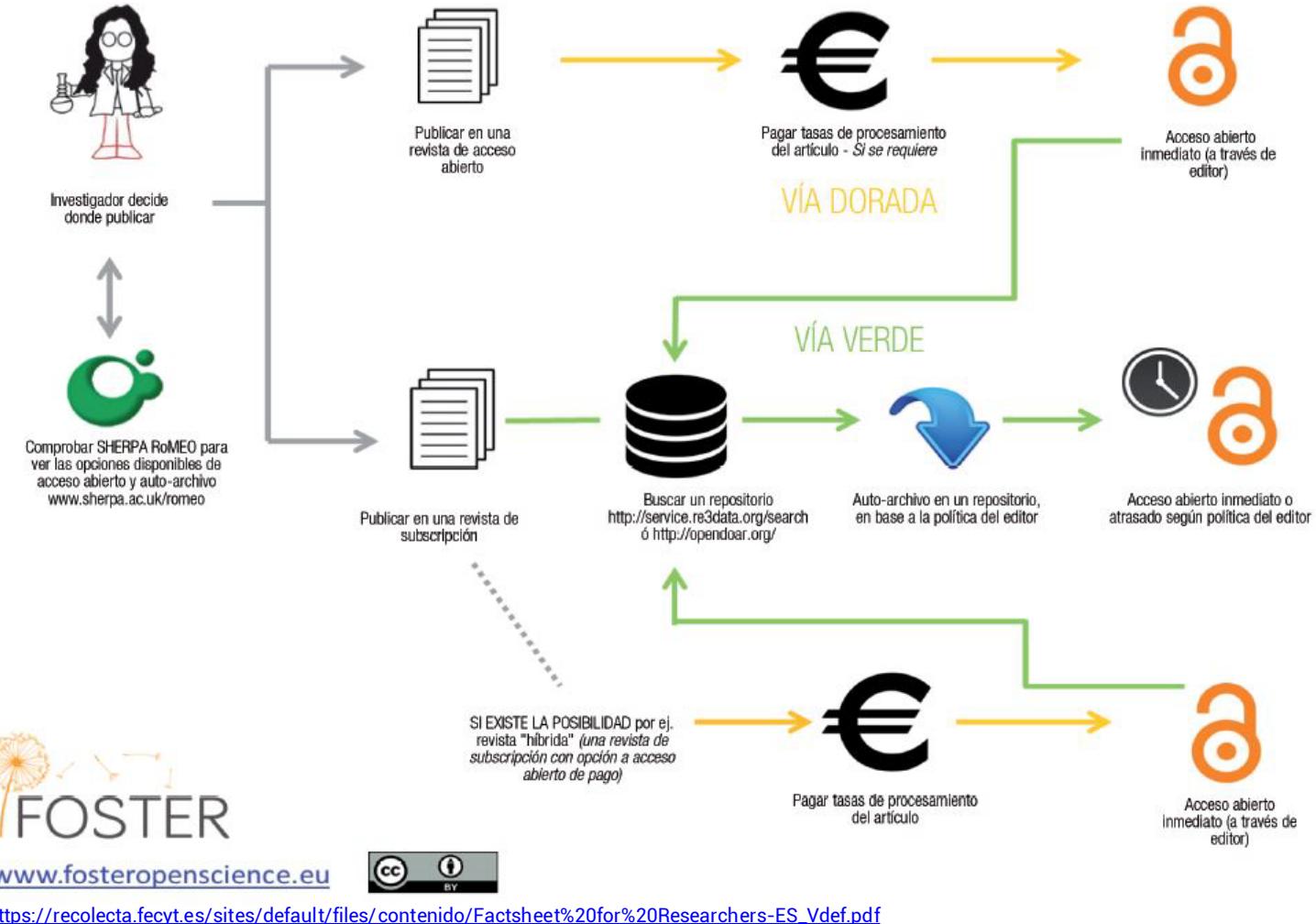
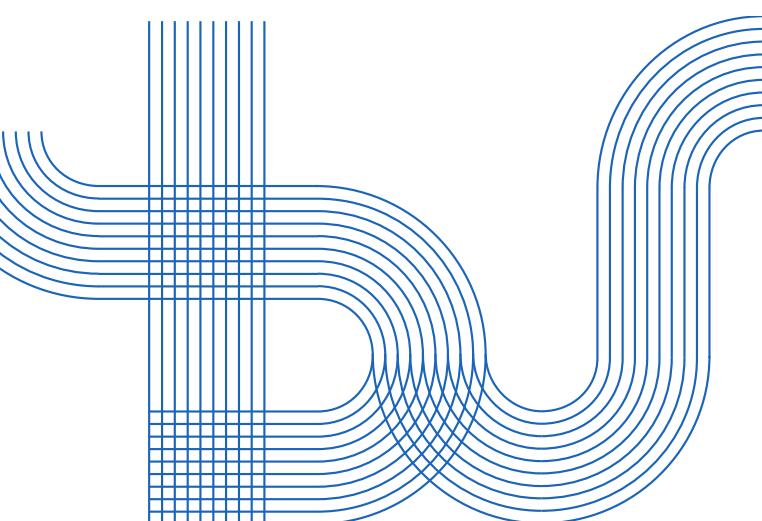


Supoñamos que publicamos nunha revista de suscripción, podemos depositar unha copia do artigo no repositorio?

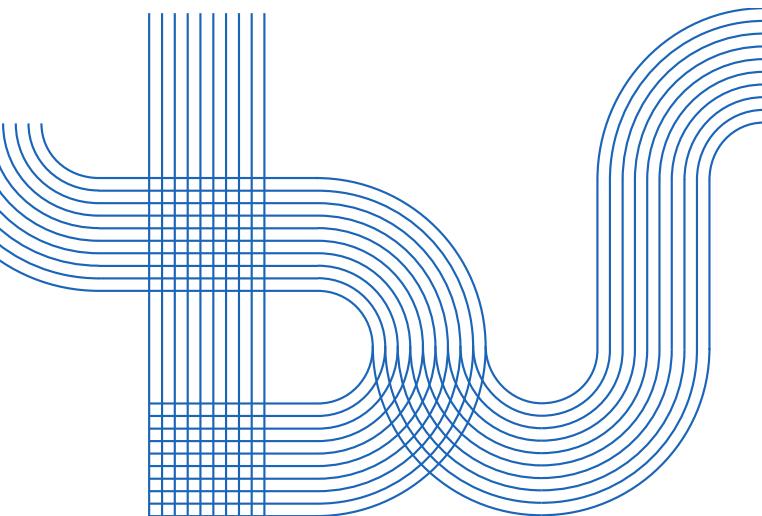
SI

**pero tendo en conta as condicións impostas polo editor
(embargo e versión do artigo)**

Publicación e Autoarquivo



RESUMO



- ✓ Open access \neq Free access
- ✓ Vía verde e Vía dourada - **Complementarias**
- ✓ Publicación e autoarquivo – **Compatibles**
- ✓ Acceso abierto \neq Pago por publicar



XOGO DE PREGUNTAS	VERDADEIRO	FALSO
1. No repositorio non se pode depositar a copia dun artigo publicado porque non é legal	VERDADEIRO	FALSO
2. A "vía dourada" e a "vía verde" son compatibles	VERDADEIRO	FALSO
3. "Open access" e "Free access" son termos equivalentes	VERDADEIRO	FALSO
4. No repositorio non se pode depositar a copia dun artigo publicado nunha revista de suscripción	VERDADEIRO	FALSO
5. A "vía verde" é mais cara ca "vía dourada"	VERDADEIRO	FALSO

XOGO DE PREGUNTAS	VERDADEIRO	FALSO
1. No repositorio non se pode depositar a copia dun artigo publicado porque non é legal	VERDADEIRO	FALSO
<p>Se publicamos un artigo en acceso aberto (vía dourada), podemos depositar o artigo nun repositorio, poñelo nunha páxina web, nunha rede social, etc. Os/as autores/as reteñen os dereitos de explotación dos seus traballos publicados e poden dispoñer deles libremente.</p> <p>Se o artigo está publicado baixo suscripción, comproba os termos dos contratos de edición ou os acordos de cesión de dereitos (Copyright Transfer Agreements, CTA) para coñecer as posibilidades de reutilización e uso definidas nos contratos. Se non posúes os dereitos de explotación, solicita autorización por escrito ao editor.</p>		

XOGO DE PREGUNTAS	VERDADEIRO	FALSO
-------------------	------------	-------

2. A "vía dourada" e a "vía verde" son compatibles	VERDADEIRO	FALSO
--	------------	-------

Podemos publicar un artigo en acceso abierto nunha revista de acceso abierto ou nunha revista híbrida (vía dourada) e depositar unha copia do artigo no repositorio (vía verde)

XOGO DE PREGUNTAS	VERDADEIRO	FALSO
3. "Open access" e "Free access" son termos equivalentes	VERDADEIRO	FALSO

Na web dos editores, podemos atopar artigos coa etiqueta "free" ou "free access" pero son artigos que podemos leer de forma gratuita pero teñen todos los derechos reservados. Ademais, non se garantiza o acceso gratuito ao artigo de forma permanente.

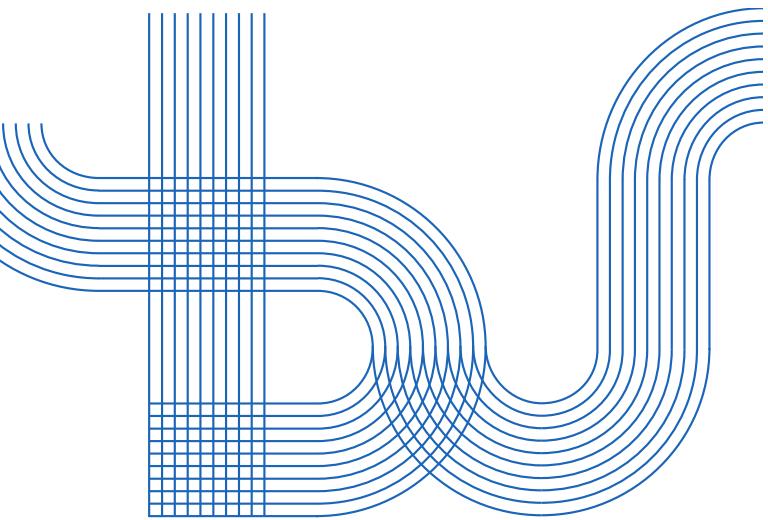
Os artigos en acceso abierto pódense reutilizar de forma establecida nas licencias de uso asociados a los documentos. Los autores/as retienen los derechos de explotación y se garantiza el acceso gratuito al artículo de forma permanente.

XOGO DE PREGUNTAS	VERDADEIRO	FALSO
4. No repositorio non se pode depositar a copia dun artigo publicado nunha revista de suscripción	VERDADEIRO	FALSO

No repositorio podemos depositar artigos publicados en revistas de suscripción tendo en conta as condicións impostas polos editores (embargo e versión do artigo)

XOGO DE PREGUNTAS	VERDADEIRO	FALSO
5. A "vía verde" é mais cara ca "vía dourada"	VERDADEIRO	FALSO

O depósito de documentos no repositorio institucional é gratuito (vía verde). Na vía dourada, algúns editores cobran tasas por publicar en acceso aberto en revistas "full open access" ou en revistas híbridas coñecidas como pago polo procesamento de artigos ou pago de APCs.



BLOQUE 2: POR QUE EN INVESTIGO?

Política Institucional de Acceso Abierto a la Producción Científica de la Universidad de Vigo

(...)

Por otro lado, y en esta línea de fomento del acceso abierto, la Universidad de Vigo se propone desarrollar sus procesos internos de evaluación de la producción científica a partir de las publicaciones registradas y depositadas en su repositorio institucional en lo referido a artículos o trabajos de investigación publicados en revistas, libros y partes de libros, tesis de doctorado y publicaciones derivadas de congresos. Para ello las citadas publicaciones deberán ser, como mínimo, referenciadas en el repositorio y facilitar el acceso abierto a su texto completo tan pronto como sea posible en función de las limitaciones que pudiesen haber establecido sus editores. En conexión con ello, la Universidad de Vigo recomienda a sus investigadores/as que en materia de propiedad intelectual mantengan en su poder los derechos de explotación de sus trabajos no cediéndolos en exclusiva a otros agentes.

Por su naturaleza el contenido a depositar en el repositorio institucional de la Universidad de Vigo debe haber sido sometido a algún tipo de revisión por pares o a aprobación por tribunales o comités científicos o de evaluación.

De acuerdo con las consideraciones precedentes, la Universidad de Vigo establece la obligatoriedad para sus investigadores e investigadoras de depositar y difundir a través del repositorio institucional aquellas publicaciones que se toman en cuenta en la evaluación de la producción científica: artículos y trabajos de investigación publicados en revistas, libros y capítulos de libros, teses de doctorado leídas en la Universidad de Vigo y publicaciones derivadas de congresos. En este sentido se recuerdan las obligaciones que establece la legislación vigente en materia de tesis de doctorado y de investigaciones financiadas con cargo a los presupuestos generales del Estado.

(...)

<http://www.investigo.biblioteca.uvigo.es/xmlui/page/acceso>

https://www.uvigo.gal/sites/uvigo.gal/files/docs/universidade/institucional/plans/20-26_plan_estratexico.pdf

BERLIN DECLARATION

The Internet has fundamentally changed the practical and economic realities of distributing scientific knowledge and cultural heritage. For the first time ever, the Internet now offers the chance to constitute a global and interactive representation of human knowledge, including cultural heritage and the guarantee of worldwide access. We, the undersigned, feel obliged to address the challenges of the Internet as an emerging functional medium for distributing knowledge. Obviously, these developments will be able to significantly modify the nature of scientific publishing as

Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities

The Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities of 22 October 2003 was written in English. It is one of the milestones of the Open Access movement. The wording of the English version shall prevail.

<https://openaccess.mpg.de/Berlin-Declaration>



Objetivo 19. Ciencia abierta

Eixe estratégico

Valor/Identidade



Axenda 2030



Accións

Indicadores

- Desenvilar mecanismos para a integración no sistema de ciencia abierta.
- Incorporación a iniciativas nacionais e internacionais de fomento da ciencia abierta.
- Promover o depósito da producción científica da Universidade de Vigo no repositorio institucional de acceso abierto Investigo.
- Número de actividades de promoción de Investigo doutras actividades de acceso abierto.

- Número de autores de descargas de publicacións editadas polo Servizo de Publicacións da UVigo.

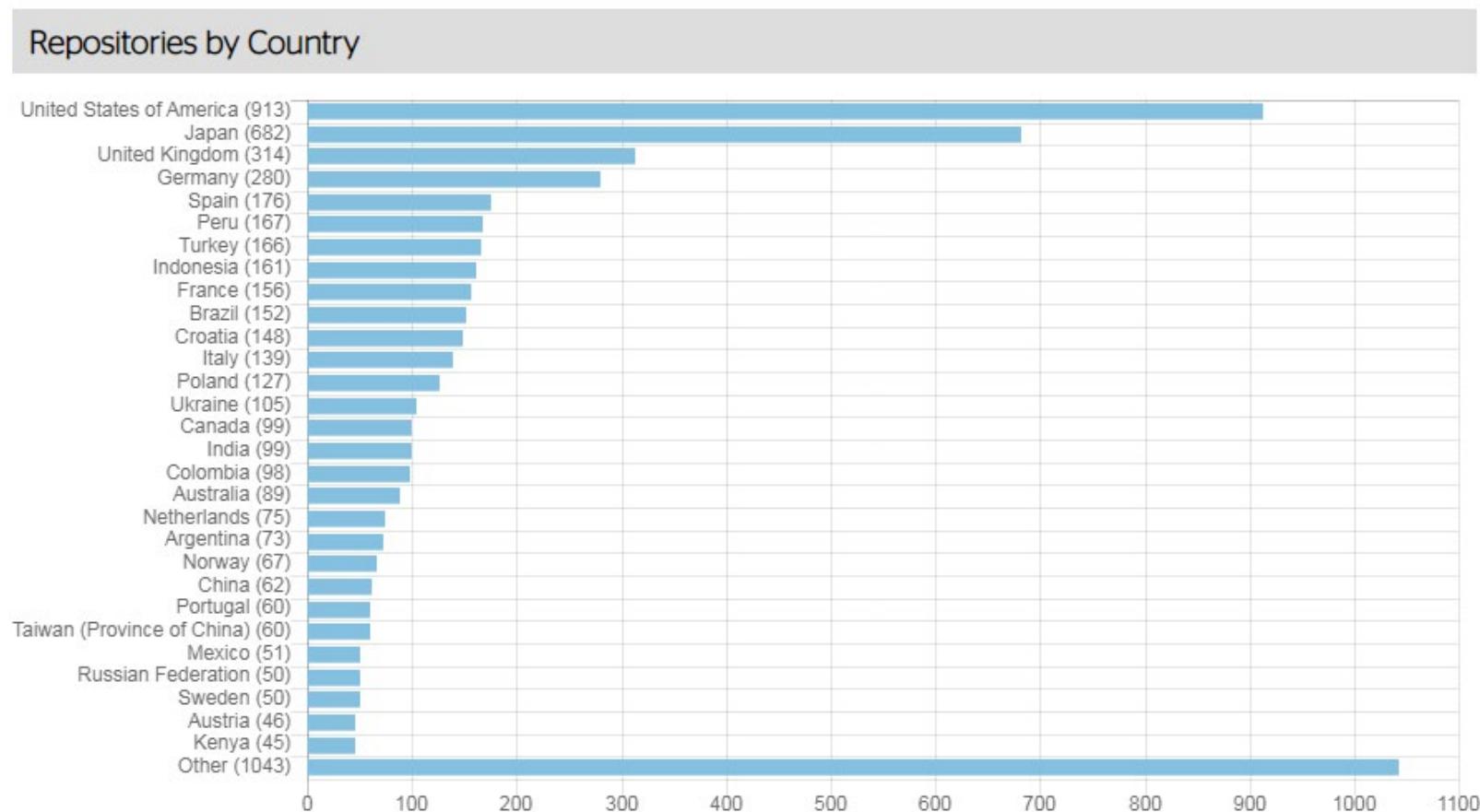
- Número de accesos e de descargas de revistas científicas publicadas no OJS da UVigo.

- Desenvilar mecanismos para a integración no sistema de ciencia abierta.

- Número de documentos depositados no repositorio institucional Investigo.

OpenDOAR: Directory of Open Access Repositories

An overview of the data held in OpenDOAR



Fonte: OpenDOAR https://v2.sherpa.ac.uk/view/repository_visualisations/1.html

España ocupa o quinto lugar en número de repositorios (vía verde)

Data da consulta: 25-10-2021

[Lei 14/2011 de 1 de xunio da Ciencia, Tecnoloxía e Innovación.](#) Art. 37 Difusión en acceso abierto.

BOE
LEGISLACIÓN CONSOLIDADA

Ley 14/2011, de 1 de junio, de la Ciencia, la Tecnología y la Innovación.

Jefatura del Estado
«BOE» núm. 131, de 02 de junio de 2011
Referencia: BOE-A-2011-9617

[ÍNDICE](#)

[Predimario](#) 6

TÍTULO PRELIMINAR. Disposiciones generales.....	15
Artículo 1. Objeto.....	15
Artículo 2. Objetivos generales.....	15
Artículo 3. Sistema Español de Ciencia, Tecnología e Innovación.....	16
Artículo 4. Principios.....	17
Artículo 6. La evaluación en la asignación de los recursos públicos.....	17
TÍTULO I. Gobernanza del Sistema Español de Ciencia, Tecnología e Innovación	17
Artículo 6. Estrategia Española de Ciencia y Tecnología.....	17
Artículo 7. Estrategia Española de Innovación	18
Artículo 8. Consejo de Política Científica, Tecnológica y de Innovación.....	18
Artículo 9. Consejo Asesor de Ciencia, Tecnología e Innovación.....	19
Artículo 10. Comité Español de Ética de la Investigación.....	20
Artículo 11. Sistema de Información sobre Ciencia, Tecnología e Innovación.....	21
TÍTULO II. Recursos humanos dedicados a la investigación	21
CAPÍTULO I. Personal Investigador al servicio de las Universidades públicas, de los Organismos Públicos de Investigación y de los Organismos de Investigación de otras Administraciones Públicas	21
Sección 1.º Disposiciones generales	21
Artículo 12. Ámbito de aplicación	21

Página 1

Art. 37.2 El personal de investigación cuya **actividad investigadora** esté financiada mayoritariamente con fondos de los Presupuestos Generales del Estado hará pública una versión digital de la versión final de los **contenidos que le hayan sido aceptados para publicación** en publicaciones de investigación seriadas o periódicas, tan pronto como resulte posible, pero no más tarde de doce meses después de la fecha oficial de publicación.

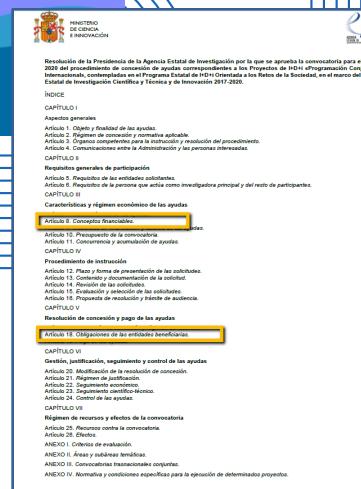


Art. 37.3. La versión electrónica se hará pública en repositorios de acceso abierto reconocidos en el campo de conocimiento en el que se ha desarrollado la investigación, o en repositorios institucionales de acceso abierto.

<https://www.boe.es/buscar/act.php?id=BOE-A-2011-9617>

PEICTI

Plan Estatal de
Investigación Científica,
Técnica y de Innovación
2021-2023

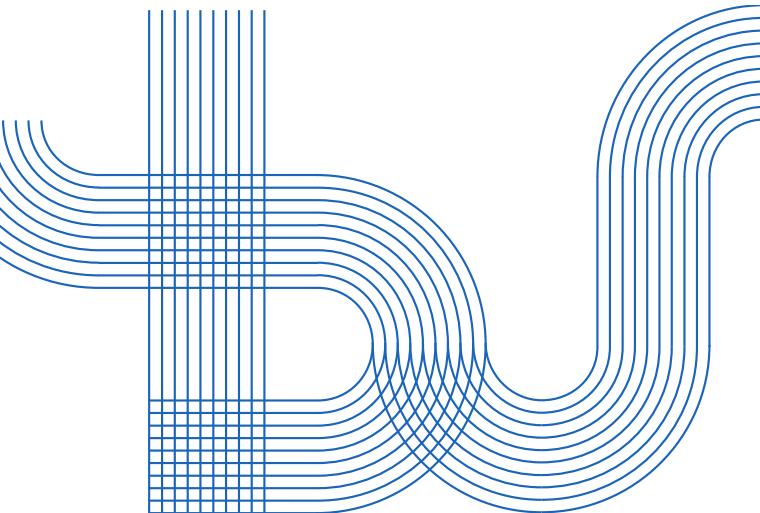


Plan estatal de Investigación Científica y Técnica y de Innovación 2017-2020. Ministerio de Ciencia, Innovación y Universidades. Art. 5.2-2 Acceso abierto a resultados e datos de investigación.

PEICTI Plan Estatal de Investigación Científica, Técnica y de Innovación 2021-2023. Punto 4.2 Principios rectores

PLAN ESTATAL DE INVESTIGACIÓN CIENTÍFICA, TÉCNICA Y DE INNOVACIÓN 2021-2023

- **Acceso abierto a resultados**, entendidos como publicaciones científicas y datos de investigación, de las actividades subvencionadas con recursos públicos. En cumplimiento de lo establecido en el artículo 37 de la LCTI y de las recomendaciones vinculadas a la agenda europea en materia de Acceso Abierto y Ciencia Abierta¹⁰, los trabajos financiados a través del PEICTI y publicados en revistas científicas se depositarán en formato digital en un repositorio institucional o temático de acceso abierto. Además, los datos de investigación deberán seguir los principios FAIR¹¹ y, siempre que sea posible, difundirse en abierto.



Annotated Model Grant Agreement. Art. 29 Dissemination of results-open Access-visibility of EU funding.

https://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/amga/h2020-amga_en.pdf

Horizon 2020 Open Access Mandate:

All beneficiaries must deposit their peer-reviewed publications to ensure open access

What to deposit?

A machine-readable electronic copy of

- ▶ the published version

OR

- ▶ the final peer-reviewed manuscript accepted for publication.

Where to deposit?

Researchers should deposit in a repository for scientific publications of their choice.

Find out if your institution has one

www.openaire.eu/participate or use
www.zenodo.org.

When to deposit?

Each beneficiary must deposit their work as soon as possible and at the latest upon publication.

When should Open Access be provided?

Each beneficiary must ensure Open Access to the deposited publication — via the repository — at the latest:

- ▶ upon publication, if in a Open Access journal
- or
- ▶ within 6 months of publication (12 months for the Social Sciences and Humanities).



Ciencia abierta a lo largo del programa



Ciencia
abierta

Integración de las prácticas de ciencia abierta para mejorar la calidad y la eficiencia de la I+I y el compromiso activo de la sociedad.

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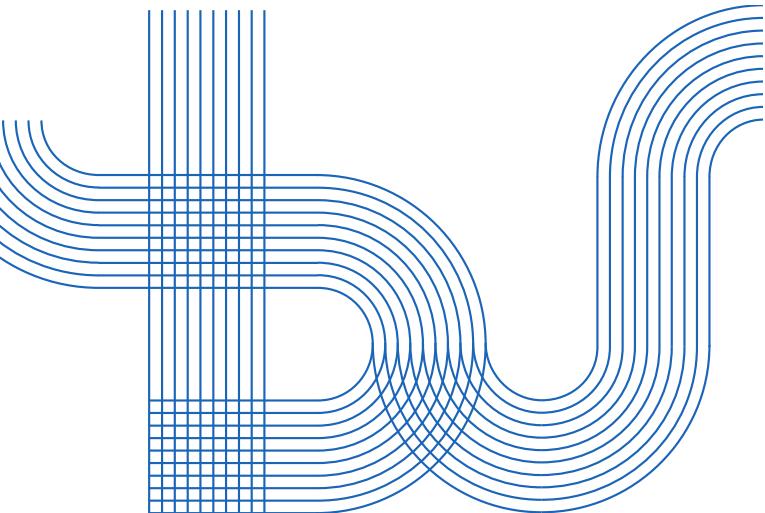
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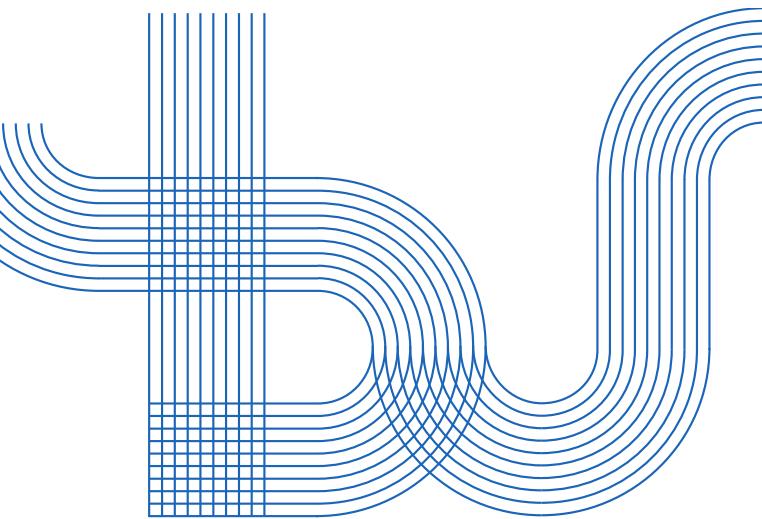
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Microwave hydrothermal processing of the invasive macroalgae *Sargassum muticum* within a green biorefinery scheme

Garcia Del Rio, Pablo UV; Gullon Estevez, Beatriz UV; Pérez Pérez, Alba; Romani Perez, Aloia UV; Garrote Velasco, Gil UV

FECHA : 2021-11

IDENTIFICADOR UNIVERSAL : <http://hdl.handle.net/11093/2409>

VERSIÓN EDITADA: <https://doi.org/10.1016/j.biotech.2021.125733>

MATERIA UNESCO : 2304.19 Polisacáridos ; 2391 Química Ambiental ; 2302.12 Fermentación

TIPO DE DOCUMENTO : article

RESUMEN :

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This study deals with the multiproduct valorization of the invasive macroalgae *Sargassum muticum* within a green biorefinery concept using microwave hydrothermal treatment. Temperatures of 160 and 180...

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Link adaptation techniques for future terrestrial and satellite communications

Autores: Anxo Tato Arias**Directores de la Tesis:** Carlos Mosquera Nartallo (dir. tes.)**Lectura:** En la Universidad de Vigo (España) en 2019**Idioma:** inglés**Tribunal Calificador de la Tesis:** Roberto López Valcarce (presid.)**Materias:**

- Ciencias tecnológicas
 - Tecnología de las telecomunicaciones
 - Comunicaciones por satélite

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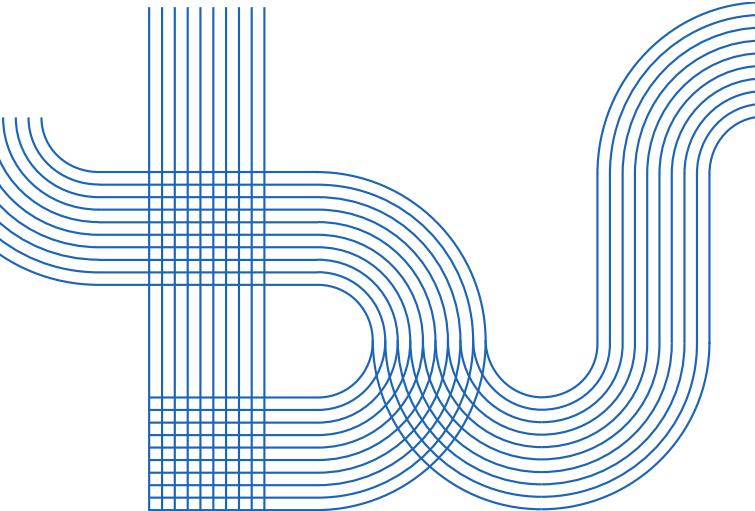
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TIPO DE DOCUMENTO : doctoralThesis

RESUMEN :
In recent years, it was becoming increasingly important a technology named Software Defined Radio (SDR). The great growth of computational power made possible the implementation of the physical layer of a communication system in software running on a processor, or firmware of devices such as FPGAs (Field Programmable Gate Arrays). Due to its flexibility, this technology is starting to be used not only in research but also in commercial systems. In this thesis the address the use of SDR technology, programmable radios, for communications adaptive, i.e. for communications systems that vary some of their functioning parameters in order to adapt themselves to their operational environment and provide a good performance. More specifically, we address link adaptation, also named Adaptive Coding and Modulation (ACM), which is an important component of current communication systems, both terrestrial and satellite. Standards such as S-UMTS and DVB-S2X consider in their operation the use of ACM. The main objective of this signal processing technique is maximise the spectral efficiency ... [\[+\]](#)

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Uncertainty in cooperative interval games: how Hurwicz criterion compatibility leads to egalitarianism

Lina Mallozzi & Juan Vidal-Puga

Annals of Operations Research 301, 143–159 (2021) | Cite this article

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Abstract

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Notation

Hurwicz criterion

Uniform degree of optimism

Grand coalition certainty

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 - Published in: *Annals of Operations Research* §
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 - Text: We study cooperative interval games. These are cooperative games where the value of a coalition is given by a closed real interval specifying a lower bound and an upper bound of the possible outcome. For interval cooperative games, several (interval) solution concepts have been introduced in the literature. We assume that
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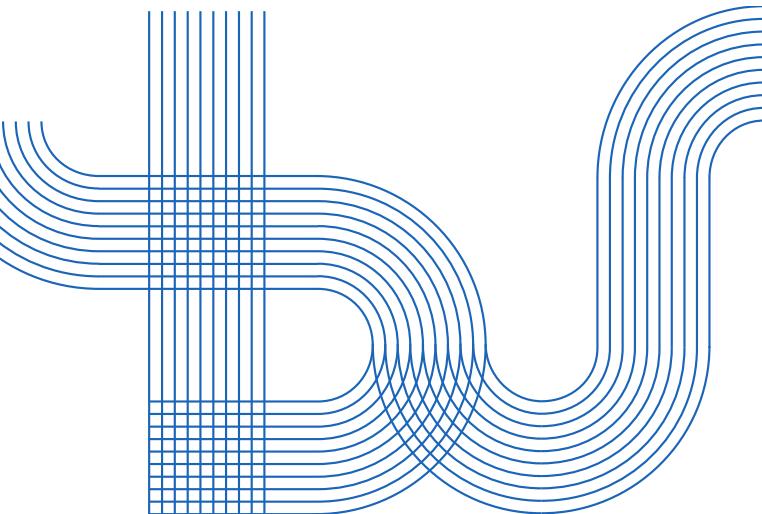
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Dynamic integrated model for assessing fisheries: discard bans as an implicit value-added tax
Da Rocha Álvarez, José María UV; García Cutrín, Francisco Javier UV; Gutiérrez, María José; Prellezo, Raúl; Sánchez, Eduardo

FECHA : 2021-07-14

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MATERIA UNESCO : 5312.01 Agricultura, Silvicultura, Pesca ; 5307.99 Otras ; 5302.02 Modelos Ec

TIPO DE DOCUMENTO : article

RESUMEN :

Integrated economic models have become popular for assessing climate change. In this paper we show that methods can be used to assess the impact of a discard ban in a fishery. We state that a discard ban understood as a confiscatory tax equivalent to a value-added tax. Under this framework, we show that it improves the sustainability of the fishery in the short run and increases economic welfare in the long run. In particular, we show that consumption, capital and wages show an initial decrease just after the implementation of the discard ban and then recover after some periods to reach their steady-state values, which are 16–20% higher than the initial values, depending on the valuation of the landed discards. The discard ban also improves biological variables, increasing landings by 14% and reducing discards by 29% on the initial figures. These patterns highlight the two channels through which discard bans affect a fishery: the tax channel, which shows that the confiscation of landed discards reduces the incentive to invest in the fishery; and the productivity ... [\[+\]](#)

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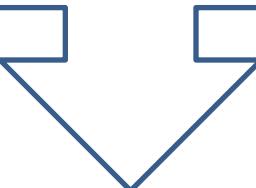


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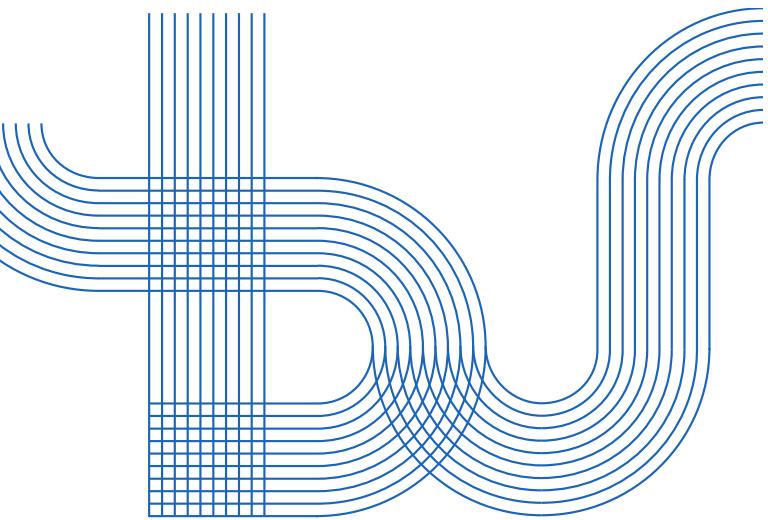
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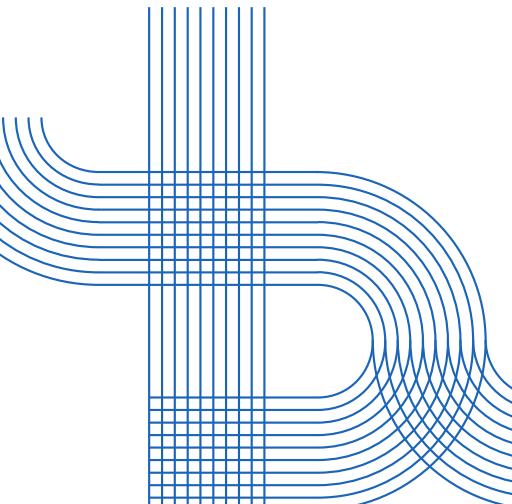
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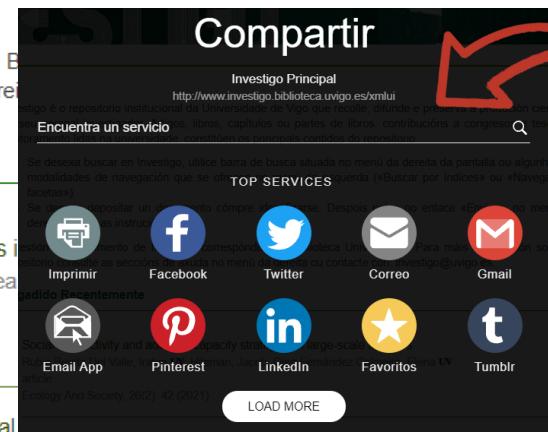
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Subtítulo Semioctree

Autor(es): González-deSantos, L. M.
Martínez-Sánchez, J.
González-Jorge, H.
Díaz-Vilariño, L.
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DOI: 10.1371/journal.pone.0206259

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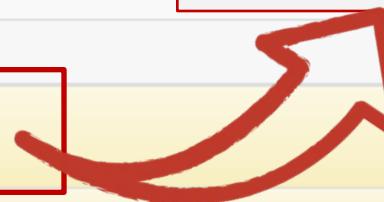
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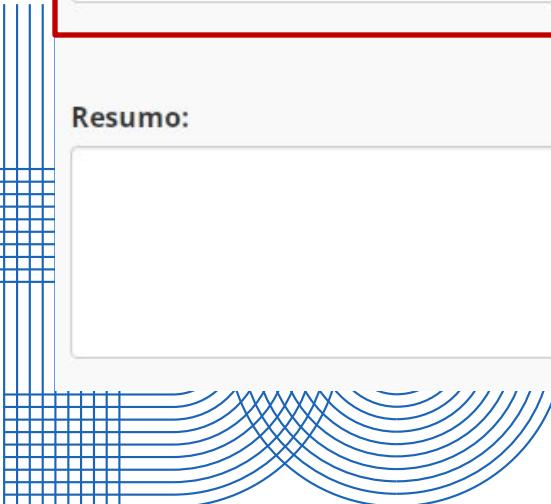
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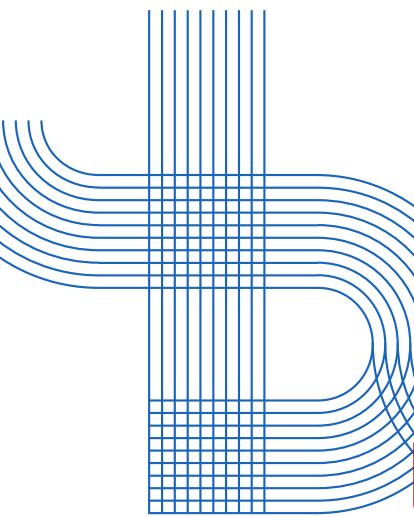
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Received: August 10, 2018

Abstract

This paper presents a discretization methodology applied to the NBV (Next Best View) problem, which consists of determining the heuristical best position of the next scan. This new methodology is a hybrid process between a homogenous voxelization and an octree structure that preserves the advantages of both methods. An octree structure is not directly applicable to the NBV problem: as the point cloud grows with every successive scanning, the limits and position of the discretization, octree structure must coincide, in order to transfer the information from one scan to the next. This problem is solved by applying a first coarse voxelization, followed by the division of each voxel in an octree structure. In addition, a previous methodology for solving the NBV problem has been adapted to make use of this novel approach. Results show that the new method is three times faster than the homogenous voxelization for a maximum resolution of 0.2m. For this target resolution of 0.2m, the number of voxels/octants in the discretization is reduced approximately by a 400%, from 35.360 to 8.937 for the study case presented.

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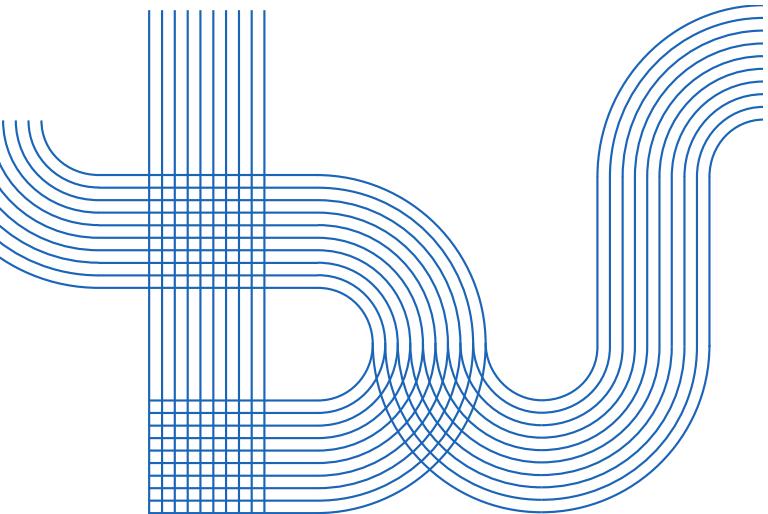


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We study dynamic rationing problems. In each period, a fixed group of agents hold claims over an insufficient endowment. The solution to each of these periods' problems might be influenced by the solutions at previous periods. We single out a natural family of aggregator operators, which extend static rules (solving static rationing problems) to construct rules to solve dynamic rationing problems.

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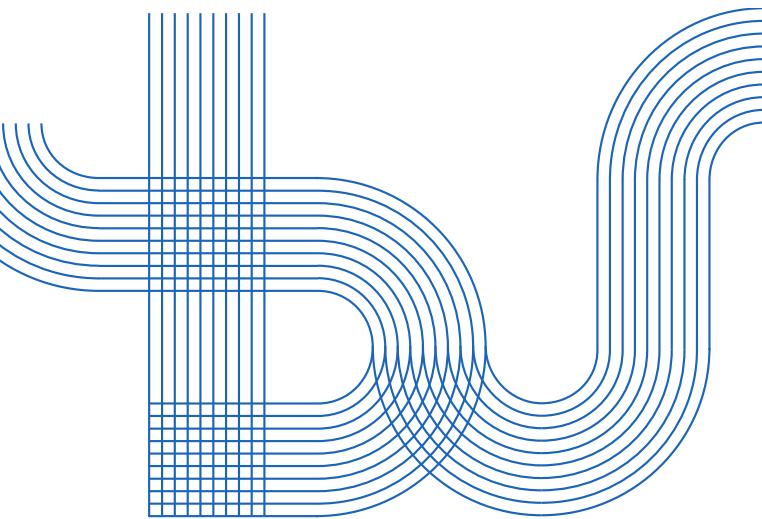
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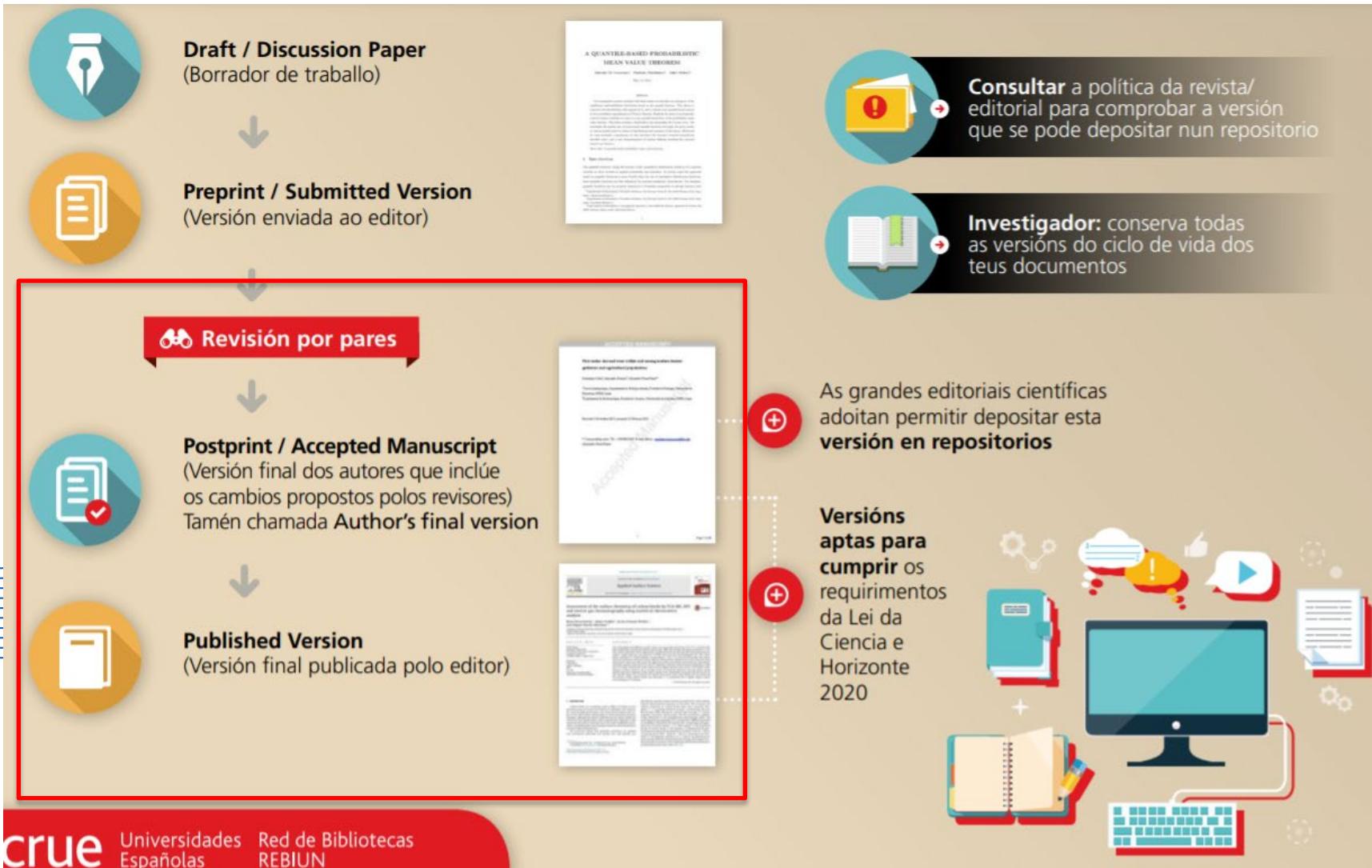


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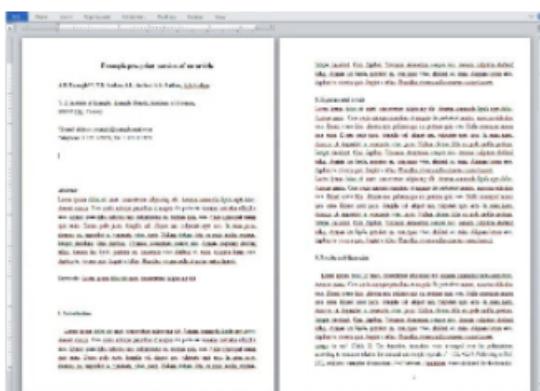
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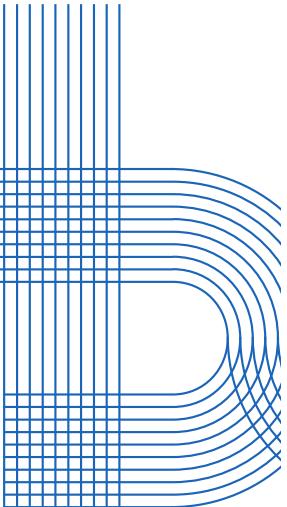
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One-way and two-way cost allocation in hub network problems*

G. Bergantinos ^{†1} and J. Vidal-Puga ^{‡1}

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Published in *OR Spectrum*[§]

Abstract

We consider a cost allocation problem arising from a hub network problem design. Finding an optimal hub network is NP-hard, so we start with a hub network that could be optimal or not. Our main objective is to divide the maintenance and/or building cost of such network among the nodes. We consider two cases. In the one-way flow case, we assume that the cost paid by a set of nodes depends only on the flow they send to other nodes (including nodes outside the set), but not on the flow they receive from nodes outside. In the two-way flow case, we assume that the cost paid by a set of nodes depends on the flow they send to other nodes (including nodes outside the set) and also on the flow they receive from nodes outside. In both cases, we study the core and the Shapley value of the corresponding cost game.

Keywords: game theory, hub network, cost allocation, core, Shapley value.

1 Introduction

Hub networks play a fundamental role in modelling telecommunication, transportation, and parcel delivery systems. Assume that there are users located at different geographical nodes who need to send a certain flow of data or goods to each other through costly connections. A planner needs to

*This work is partially supported by research grants ECO2014-52616-R from the Spanish Ministerio de Economía y Competitividad, ECO2017-82241-R from the Spanish Ministerio de Economía, Industria y Competitividad, and ED431B 2019/34 from Xunta de Galicia.

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One-way and two-way cost allocation in hub network problems

G. Bergantinos¹ · J. Vidal-Puga¹

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Keywords Game theory · Hub network · Cost allocation · Core · Shapley value

1 Introduction

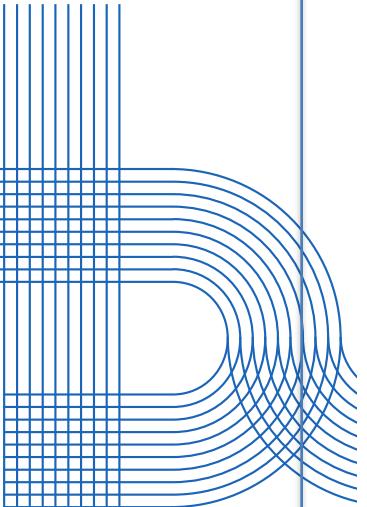
Hub networks play a fundamental role in modeling telecommunication, transportation, and parcel delivery systems. Assume that there are users located at different geographical nodes who need to send a certain flow of data or goods to each other through costly connections. A planner needs to locate an optimal number of hub facilities at some nodes so that each non-hub node is connected to exactly one hub and all the hubs are connected to one another at a reduced cost (due to economies of scale).

This work is partially supported by research grants ECO2014-52616-R from the Spanish Ministerio de Economía y Competitividad, ECO2017-82241-R from the Spanish Ministerio de Economía, Industria y Competitividad, and ED431B 2019/34 from Xunta de Galicia.

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Aggregator Operators for Dynamic Rationing*

Juan D. Moreno-Ternero[†] Juan Vidal-Puga[‡]Published in *European Journal of Operational Research*[§]**Abstract**

We study dynamic rationing problems. In each period, a fixed group of agents hold claims over an insufficient endowment. The solution to each of these periods' problems might be influenced by the solutions at previous periods. We single out a natural family of aggregator operators, which extend static rules (solving static rationing problems) to construct rules to solve dynamic rationing problems.

Keywords: axioms, resource allocation, dynamic models, rationing, operators.

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Aggregator operators for dynamic rationing*

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1. Introduction

How should we divide when there is not enough? This is, allegedly, one of the oldest questions in the history of economic thought and its treatment can indeed be traced back to ancient sources. O'Neill (1982) was the first to introduce a simple model to answer this question. His basic (and extremely influential) model formalized a group of individuals having conflicting claims over an insufficient amount of a perfectly divisible good. Formally, a rationing problem is described by an endowment $E \in \mathbb{R}_+$, which has to be allocated among a group of agents N , each of whom has a claim $c_i \in \mathbb{R}_+$, so that $E \leq \sum_{i \in N} c_i$. The issue was to determine rules that would associate with each of these problems a specific allocation of the endowment. The model generated a sizable literature in the last decades analyzing various aspects of this simple, yet rich, model of rationing. The reader is referred to Thomson (2003, 2015, 2019) for detailed surveys of the literature.

The field of operations research has devoted considerable attention to O'Neill's model (van den Brink, Funaki, & van der Laan, 2013; Giménez-Gómez & Peris, 2014; Lahiri, 2001), some of its applications (Casas-Méndez, Fragnelli, & García-Jurado, 2011; Gutiérrez, Ullora, Sánchez-Soriano, & Mosquera, 2018), or several

of its generalizations (Bergantiños & Lorenzo, 2008; Bergantiños & Vidal-Puga, 2004, 2006; Calleja, Borm, & Hendrickx, 2005). Nevertheless, it is somewhat remarkable that no attention has been paid to address the extension of the model to a dynamic setting, which would accommodate an extremely natural aspect of real-life rationing processes. This paper aims to be a first step in that direction.

In general, rationing does not occur in static terms. In refugee camps for instance, minimum food rations are provided immediately upon identification, to ensure the nutritional status of refugees does not deteriorate. In subsequent months, refugees are provided with food rations composed by a mix of food items (involving cereals, pulses, vegetable oil, and nutrient-enriched flour) and cash, sent through mobile telephones, allowing them to buy food products of their choice from local markets. The extent of these rations depends on the available resources and the amount of refugees (and their needs), among other things.¹

How should rationing be addressed in a dynamic setting? One trivial answer is to do so by ignoring the dynamic component and solving the problem at each period independently. We believe that is unsatisfactory and aim to proceed differently. More precisely, imagine we consider a sequence of rationing problems involving the same group of agents, at different periods of time, whose period-wise allocations might not only be determined by the data of the rationing problem at such period, but also by the

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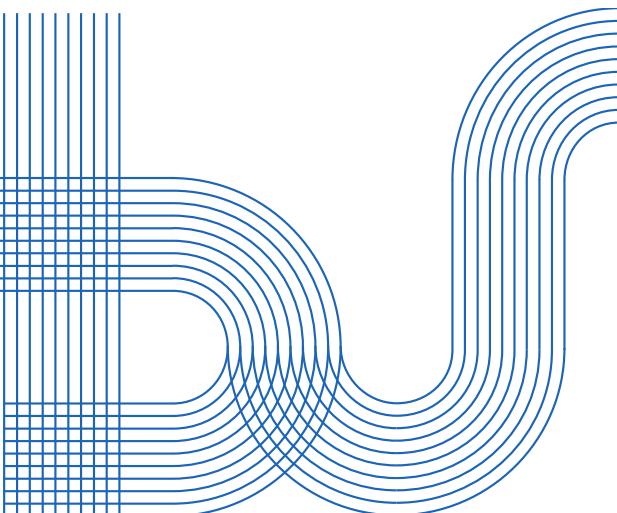
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¹ For instance, in Dadaab (Kenya, bordering near Somalia), the world's largest refugee camp, the UN World Food Programme was forced to cut food rations by 50% in 2016, due to a lack of funds. See <http://www.un.org/apps/news/story.asp?NewsID=56521>, accessed on January 22, 2020.

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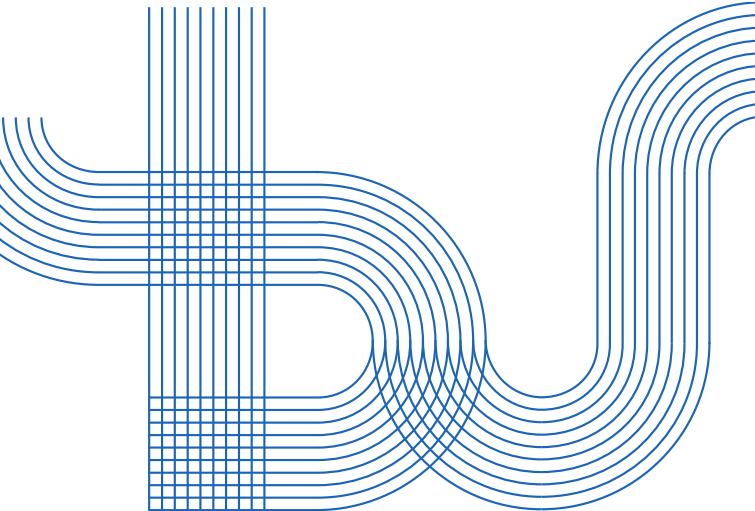
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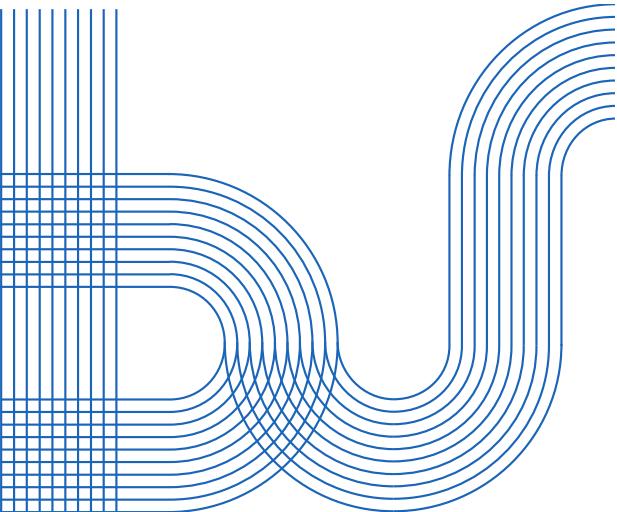
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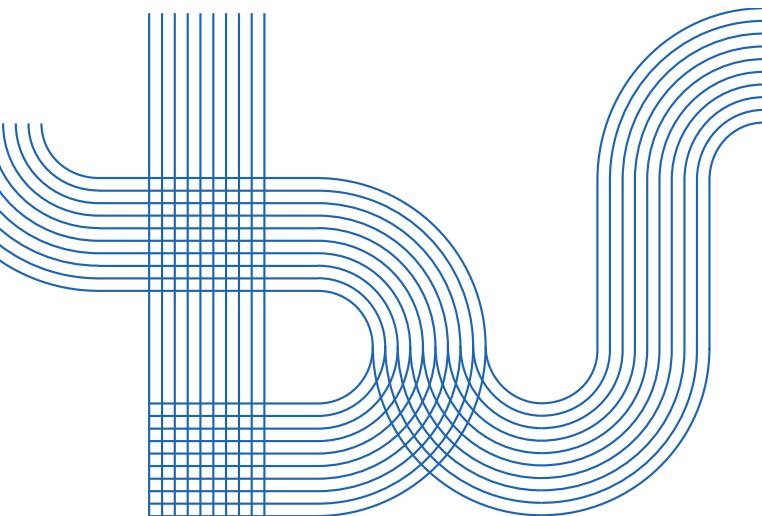
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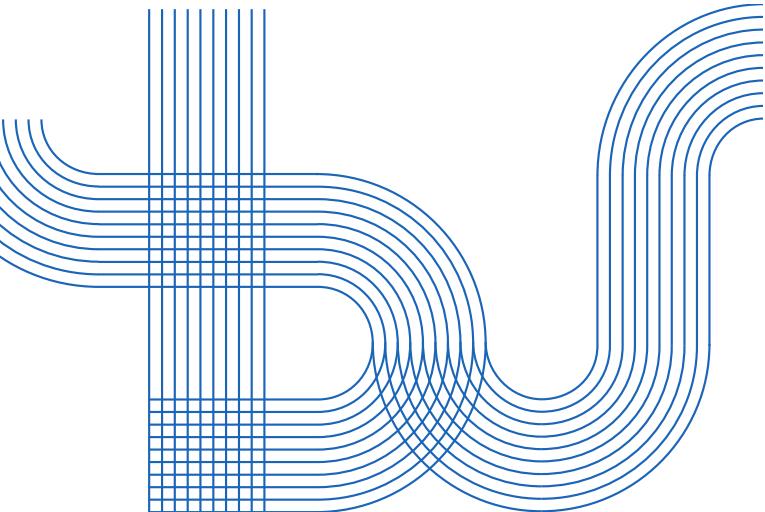
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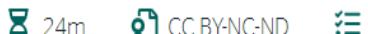
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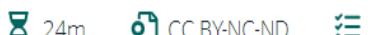
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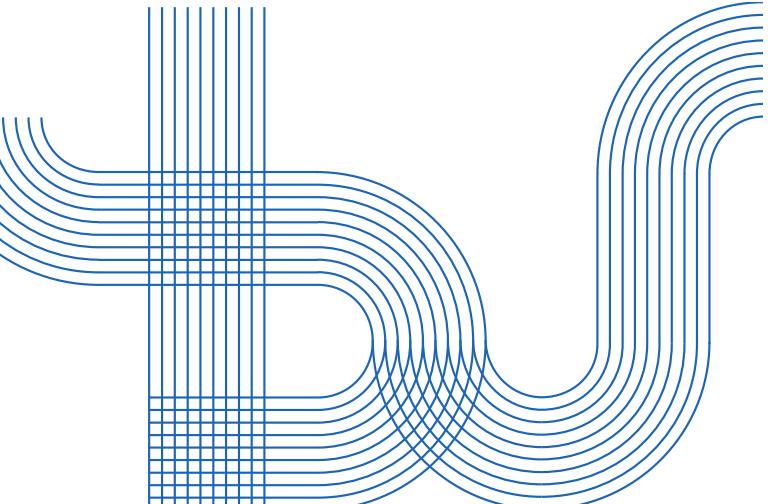
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<https://doi.org/10.1002/psp.2399>

RESEARCH ARTICLE

Socio-economic groups moving apart: An analysis of recent trends in residential segregation in Australia's main capital cities

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²Department of Applied Economics, ECOBAS, University of Vigo, Vigo, Spain

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Abstract

We study changes in the spatial distribution and segregation of socio-economic groups in Australia using a new data set with harmonised census data for 1991 and 2011. We find a general increase in residential segregation by education and occupation groups across the major capital cities in Australia. Importantly, these trends cannot be explained in general by changes in the demographic structure of groups and areas but rather by the rise in the over and underrepresentation of groups across areas. In particular, our analysis reveals clear diverging trends in the spatial configuration of high and low socio-economic groups as measured by their occupation and education. Whereas high-skilled groups became more concentrated in the inner parts of cities, the low-educated and those working in low-status occupations became increasingly overrepresented in outer areas. This pattern is observed in all five major capital cities, but it is especially marked in Sydney, Melbourne and Brisbane.

KEY WORDS

Australia, human capital, occupations, residential segregation

1 | INTRODUCTION

Social and economic transformations in many industrialised countries over the past 50 years have had very asymmetric effects on skill groups, widening inequalities between them. Various factors contributed to the deterioration of the relative position of low- and middle-skilled groups including skilled-biased technical change and the rise in returns to skill (Acemoglu, 2002), offshoring and the polarisation of labour markets (Goos, Manning & Salmons, 2014) and the decline of labour market institutions (Fortin & Lemieux, 1997).

Similar to other Anglo-Saxon countries like the United States and the United Kingdom since the 1980s, Australia's labour markets have been characterised by an increasing polarisation, with a

decline in middle skill and routine jobs, and a sharp increase in the number of casual jobs—from 15% in 1983 to 28% in 2002 (Campbell, 2004)—all of which disproportionately affected the low-skilled members of the workforce (Coelli & Borland, 2016). This shift in the structure of occupations came alongside an increase in the return to skill of the most qualified further contributing to inequalities between skill groups (Keating, 2003). These changes in labour markets were also reflected in housing markets, where the strong rise in housing prices negatively impacted the levels of housing stress and affordability of most vulnerable groups (Yates, 2008). We hypothesise that these compound inequalities have had consequences for the residential sorting of skill groups within Australian cities.

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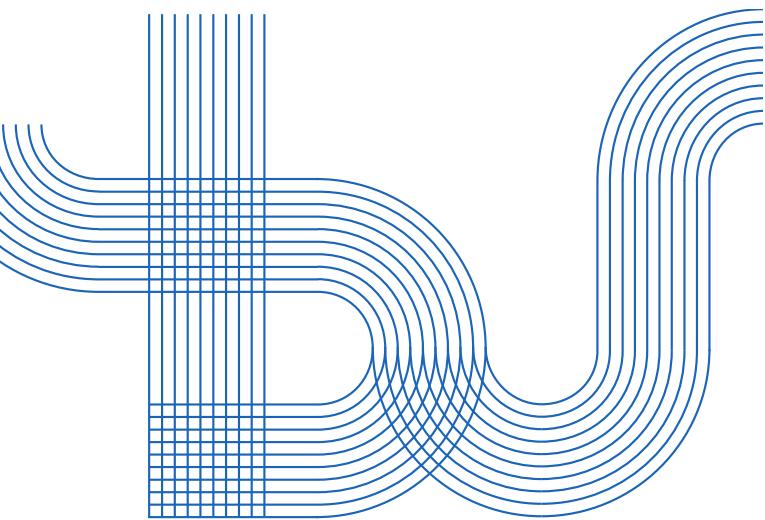
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Socio-economic groups moving apart: An analysis of recent trends in residential segregation in Australia's main capital cities

Francisco Azpitarte¹ | Olga Alonso-Villar² | Felipe Hugo-Rojas³

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Optimization of tuna fishing logistic routes through information sharing policies: A game theory-based approach

Carlos Groba, Antonio Sartal *, Gustavo Bergantiño

School of Economics and Business, Rúa Leonardo Da Vinci, s/n. Campus das Lagoas/Marcosende, 36310, Spain
University of Vigo, Spain

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FAD restrictions
Tuna fishing industry
Economic incentives for sharing
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ABSTRACT

The tuna fishing industry's increasing regulatory restrictions on the number of FADs per vessel is forcing companies to rethink their fishing practices to ensure their continued profitability. Despite these expanding constraints, and although many studies have been published on the use of FADs and their implications, to date there has been little research on how to help the tuna fishing industry optimize its procedures. Based on real data and using the game theory approach, we suggest a new collaborative method of employing FADs that involves their use between vessels, and we demonstrate that sharing FADs optimizes the use of fuel and time for entire fleets. Our findings show that, with the correct incentives, all stakeholders, including the company, the skipper, and even the environment, can achieve mutually improved results by sharing information.

1. Introduction

The performance of the tropical tuna fishing industry is, more than ever, bound to the use of drifting fish aggregating devices (FADs), the use of which has become widespread since 1991 [1]. With the scope of new regulations affecting the tuna industry, this paper furnishes a study from a perspective that prioritizes efficiency, imposing the theoretical framework of game theory.

The global tuna fishery is one of the largest in the world. The most widely used and fastest-growing fishing gear for targeting tuna is the purse seine (PS). Tropical PS started to operate in the Atlantic Ocean in the 1960s and were introduced into the Indian Ocean in the early 1980s. PS fishers principally target skipjack tuna (*Katsuwonus pelamis*, Scombridae) schools, but also schools of small juvenile bigeye (*Thunnus obesus*, Scombridae) and yellowfin tuna (*Thunnus albacares*, Scombridae) [2]. These species tend to gravitate toward objects floating on the surface of the ocean [3,4]. The aggregate behavior of tuna toward floating objects was first observed in the context of tuna interacting with natural floating objects (FOBs) emerging from river mouths. Aiming to simulate FOBs, fishermen started deploying large numbers of their own FADs. These human-made drifting FADs generally consisted of bamboo, stabilized in the surface currents by large pieces of netting hanging below; these early FADs were able to stay afloat for up to two months [5]. It is worth noting here that there are two kind of FADs: anchored FADs, or Puyos, and drifting FADs. This study refers exclusively to drifting FADs (dFADs).

The tuna fishing industry targets a mixture of free-swimming schools (FS) and of drifting FAD schools. The main advantage of FADs for fishers is that they increase the catchability of tuna, relative to sets on FS [6]. Even fleets that have traditionally relied on FS sets are moving towards FAD-based strategies [7]. The increasing use of FADs resulted in subsequent increases in PS catches per unit effort (CPUE) over time [8–10]. In parallel, the extensive use of FADs by the PS fishery industry increases the possibility of a number of negative impacts, including a reduction in yield per recruitment of two target tuna species (bigeye and yellowfin), increased bycatch and perturbation of the pelagic ecosystem balance, and alteration of the normal movements of the species associated with FADs [3,11,12]; such effects, however, are difficult to estimate with any accuracy [7]. From a research perspective, there is reason to be hopeful; although, at present, FADs are only used for fishing purposes, they can also serve scientific objectives [1,3,14].

Be that as it may, due to the increased use of FADs, recent efforts from regional fisheries management organizations (RFMOs) have given rise new regulations on the number of FADs that each PS can manage. These increasing regulatory restrictions, in conjunction with other constraints that affect Global marine fisheries (e.g., those aimed at minimizing bycatch and discards [15]), force companies to rethink their fishing practices and optimize the use of FADs to ensure their profitability. With these newly implemented restrictions, it is essential that the tuna fishing industry rethinks their fishing practices and optimize the use of FADs to ensure continued profitability. Although

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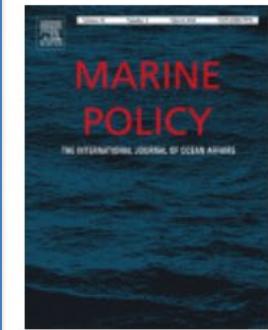
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Optimization of tuna fishing logistic routes through information sharing policies: A game theory-based approach

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difficult to estimate with any accuracy [7]. From a research perspective, there is reason to be hopeful; although, at present, FADs are only used for fishing purposes, they can also serve scientific objectives [1,3,14].

Be that as it may, due to the increased use of FADs, recent efforts from regional fisheries management organizations (RFMOs) have given rise new regulations on the number of FADs that each PS can manage. These increasing regulatory restrictions, in conjunction with other constraints that affect Global marine fisheries (e.g., those aimed at minimizing bycatch and discards [15]), force companies to rethink their fishing practices and optimize the use of FADs to ensure their profitability. With these newly implemented restrictions, it is essential that the tuna fishing industry rethinks their fishing practices and optimize the use of FADs to ensure continued profitability. Although

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Optimization of tuna fishing logistic routes through information sharing policies: A game theory-based approach

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ABSTRACT

The tuna fishing industry's increasing regulatory restrictions on the number of FADs per vessel is forcing companies to rethink their fishing practices to ensure their continued profitability. Despite these expanding constraints, and although many studies have been published on the use of FADs and their implications, to date there has been little research on how to help the tuna fishing industry optimize its procedures. Based on real data and using the game theory approach, we suggest a new collaborative method of employing FADs that involves their use between vessels, and we demonstrate that sharing FADs optimizes the use of fuel and time for entire fleets. Our findings show that, with the correct incentives, all stakeholders, including the company, the skipper, and even the environment, can achieve mutually improved results by sharing information.

1. Introduction

The performance of the tropical tuna fishing industry is, more than ever, bound to the use of drifting fish aggregating devices (FADs), the use of which has become widespread since 1991 [1]. With the scope of new regulations affecting the tuna industry, this paper furnishes a study from a perspective that prioritizes efficiency, imposing the theoretical framework of game theory.

The global tuna fishery is one of the largest in the world. The most widely used and fastest-growing fishing gear for targeting tuna is the purse seine (PS). Tropical PS started to operate in the Atlantic Ocean in the 1960s and were introduced into the Indian Ocean in the early 1980s. PS fishers principally target skipjack tuna (*Katsuwonus pelamis*, Scombridae) schools, but also schools of small juvenile bigeye (*Thunnus obesus*, Scombridae) and yellowfin tuna (*Thunnus albacares*, Scombridae) [2]. These species tend to gravitate toward objects floating on the surface of the ocean [3,4]. The aggregate behavior of tuna toward floating objects was first observed in the context of tuna interacting with natural floating objects (FOBs) emerging from river mouths. Aiming to simulate FOBs, fishermen started deploying large numbers of their own FOBs. These human-made drifting FADs generally consisted of bamboo, stabilized in the surface currents by large pieces of netting hanging below; these early FADs were able to stay afloat for up to two months [5]. It is worth noting here that there are two kind of FADs: anchored FADs, or Puyos, and drifting FADs. This study refers exclusively to drifting FADs (dFADs).

The tuna fishing industry targets a mixture of free-swimming schools (FS) and of drifting FAD schools. The main advantage of FADs for fishers is that they increase the catchability of tuna, relative to sets on FS [6]. Even fleets that have traditionally relied on FS sets are moving towards FAD-based strategies [7]. The increasing use of FADs resulted in subsequent increases in PS catches per unit effort (CPUE) over time [8–10]. In parallel, the extensive use of FADs by the PS fishery industry increases the possibility of a number of negative impacts, including a reduction in yield per recruitment of two target tuna species (bigeye and yellowfin), increased bycatch and perturbation of the pelagic ecosystem balance, and alteration of the normal movements of the species associated with FADs [3,11,12]; such effects, however, are difficult to estimate with any accuracy [7]. From a research perspective, there is reason to be hopeful; although, at present, FADs are only used for fishing purposes, they can also serve scientific objectives [1,3,14].

Be that as it may, due to the increased use of FADs, recent efforts from regional fisheries management organizations (RFMOs) have given rise new regulations on the number of FADs that each PS can manage. These increasing regulatory restrictions, in conjunction with other constraints that affect Global marine fisheries (e.g., those aimed at minimizing bycatch and discards [15]), force companies to rethink their fishing practices and optimize the use of FADs to ensure their profitability. With these newly implemented restrictions, it is essential that the tuna fishing industry rethinks their fishing practices and optimize the use of FADs to ensure continued profitability. Although

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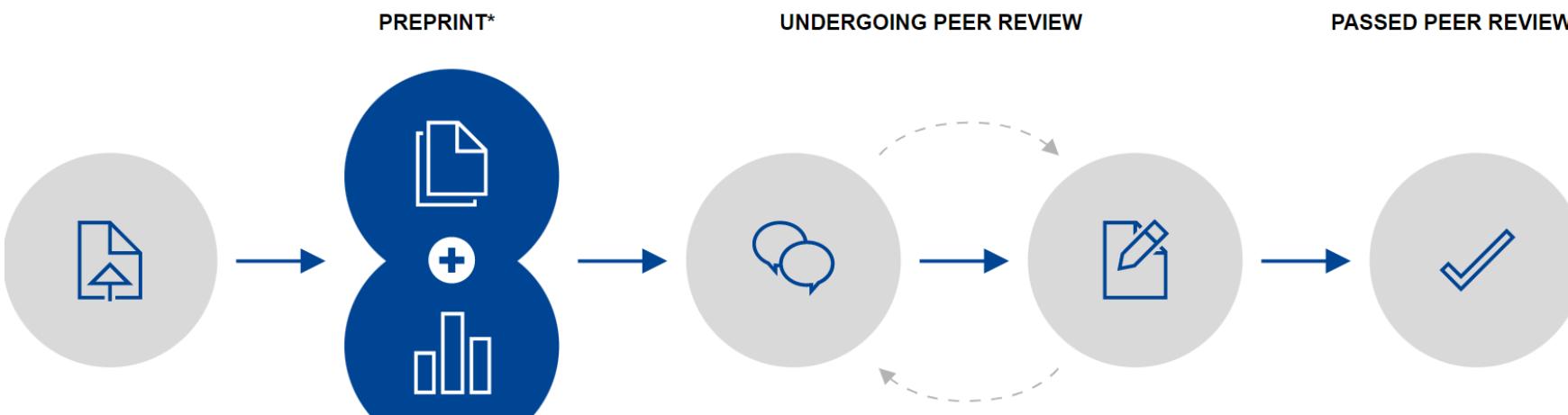
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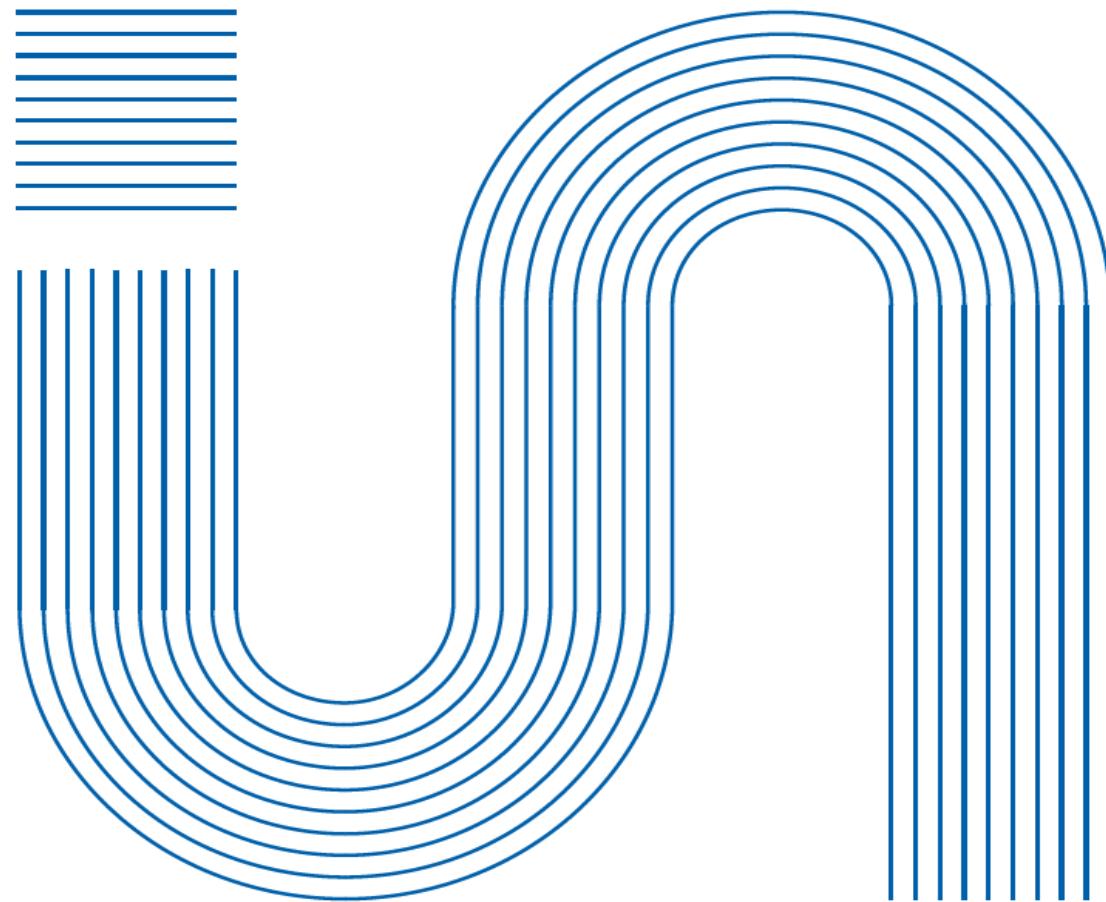
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