Applications of Data Science in Transport Policy Analysis

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What I have achieved

- Transversal courses - only one course left

- Skills obtained – data analysis (Python, R, Java, QGIS), publishing

- Missed conference in Paris due to sickness (accepted abstract)

- Accepted abstract – Transport Research Arena, Lisbon

- Foreseen abstract submissions – 2 conferences, 1 workshop (Q4 2022)

- Language skills – Spanish course

- 3 projects: Climate neutral cities, COVID-19, 15-minute cities

- One publication

European Commission

Impact of the COVID-19 Pandemic on Mobility in Spain

- Main research questions:

  - How different policy measures that aimed to decrease movements have affected travel behaviour across Spain (such as mobility restrictions, school closures etc.)?

  - How and why travel habits changed over time on the analysed three levels?

  - How can distinct sources of data (mobile cell information data, open Google and Apple data) be used to analyse mobility patterns?

- Published JRC technical report (doi:10.2760/040554)

European Commission

This tab serves for regional analysis. Data of the plots can be downloaded in .csv format by clicking on the download buttons.

Region:

Andalusia
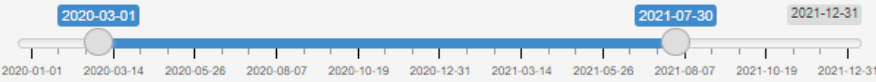
Mobility indicators to display:

- ☑ JRC index
- ☐ JRC index internal
- ☐ JRC index inward
- ☐ JRC index outward
- ☐ Apple driving
- ☐ Apple transit
- ☐ Apple walking
- ☐ Google retail
- ☐ Google grocery
- ☐ Google parks
- ☐ Google transit
- ☐ Google workplaces
- ☐ Google residential

Time period of analysis

2020-03-01   2021-07-30   2021-12-31

2020-01-01   2020-03-14   2020-05-26   2020-08-07   2020-10-19   2020-12-31   2021-03-14   2021-05-26   2021-08-07   2021-10-19   2021-12-31
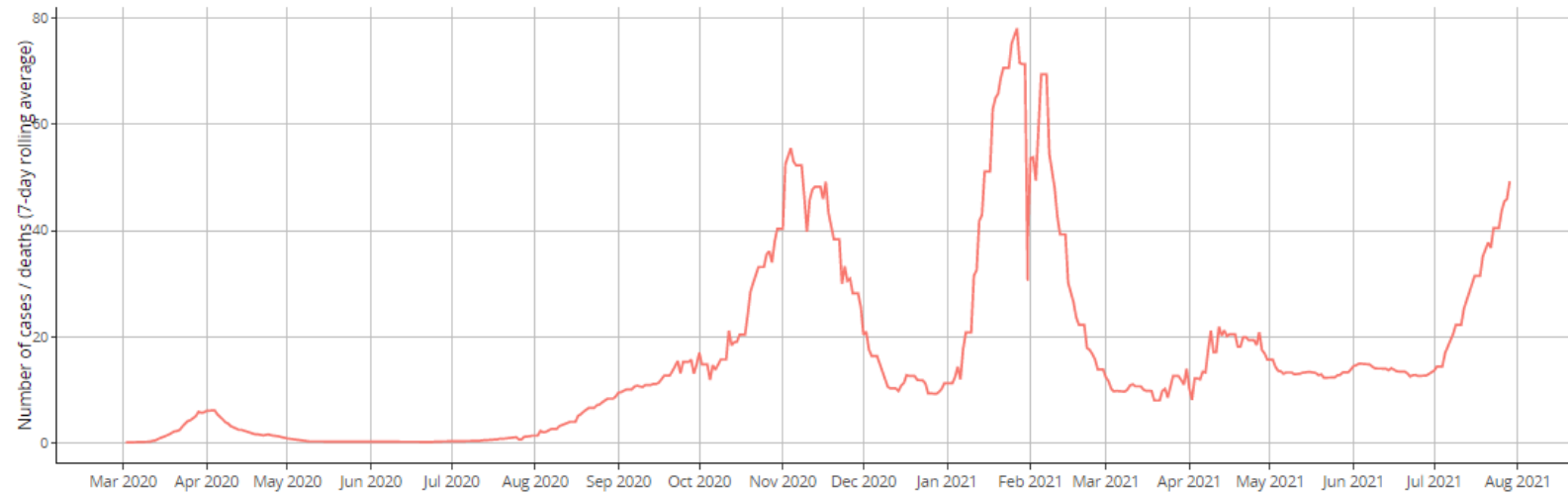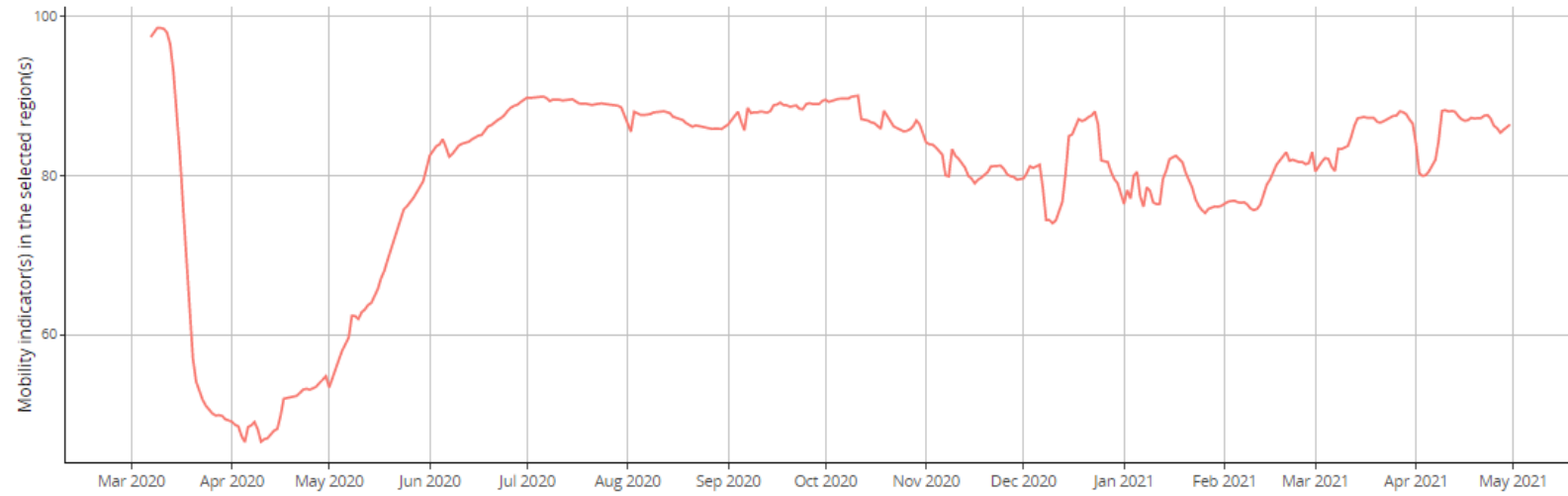
Show restrictions ⬤

Show legends ⬤

Cases / deaths to show:

- ☑ Number of daily new infections per 100,000 inhabitants (7-day rolling average)
- ☐ Number of daily new deaths per 100,000 inhabitants (7-day rolling average)

Response indices to show:

Nothing selected

⬇ Save data on mobility   ⬇ Save data on infections

Online interactive dashboard: https://mikiradics.shinyapps.io/dashboard/

European Commission

100 Climate-neutral Cities by 2030

- Aim: *„support, promote and showcase 100 European cities in their systemic transformation towards climate neutrality by 2030 and make these cities into experimentation and innovation hubs for all citie"*

- Contribution:

  - 2 JRC technical reports – guidelines and info kit for cities

  - Application questionnaire

  - Participation at various workshops and meetings

European Commission

100 Climate-neutral Cities by 2030

- Published:

  - European Missions - 100 Climate-Neutral and Smart Cities by 2030 - Info Kit for Cities https://tinyurl.com/hjunv8b7

  - Commission invites cities to express their interest to become part of European Mission "100 Climate-Neutral and Smart Cities by 2030" (closed call) https://tinyurl.com/2p9x85r3

- Upcoming conference and publication

  - Climate Neutrality in Urban Transport: Preliminary Data from Cities' Expressions of Interest for the EU Mission – TRA Conference, Lisbon, Nov. 2022
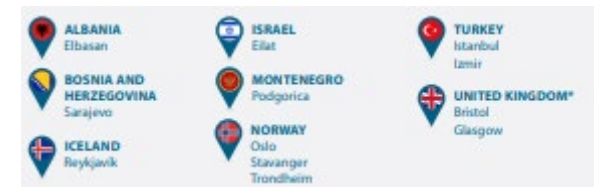
Accessibility analysis – 15-minute cities

- Research questions:

    - What methods, (open-source) tools and (open) data can be used for transport accessibility analysis?

    - To what extent are cities prepared to become 15-minute cities in Europe?

    - How do access to amenities and opportunities affect social and transport equity?

- What I have done:

    - Literature review

    - Methodology (scalable pipeline)

    - Software: Python, R, QGIS, Java

15-minute cities

- Upcoming plans:

  - Analysis and interpretation of the results

  - Transport equity analysis

  - Policy relevant outcomes

  - Abstract submission (2 conferences, 1 workshop)

  - Publication
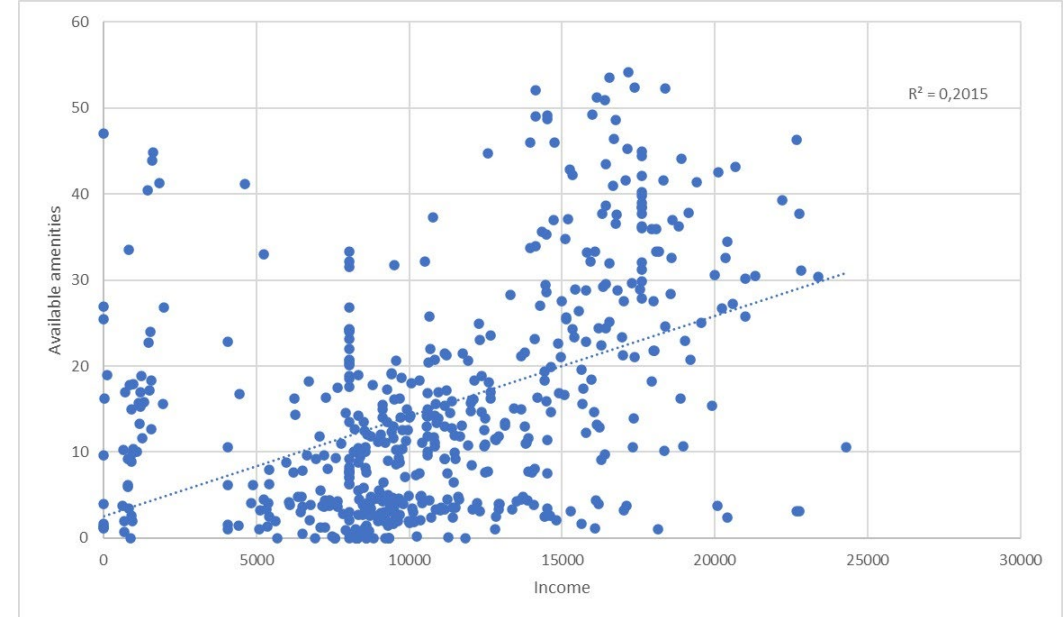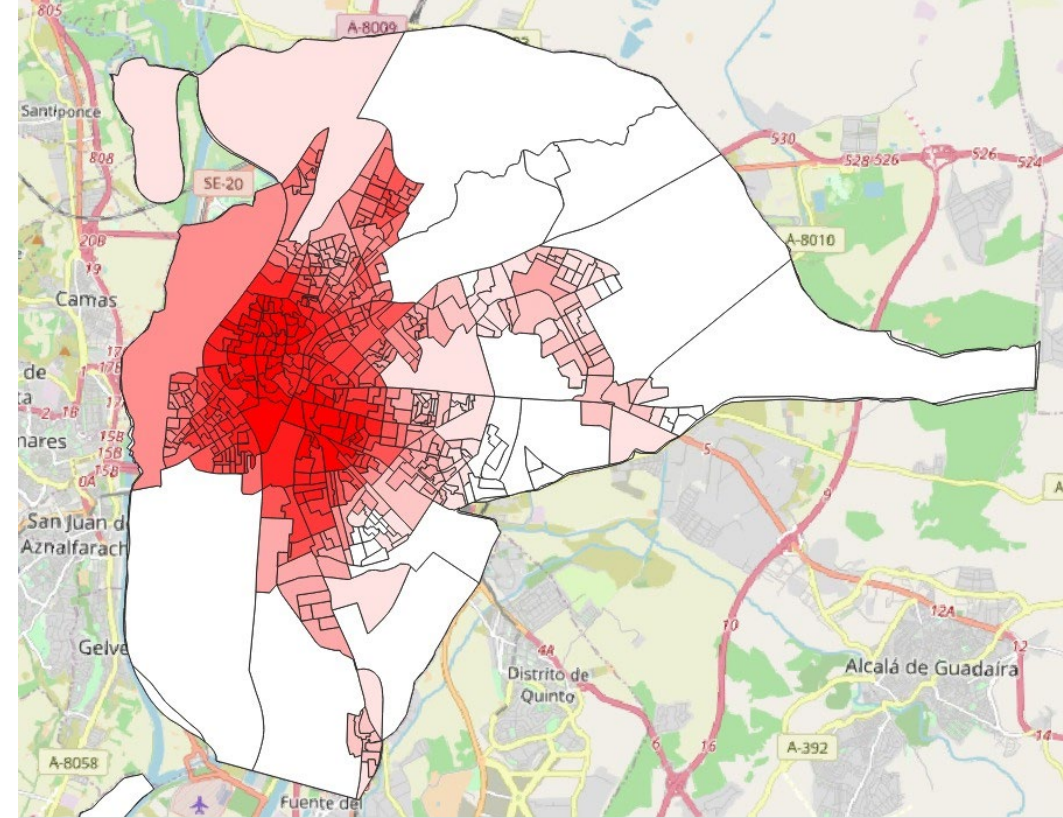
Evaluation

BASIC SKILLS	2. Science &Technique (bibliographic study)	3. Technology (tools and instruments)	4. Educational Activities (courses and seminars)	5. Results (publications)	6. Scientific Criticism (SWOT Analysis)	7. Work Plan	8.Mobility	9. Funding	10. Ethics
CB11 – Systematic understanding of a field of study and command of the skills and research methods related to the field.	literature review, courses, self-learning	self-learning	transversal courses, additional courses, self-learning						
CB12 – Skill to conceive, design or create, implement and adopt a substantial process of research or creation.				JRC technical reports, forseen publications		accepted workplan, regular evaluation and update	JRC contract, planned international mobility		
CB13 – Skill to contribute to the enlargement of the knowledge limits through an original research.				JRC technical reports, forseen publications					
CB14 -Skill to carry out a critical analysis and assessment and synthesis of new and complex ideas.					regular evaluation				
CB15 – Skill to communicate with the academic and scientific community and with society in general about the scope of knowledge in the ways and languages of common use in the international scientific community.				JRC technical reports, forseen publications			JRC contract, planned international mobility		
CB16 – Skill to encourage, in academic and professional contexts, the scientific, technological, social, artistic or cultural progress in a society based on knowledge.				JRC technical reports, forseen publications					Transversal courses

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Evaluation

CAPACITIES AND PERSONAL ABILITIES	2. Science &Technique (bibliographic study)	3. Technology (tools and instruments)	4. Educational Activities (courses and seminars)	5. Results (publications)	6. Scientific Criticism (SWOT Analysis)	7. Work Plan	8. Mobility	9. Funding	10. Ethics
CA01 – Cope in contexts in which there is little specific information.	literature review, courses, self-learning	literature review, courses, self-learning	transversal courses, additional courses, self-learning						
CA02 – Find the key questions to be answered to solve a complex problem.				JRC technical reports, forseen publications					
CA03 – Design, create, develop and undertake new and innovative projects in the knowledge scope.						accepted workplan, regular evaluation and update		funded research	
CA04 – Work both in teams and individually in an international or multidisciplinary context.			transversal courses, additional courses, self-learning				JRC contract, planned international mobility		
CA05 – Integrate knowledges, face complexity and formulate judgements with limited information.	developed analysis methodology	developed analysis methodology	transversal courses, additional courses, self-learning						
CA06 – Intellectual criticism and defence of solutions.					regular evaluation				

SWOT analysis

Strengths	Weaknesses
• Funding and institutional background • Multidisciplinary, international environment • Relevant topic with potential policy impact and publishing opportunities	• Not present at UNICAN • Limited collaborations
Opportunities • Collaboration (JRC - UNICAN) • International mobility • Workshops, conferences	**Threats** • Missing opportunities at UNICAN • Timing

European Commission

Timeline

Mar-Jun '21
Basic training

Jun '21 – Febr '22
COVID, Cities' mission

Febr '22 –
Accessibility analysis, Cities' mission

'23 –
Thesis preparation

PhD

Jun '21
Stay at JRC

Dec '20
Enrollment

Apr '21
Contract - JRC

Apr 2024
Contract ends – JRC
+
Thesis submission

Mar-Jun '21
Stay at UC

European Commission

Thank you

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