Sofia Gil-Clavel
Computer, Actuarial, and Population Scientist

PhD Candidate in Demography

Interests**:** Computational Social Science, Demography, Computer Science

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WORK EXPERIENCE

Researcher at TU Delft
[Delft, Netherlands] [Jul.2022 – .]
Faculty of Technology, Policy, and Management, Department of Multi Actor Systems, in the Multi Actor Systems research group.

National Population Council (CONAPO)
[Mexico City, Mexico] [Aug.2017 – Aug.2018]
Head of the Demographic Analysis Department:
Creation of computational tools to visualize and analyze Mexican conciliation data (1950-2015) and the Mexican projected population (2016-2050). Demographic data analysis of population, deaths, births, and migration. I programmed and uploaded (Linux servers) the first version (2018) of the shiny app to visualize these data (link). During this period, I also worked on the project presented at SOMEDE: "Estimation of the infant mortality rate in Mexico in 2015 at municipal level using numerical techniques".

Center of Demographic, Urban, and Environmental Studies (CEDUA) of COLMEX
[Mexico City, Mexico] [Aug.2014 – Aug.2015]
Research support:
Development of the R package "DemosR: Package for the Stochastic Population Forecast" (COLMEX internal use). Analysis and handling of big data for demographic research.

EDUCATION

PhD in Demography/Computational Social Science

PhD Student at the Digital and Computational Demography Laboratory. Max Planck Institute for Demographic Research (MPIDR), Germany.	Sep.2018 – Jun.2022
Affiliated with the Faculty of Spatial Sciences. University of Groningen, Netherlands.	Jan.2020 – Aug.2023

Supervisors:
        Prof. Dr. Emilio Zagheni (MPIDR)
        Prof. Dr. Clara H. Mulder (University of Groningen)
Thesis:
Gil-Clavel, S. (2023). *Studying Social Interactions Using Digital Trace Data: the Cases of Older Adults, Migrants, and Family Ties*. [Thesis fully internal (DIV), University of Groningen]. University of Groningen. https://doi.org/10.33612/diss.688253059

Part of the schools:

IMPRS-PHDS: International Max Planck Research School for Population, Health and Data Science	Sep.2019 – Aug.2023
CAnD3: Consortium on Analytics for Data-Driven Decision-Making	May 2021 – Jun.2022

Research Stay

University of Groningen, Netherlands, to work with Prof. Clara Mulder.	Nov.2021 – Feb.2022

Master in Computer Science

Master of Science with Specialization on Computing and Industrial Mathematics. Center of Mathematics Research (CIMAT), Mexico.	Aug.2015 – Aug.2017

Thesis:

> *Computational and Statistical Contributions to Study Internal Migration at Municipal Level: The Case of Mexico for the period 2005-2010.*
> Supervisor: Prof. Dr. Johan Van Horebeek

Bachelor in Actuarial Science

Bachelor of Science in Actuarial Science. National Autonomous University of Mexico (UNAM), Mexico.	Aug.2009 – Aug.2014

SKILLS

- **Statistical Analysis:** R, Python.
- **Programming:** Python, R, C++, VBA.
- **Text processing:** LATEX, R-Markdown, Jupyter.
- **Data visualization and exploration:** R (shiny, ggplot, plotly), Python (matplotlib), Gephi.
- **Use of Application Programming Interfaces (APIs):** Facebook, Twitter, etc.
- **Languages:** Spanish (native), English (advanced), Dutch (basic), German (basic).

PUBLICATIONS

Peer Reviewed

Gil-Clavel, S., Grow, A., & Bijlsma, M. J. (2023). "Migration Policies and Immigrants' Language Acquisition in EU-15: Evidence from Twitter." *Population and Development Review*. https://doi.org/10.1111/padr.12574

Kashyap, R., Rinderknecht, R. G., Akbaritabar, A., Alburez-Gutierrez, D., **Gil-Clavel, S.**, Grow, A., Kim, J., et al. (2023). "Digital and computational demography". In *Research Handbook on Digital Sociology* (pp. 48-86). Edward Elgar Publishing. https://doi.org/10.4337/9781789906769

Grow, A., Perrotta, D., Del Fava, E., Cimentada, J., Rampazzo, F., **Gil-Clavel, S.**, Zagheni, E., Flores, R.D., Ventura, I. and Weber, I. (2022). "Is Facebook's advertising data accurate enough for use in social science research? Insights from a cross-national online survey." *Journal of the Royal Statistical Society* Series A, 185(S2), S343-S363. https://doi-org.tudelft.idm.oclc.org/10.1111/rssa.12948

Gil-Clavel, S., Zagheni, E., & Bordone, V. (2021). "Close social networks among older adults: the online and offline perspectives". *Population Research and Policy Review*, 1-25. https://link.springer.com/article/10.1007/s11113-021-09682-3

Gil-Clavel, S., & Zagheni, E. (2019). "Demographic Differentials in Facebook Usage around the World". *Proceedings of the International AAAI Conference on Web and Social Media*, *13*, 647–650. Retrieved from https://ojs.aaai.org/index.php/ICWSM/article/view/3263

Del Fava, E., Cimentada, J., Perrotta, D., Grow, A., Rampazzo, F., **Gil-Clavel, S.**, & Zagheni, E. (2021). "Differential impact of physical distancing strategies on social contacts relevant for the spread of SARS-CoV-2: evidence from a cross-national online survey", *BMJ open*, 11(10), e050651.

Perrotta, D., Grow, A., Rampazzo, F., Cimentada, J., Fava, E. D., **Gil-Clavel, S.,** & Zagheni, E. (2021). "Behaviors and attitudes in response to the COVID-19 pandemic: Insights from a cross-national Facebook survey". *EPJ Data Science*, *10*(17), 13. https://doi.org/10.1140/epjds/s13688-021-00270-1

Grow, A., Perrotta, D., Fava, E. D., Cimentada, J., Rampazzo, F., **Gil-Clavel, S.,** & Zagheni, E. (2020). "Addressing Public Health Emergencies via Facebook Surveys: Advantages, Challenges, and Practical Considerations". *Journal of Medical Internet Research*, *22*(12), 12. https://doi.org/10.2196/20653

Alburez-Gutierrez, D., Zagheni, E., Aref, S., **Gil-Clavel, S.**, Grow, A., & Negraia, D. V. (2019). "Demography in the Digital Era: New Data Sources for Population Research". In *Smart Statistics for Smart Applications: Book of Short Papers SIS2019* (Arbia, Giuseppe, et al.). Pearson. https://osf.io/24jp7

Working Papers

Gil-Clavel, S., & Filatova, T. (2023). "Using Natural Language Processing and Networks to Automate Structured Literature Reviews: An Application to Farmers Climate Change Adaptation". *arXiv preprint* arXiv:2306.09737. https://arxiv.org/pdf/2306.09737.pdf

González-Leonardo, M., Neville, R., **Gil-Clavel, S.**, & Rowe, F. (2023, April 28). "Sensing population displacement from Ukraine using Facebook data: Identifying potential settlement areas within host countries". *OSF Preprints*: 10.31219/osf.io/5ag8s. https://doi.org/10.31219/osf.io/5ag8s

Gil-Clavel, S., & Mulder, C. H. (2023, February 6). "Does Twitter data mirror the European North-South family ties divide? A comparative analysis of tweets about family". *OSF Preprints*: 10.31219/osf.io/c379h. https://doi.org/10.31219/osf.io/c379h

PROFESSIONAL ACTIVITIES

Invited speaker at the Department of Methodology and Statistics of Tilburg University to present "Big Data as a Data Source for Research: the Case of Facebook Data". March 2023.

Invited speaker at the Permanent Seminar 'Aplicaciones de ciencia de datos en las ciencias sociales y las humanidades' of El Colegio de México. Presentation: "La asociación entre las políticas de integración cívica y de ciudadanía con el uso de la lengua de destino de los inmigrantes de la UE-15: Uso de datos de Twitter para analizar la adquisición de idiomas" (You can find the video here). November 2022.

Gave a virtual training Workshop at El Colegio de Mexico "V Coloquio Internacional Estudiantil en Población, Ciudad y Ambiente": *Uso de APIs para la descarga de datos (link)*. April 2022.

Invited as discussant at the panel "Machine learning in the social sciences" of the *MigrantLife Symposium* (link). March 2022.

Invited as discussant at the panel "Digital Traces for demographic knowledge" of the *Population Studies Association of Argentina* (AEPA) (link). October 2021.

Invited to the roundtable Demographic Research with Web and Social Media Data at the *Latin American Population Association*, organized by Diego Alburez-Gutierrez. You can find the video [here](#).

Gave a [training Workshop](#) at IUSSP Digital Demography in the Era of Big Data Pre-Workshop: *Demography Today Training ([link](#))*. June 2019.

Organizer at the ICWSM 2019 Workshop: *Demographic Research with Web and Social Media Data ([link](#))*. June 2019.

Other Professional Activities:
- Launched Reading Club at the SC3 Group of TU Delft.   [April 2023 – …]
- Co-launched Peer-Review Workshop at the IMPRS-PHDS.   [Aug.2020 – Apr.2022]
- Elected PhD Core Representative at the IMPRS-PHDS.   [Nov.2019 – Jun.2022]
- Elected PhD External Representative at the MPIDR.   [Jun.2020 – Jun.2021]

SCHOLARSHIPS/GRANTS

- Scholarship of 10,000EUR from the Mexican National Council of Science and Technology (CONACyT) to study Computer Science at CIMAT.   [Aug.2015 – Aug.2017]
- Scholarship from CIMAT to participate in their "6th Summer School on Probability and Statistics", and to work on a research project with Prof. Rogelio Ramos Quiroga, CIMAT.   [July 1st to July 12th, 2013]

PRESENTATIONS AT CONFERENCES

I have presented my work at major international conferences, such as (*complete list in Appendix A*):
- EPC: European Population Conference
- IPC: International Population Conference.
- IMISCOE: International Migration, Integration and Social Cohesion in Europe.
- PAA: Population Association of America.
- ICWSM: International Conference on Web and Social Media.
- SOMEDE: Mexican Society of Demography.

Professional Memberships:
- International Union for the Scientific Study of Population (IUSSP)
- European Association for Population Studies (EAPS)
- Population Association of America (PAA)

Appendix A: Complete list of Presentations at Conferences

Sofia Gil-Clavel, Tatiana Filatova, "Farmers' Adaptation to Climate Change: a Natural Language Processing Systematic Review". Presentation at Latin American Researchers Day 2023. Event organized by LATITUD in collaboration with the Mexican and Colombian embassies. June 2023.

Sofia Gil-Clavel, Clara Mulder, "Do Tweets Mirror the European North-South Family Ties Division?". Presentation for Dutch Demography Day. Session: Poster Pitch. November 2022.

Sofia Gil-Clavel, Tatiana Filatova, "Transformational Adaptation to Floods at Micro and Macro Level - an AI Systematic Review". Poster Presentation at The Art of Scientific Computing. TU Delft. September 2022.

Sofia Gil-Clavel, André Grow, Maarten J. Bijlsma, "Analyzing EU-15 Immigrants' Language Acquisition using Twitter Data". Poster Presentation at The Art of Scientific Computing. TU Delft. September 2022.

Sofia Gil-Clavel, Tatiana Filatova, "Transformational Adaptation to Floods at Micro and Macro Level - an AI Systematic Review". Poster Presentation at Tipping Points Conference: From Climate Crisis to Positive Transformation. September 2022.

Sofia Gil-Clavel, André Grow, Maarten J. Bijlsma, "EU-15 Immigrants Language Integration on Twitter". Poster presented at European Population Conference (EPC). Poster Café. June 2022.

Sofia Gil-Clavel, André Grow, Maarten J. Bijlsma, "EU-15 Immigrants Language Integration on Twitter". Presentation for Population Association of America (PAA). Session Flash: New Data and Methods in Migration Research. April 2022.

Sofia Gil-Clavel, Clara Mulder, "What do Europeans tweet about family before and after moving?". Presentation at MigrantLife Symposium 2022. Session: Work, Family Life, and Employment. March 2022.

Sofia Gil-Clavel, André Grow, Maarten J. Bijlsma, "EU-15 Immigrants Language Integration on Twitter". Presentation for International Population Conference (IPC). Session 193: Us vs Them: Cultural Assimilation and Anxieties in the Modern World. December 2021.

Sofia Gil-Clavel, André Grow, Maarten J. Bijlsma, "EU-15 Immigrants Language Integration on Twitter". Presentation for Dutch Demography Day. Session: Poster Pitch. November 2021.

Sofia Gil-Clavel, "Immigrants' Cultural Integration Patterns in Spain, Germany, and the UK: Tweets as Expressions of Context"[1]. Presentation for IMISCOE General Conference. Session: Migrant Transnationalism 13. July 2021.

Sofia Gil-Clavel, "EU-15 Immigrants Language Integration on Twitter". Poster presentation for the IMPRS-PHDS Graduate Workshop. June 2021.

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[1] The final name of the work was "EU-15 Immigrants Language Integration on Twitter".

Sofia Gil-Clavel, Emilio Zagheni, and Valeria Bordone, "Close Social Networks among Older Adults: The Online and Offline Perspectives". Accepted presentation for PAA. Flash session: Social Networks, Social Support, and Health. May 2021.

Sofia Gil-Clavel, "Immigrants' Cultural Integration Patterns in Spain, Germany, and the UK: Tweets as Expressions of Context"[2]. Presentation for IMISCOE Spring Conference. Session: Messaging Migration on and Through Social Media. March 2021.

Sofia Gil-Clavel, Emilio Zagheni and Valeria Bordone, "Close Social Networks among Older Adults: The Online and Offline Perspectives". Presentation for the Dutch Demography Week. Session: Families in later life. November 2020.

Sofia Gil-Clavel, Valeria Bordone and Emilio Zagheni, "Determinants of Online and Offline Close Social Networks Among Older Adults". Accepted presentation for EPC. Session: Health and Wellbeing in a Digital World. June 2020. Cancelled due to COVID-19.

Sofia Gil-Clavel, Valeria Bordone and Emilio Zagheni, "Determinants of Online and Offline Close Social Networks Among Older Adults". Accepted presentation for PAA. Flash session: Use of Big Data to Model Health Outcomes and Mortality. April 2020. Cancelled due to COVID-19.

Sofia Gil-Clavel and Emilio Zagheni, "Demographic Differentials in Facebook Usage Around the World", poster presented at The International AAAI Conference on Web and Social Media (ICWSM-2019). June 2019.

Sofia Gil-Clavel and Emilio Zagheni, "Demographic Differentials in Facebook Usage Around the World", presented at IUSSP Digital Demography in the Era of Big Data. June 2019.

Sofia Gil-Clavel and Emilio Zagheni, "Demographic Differentials in Facebook Usage Around the World", poster presented at Population Fest 2019 (PopFest2019). May 2019.

Sofia Gil-Clavel, "Estimation of the infant mortality rate in Mexico in 2015 at municipal level using numerical techniques", presented at the XIV National Meeting of the Mexican Society of Demography (SOMEDE). June 2018.

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[2] The final name of the presentation was: EU-15 Immigrants Cultural Integration –In Twitter.