

Nome da Disciplina: Inovação, Complexidade e Desenvolvimento Regional

Código: ECN958

Turma: D/E

Classificação: Optativa

Carga Horária: 60 horas/aula

Créditos: 4

Curso: Pós-Graduação Economia

Pré-requisito: -

Período Letivo: 1º Semestre de 2024

Horários: Sexta-Feira: 9:00-12:50.

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EMENTA

O curso visa o estudo de teorias e trabalhos empíricos sobre a relação entre inovação tecnológica, complexidade econômica e desenvolvimento regional, tendo como objetivo o aprendizado de coleta, tratamento e análise de dados, e elaboração de artigo científico. Serão discutidas teorias sobre indústria e desenvolvimento regional, geografia da inovação, sistemas regionais e locais de inovação, e cadeias globais de produção e inovação. Serão também estudados artigos empíricos relacionados à abordagem da complexidade econômica em nível nacional e regional. Indicadores e métodos para o estudo da inovação, da complexidade econômica e do desenvolvimento regional também serão discutidos ao longo da disciplina.

OBJETIVOS

- Estudo de trabalhos teóricos e empíricos acerca das relações entre complexidade econômica, inovação tecnológica e desenvolvimento regional
- Aprendizado de coleta, tratamento e análise de dados
- Prática de elaboração de artigo científico

ESTRATÉGIAS E PROCEDIMENTOS DE AVALIAÇÃO

- Apresentações: 30 pontos.
- Trabalho Intermediário: 30 pontos.
- Trabalho Final: 40 pontos.

CONTEÚDO PROGRAMÁTICO

** = Leitura Obrigatória

* = Leitura Importante

MÓDULO 1

Aula 1-2: Apresentação + Estruturação de artigo científico (08/03)

** Levine, R.; Renelt, D. (1992) A sensitivity analysis of cross-section growth regression, *American Economic Review*, 82(4), pp. 942-63.

Barro, R. J. (1991) Economic Growth in a Cross Section of Countries, *Quarterly Journal of Economics*, 106, pp. 407-43.

Aula 3-4: Inovação e desenvolvimento (15/03)

Dosi, G. (1982) Technological paradigms and technological trajectories - a suggested interpretation of the determinants and directions of technical change. *Research Policy*, v.11, p.147-162.

**Freeman, C. (1995) The National System of Innovation in historical perspective. *Cambridge Journal of Economics*, v. 19, n. 1.

*Freeman, C. (2002) Continental, National and Sub-National Innovation Systems—complementarity and economic growth. *Research Policy*, v. 31, n. 2, p. 191-211, fevereiro.

Freeman, C.; Louçã, F. (2001) *As time goes by: from the industrial revolutions and to the information revolution*. Oxford: Oxford University.

Nelson, R. (ed.) (1993) *National innovation systems: a comparative analysis*. New York, Oxford: Oxford University.

** Perez, C. Technological revolutions and techno-economic paradigms. *Cambridge Journal of Economics*, v. 34, n. 1, p. 185–202, 2010.

Aula 5-6: Conceito de espaço, território e região + Teorias de indústrias e desenvolvimento regional (22/03)

- **Asheim, B. T. (1996) Industrial districts as “learning regions”: a condition for prosperity. *European Planning Studies*, v. 4, n. 4, p. 7-11, 1996.
- Granovetter, M (1985). Economic Action and Social Structure: the problem of embeddedness. *American Journal of Sociology*, v. 91, n. 3, p. 481-510.
- Perroux, F. *Economia do Século XX*. Lisboa: Herder, 1967. p. 755.
- *Cooke, Philip. 1998. “Introduction: Origins of the Concept.” In *Regional Innovation Systems*, edited by H Braczyk, Philip Cooke, and M Hidenreich, 2–25. London: UCL Press.
- **Cooke, Philip. 2001. “Regional Innovation Systems, Clusters, and the Knowledge Economy.” *Industrial and Corporate Change* 10 (4): 44–45.

Aula 7-8: A geografia da Inovação + Sistemas regionais de inovação (12/04)

- **Shearmur, R.; Carrincazeaux, C.; Doloreux, D. (2016) Handbook on the Geographies of Innovation. Cheltenham, UK and Northampton, USA: Edward Elgar. 512pp. Capítulos 1, 2, 3 e 4
- *Asheim, B.; Isaksen, A.; Tripl, M. (2019) Advanced Introduction to Regional Innovation Systems. Cheltenham, UK and Northampton, USA: Edward Elgar. 146pp.
- *Boschma, R., Coenen, L., Frenken, K., & Truffer, B. (2017). ‘Towards a theory of regional diversification: combining insights from Evolutionary Economic Geography and Transition Studies’, *Regional Studies*, 51/1: 31–45. Routledge. DOI: 10.1080/00343404.2016.1258460
- *Tripl, M.; Sinozic, T.; Lawton Smith, H. The Role of Universities in Regional Development: Conceptual Models and Policy Institutions in the UK, Sweden and Austria. *European Planning Studies*, v. 23, n. 9, p. 1722–1740, 2 set. 2015.
- *Chaminade, C. A.; Plechero, M. B. Do Regions Make a Difference? Regional Innovation Systems and Global Innovation Networks in the ICT Industry. *European Planning Studies*, v. 23, n. 2, p. 215–237, 2015.
- *Asheim, B.; Isaksen, A.; Tripl, M. (2019) Advanced Introduction to Regional Innovation Systems. Cheltenham, UK and Northampton, USA: Edward Elgar. 146pp.
- Audretsch, D.; Feldman, M. (1996) R & D spillovers and the geography of innovation and production. *The American Economic Review*, v. 86, n. 3, p. 630–641.
- Gonçalves, E.; Almeida, E. (2009) Innovation and Spatial Knowledge Spillovers: Evidence from Brazilian Patent Data. *Regional Studies*, v. 43, n. 4, p. 513–528.
- Santos, U. P. (2017b) Distribución espacial de los entes del sistema nacional de innovación brasileño: análisis de la década de 2000. *Revista de la Cepal*, v. 121.
- *Santos, U. P.; Mendes, P. S. (2021) Regional spillovers of knowledge in Brazil: evidence from science and technology municipal indicators. *Innovation and Development*, p. 1–20, 15 set.
- Balland, P.-A.; Rigby, D. (2017) The Geography of Complex Knowledge. *Economic Geography*, v. 93, n. 1, p. 1–23.

Aula 9-10: A abordagem da Complexidade + Complexidade e desenvolvimento (05/04)

- ** Stojkoski, V.; Koch, P.; Hidalgo, C. (2023) Multidimensional Economic Complexity: How the Geography of Trade, Technology, and Research Explain Inclusive Green Growth, *Nature Communications Earth & Environment*, 4(130).
- ** Balland, P. A.; Broekel, T.; Giuliani, E.; Hausmann, R.; O’Clery, N.; Rigby, D. (2022) The new paradigm of economic complexity, *Research Policy*, 1-11.
- ** Hidalgo, C.; Klinger, B.; Barabasi, A.L.; Hausmann, R. (2007) The product space conditions the development of nations, *Science*, 317, pp. 482-7.
- * Hidalgo, C.; Hausmann, R. (2009) The building blocks of economic complexity, *PNAS*, 106(26), p.10570-10575.
- * Hausmann, R.; Hwang, J.; Rodrik, D. (2007) What you export matters, *Journal of Economic Growth*, 12, 1-25.
- * Hausmann, R.; Hidalgo, C.A.; Bustos, S.; Coscia, M.; Chung, S.; Jimenez, J.; Simões, A.; Yildirim, M.A. (2014) *The atlas of economics complexity – mapping paths to prosperity*, Puritan Press.
- Hidalgo, C. (2021) Economic complexity theory and applications, *Nature Reviews: Physics*, pp. 1-22.
- Tacchella, A.; Cristelli, M.; Caldarelli, G.; Gabrielli, A.; Pietronero, L. (2012) A new metrics for countries’ fitness and products’ complexity, *Scientific Reports*, 2, p. 1-7.
- Hidalgo, C.; et al. (2018) The principle of relatedness, *International conference on complex systems*, p. 451-457.
- ** Hartmann, D.; Guevara, M.; Jara-Figueroa, C.; Aristarán, M.; Hidalgo, C. (2017) Linking Economic Complexity, Institutions, and Income inequality, *World Development*, p. 1-19.
- ** Romero, J. P.; Gramkow, C. Economic Complexity and Greenhouse Gas Emissions. *World Development*, 139, p.1-25.
- * Mealy, P.; Teytelboym, A. (2020) Economic complexity and the green economy, *Research Policy*, pp. 1-24.
- * Morais, B. M.; Swart, J.; Jordaan, J. A. (2021) Economic complexity and inequality: does regional productive structure affect income inequality in Brazilian States? *Sustainability*, 13(1006), p.1-23.
- Gala, P.; Rocha, I.; Magacho, G. (2018) The structuralist revenge: economic complexity as an important dimension to evaluate growth and development, *Brazilian Review of Political Economy*, 38(2), p.219-36.

Aula 11-12: Bases de dados + introdução ao R [Prática] (19/04)

- ** De Vries, A.; Meys, J. (2015) *R for Dummies*, John Wiley & Sons: New Jersey.
Wickham, H.; Grommond, G. (2017) *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data*, O'Reilly: Boston.
Cunningham, S. (2021) *Causal Inference: The Mixtape*, Yale Univ. Press: London.

Aula 13-14: Indicadores de Complexidade [Prática] (26/04)

- ** Balland, P.A. (2017) Economic Geography in R: Introduction to the EconGeo Package, *Papers in Evolutionary Economic Geography*, 17 (09): 1-75
Guevara, M. R.; Hartmann, D.; Mendoza, M. (2016) diverse: an R Package to Analyze Diversity in Complex Systems, *The R Journal*, 8:2, p. 60-7.

Aula 15-16: Debate com grupos a respeito da proposta para o trabalho (03/05)

MÓDULO 2

Aula 17-18: Diversificação relacionada e não-relacionada (10/05)

- ** Frenken, K.; Van Oort, F.; Verburg, T. (2007) Related variety, unrelated variety and regional economic growth, *Regional Studies*, 41(5), p.685-97.
** Nefke, F.; Henning, M.; Boschman, R. (2011) How do regions diversify over time? Industry relatedness and the development of new growth paths in regions, *Economic Geography*, 87(3), p. 237-66.
* Jara-Figueroa, C.; Jun, B.; Glaeser, E.; Hidalgo, C. (2018) The role of industry-specific, occupation-specific, and location-specific knowledge in the growth and survival of new firms, *PNAS*, 115, p.12646-53.
Diodato, D.; Nefke, F.; O'Cleary, N. (2018) Why do industries coagglomerate? How Marshallian externalities differ by industry and have evolved over time, *Journal of Urban Economics*, 106, p. 1-26.
Glaeser, E.; Kallal, H.; Scheinkman, J.; Shleifer, A. (1992) Growth in cities, *Journal of Political Economy*, 100(6), p. 1126-52.
Boschma, R. (2017) Relatedness as driver of regional diversification: A research agenda, *Regional Studies* 51 (3), 351-364.
Galetti, J. R. B.; Tessarin, M. S.; Morceiro, P. C. (2021) Skill relatedness, structural change and heterogeneous regions: evidence from a developing country, *Papers in Regional Science*, 1-22.
* Aarstad, J.; Kvitastein, O. A.; Jakobsen, S.-E. (2016) Related and unrelated variety as regional drivers of enterprise productivity and innovation: a multilevel study, *Research Policy*, 45, p. 844-856.

Aulas 19-20: Complexidade, desenvolvimento regional e spillovers regionais (17/05)

- ** Boschma, R.; Frenken, K. (2011) The emerging empirics of evolutionary economic geography, *Journal of Economic Geography*, 11, p.295-307.
** Boschma, R. (2005) Proximity and innovation: a critical assessment, *Regional Studies*, 39(1), p.61-74.
* Nefke, F.; Hartog, F.; Boschma, R. (2018) Agents of structural change: the role of firms and entrepreneurs in regional diversification, *Economic Geography*, p.1-26.
Balland, P. A.; Jara-Figueroa, C.; Petralia, S.; Steijn, M.; Rigby, D.; Hidalgo, C. (2020) Complex economic activities concentrate in large cities, *Nature Human Behaviour*, 4, p.248-54.
Boschma, R.; Frenken, K. (2006) Why is economic geography not an evolutionary science? Towards an evolutionary economic geography, *Journal of Economic Geography* 6 (3), 273-302.
Boschma, R.; Lambooy, J. (1999) Evolutionary economics and economic geography, *Journal of Evolutionary Economics*, 9, pp.411-29.
** Gao, J.; Jun, B.; Pentland, A.; Zhou, T.; Hidalgo, C. (2021) Spillovers across industries and regions in China's regional economic diversification. *Regional Studies*, pp. 1-17.
** Boschma, R.; Iammarino, S. (2009) Related variety, trade linkages, and regional growth in Italy, *Economic Geography*, 85(3), p.289-311.
* Bahar, D.; Hausmann, R.; Hidalgo, C. (2014) Neighbors and the evolution of the comparative advantage of nations: Evidence of international knowledge diffusion? *Journal of International Economics*, 92, p.111-23.
Migueluez, E.; Moreno, R. (2018) Relatedness, external linkages and regional innovation in Europe, *Regional Studies*, 52(5), p. 688-701.

Aulas 21-22: Apresentação das propostas de trabalho final (24/05)

Aulas 23-24: Aplicações de Complexidade e Relatedness com Indicadores de C,T&I (07/06)

- **Shearmur, R.; Carrincazeaux, C.; Doloreux, D. (2016) Handbook on the Geographies of Innovation. Cheltenham, UK and Northampton, USA: Edward Elgar. 512pp. Capítulo 6.
- *BALLAND, P.-A.; RIGBY, D. The Geography of Complex Knowledge. *Economic Geography*, v. 93, n. 1, p. 1–23, 2017.
- *Boschma, R., Balland, P. A., & Kogler, D. F. (2015). 'Relatedness and technological change in cities: The rise and fall of technological knowledge in US metropolitan areas from 1981 to 2010', *Industrial and Corporate Change*, 24/1: 223–50. Oxford University Press. DOI: 10.1093/icc/dtu012
- Balland, P. A., & Boschma, R. (2022). 'Do scientific capabilities in specific domains matter for technological diversification in European regions?' *Research Policy*, 51/10: 104594. Elsevier B.V. DOI: 10.1016/j.respol.2022.104594
- Boschma, R., Balland, P. A., & Kogler, D. F. (2015). 'Relatedness and technological change in cities: The rise and fall of technological knowledge in US metropolitan areas from 1981 to 2010', *Industrial and Corporate Change*, 24/1: 223–50. Oxford University Press. DOI: 10.1093/icc/dtu012

Aulas 25-26: Políticas para inovação e desenvolvimento regional (14/06)

- **Shearmur, R.; Carrincazeaux, C.; Doloreux, D. (2016) Handbook on the Geographies of Innovation. Cheltenham, UK and Northampton, USA: Edward Elgar. 512pp. Capítulos 17 e 18
- Vang, J.; Chaminade, C. (2009) Local innovation systems, upgrading and innovation policy: Lessons from the Bangalore cluster, India. In Belussi, F.; Sammarra, A. (Eds) *Business networks in clusters and Industrial Districts: the Governance of the Global Value Chain*.
- *Chaminade, C. & Lundvall, B.-Å., (2019) Science, Technology and Innovation Policy- old patterns and new challenges. *Oxford Research Encyclopaedia of Business and Management*. Oxford University Press.

Aula 27-28: Complexidade e políticas de desenvolvimento regional (21/06)

- ** Pinheiro, F.; Alshamsi, A.; Hartmann, D.; Boschma, R.; Hidalgo, C. (2018) Shooting low or high: do countries benefit from entering unrelated activities? *Papers in Evolutionary Economic Geography*, p.1-44.
- ** Hartmann, D.; Bezerra, M.; Pinheiro, F. (2019) Identifying smart strategies for economic diversification and inclusive growth in developing economies: The case of Paraguay. Mimeo, p. 1-41.
- * Hartmann, D.; Zagato, L.; Gala, P.; Pinheiro, F. (2020) Why Did Some Countries Catch-Up, While Others Got Stuck in the Middle? Stages of Productive Sophistication and Smart Industrial Policies, *SSRN Electronic Journal*.
- Hausmann, R.; Santos, M.; Obach, J. (2017) Appraising the Economic Potential of Panama: Policy Recommendations for Sustainable and Inclusive Growth, *CID WP*, no. 334.
- Romero, J. P.; Freitas, E. (2018) Setores promissores para o desenvolvimento do Brasil: complexidade e espaço do produto como instrumentos de política. In: Mônica Viegas, Eduardo Albuquerque. (Org.). *Alternativas para uma crise de múltiplas dimensões*. 1ed. Belo Horizonte: Cedeplar-UFMG, p. 358-374.
- ** Balland, P. A.; Boschma, R. (2021) Complementary interregional linkages and Smart Specialization: an empirical study on European regions, *Regional Studies*, 55(6), p. 1059-70.
- ** Balland, P.-A.; Boschma, R.; Crespo, J.; Rigby, D. L. (2019) Smart specialization policy in the European Union: relatedness, knowledge complexity and regional diversification. *Regional Studies*, 53(9), pp. 1252-1268.
- * Romero, J. P.; Freitas, E.; Silveira, F.; Britto, G.; Cimini, F.; Jayme Jr., F. G. (2021) Economic complexity and regional development: evidence from Brazilian municipalities, *Proceedings of the EAEPE Conference*, p.1-25.
- Pinheiro, F.; Balland, P. A.; Boschma, R.; Hartmann, D. (2022) The Dark Side of the Geography of Innovation. Relatedness, complexity and regional inequality in Europe, *Papers in Evolutionary Economic Geography*, 22.02, p. 1-47.
- Boschma, R. (2021) Designing Smart Specialization Policy: relatedness, unrelatedness, or what? *Papers in Evolutionary Economic Geography*, 21.28, p.1-33.

Aulas 29-30: Apresentações de trabalhos (28/06)
