Classifying economics for the common good: Connecting sustainable development goals to JEL codes

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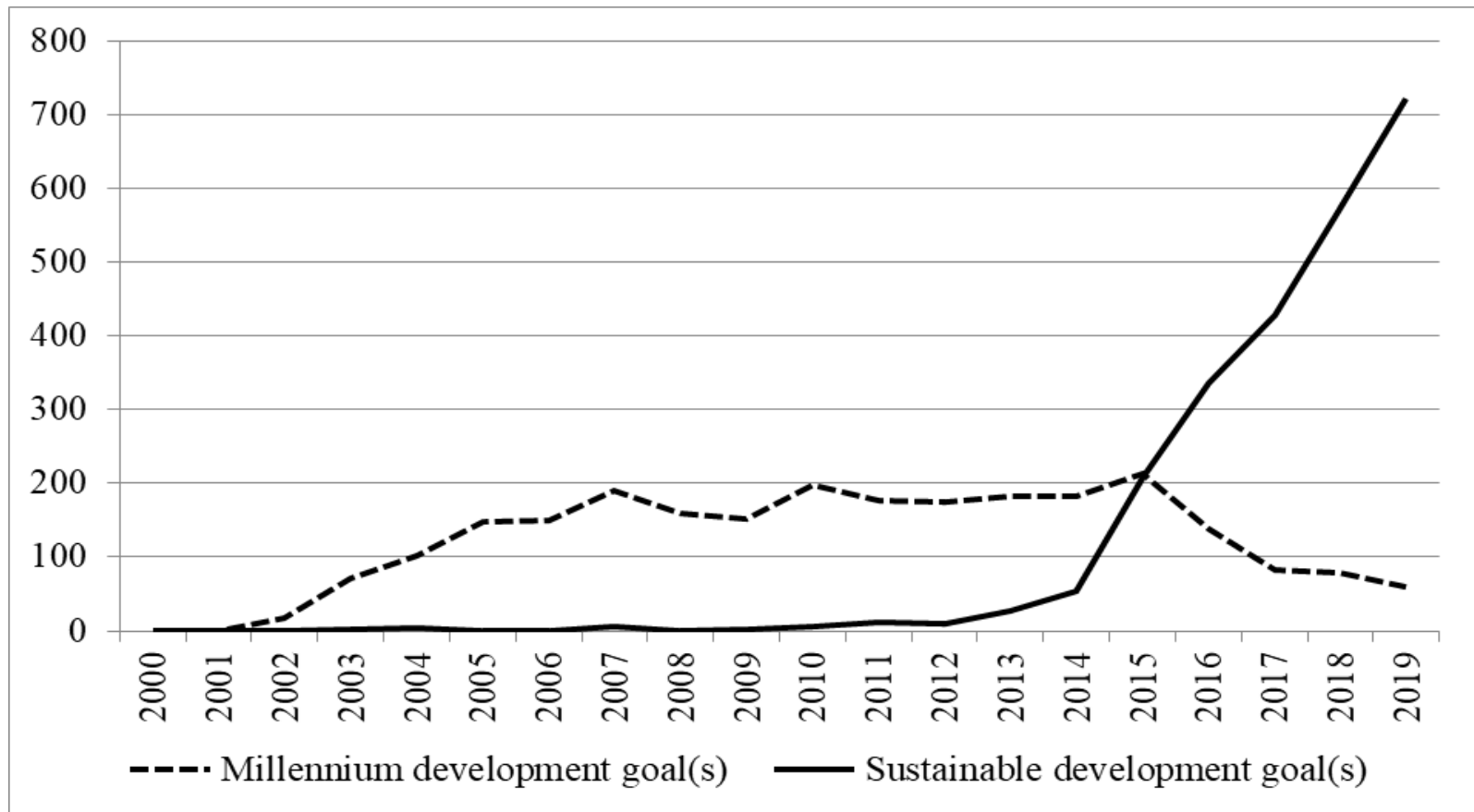
Mapping Research related to the Sustainable Development Goals (SDGs) workshop

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Summary

- How does economics research help in solving societal challenges? How to find economic research related to Sustainable Development Goals (SDGs)?

- Simple ways to connect Journal of Economic Literature (JEL) SDGs of the United Nations.
  - The themes of SDGs have corresponding JEL classification codes.

- Necessarily imperfect and incomplete → Need for improvements.

MDGs and SDGs in economic research, trends

Notes: Source is IDEAS/RePEc search, available at https://ideas.repec.org/search.html. Search queries: SDGs "sustainable development goal" OR "sustainable development goals" and MDGs "millennium development goal" OR "millennium development goals". No filters applied, i.e., search "All" (incl. Articles, Papers, Chapters, Books, Software) in "Whole record". Retrieved on 4 April 2020.

The 1st version by AEA published in 1911. Journal of Economic Literature classification is the *de facto* standard in classifying articles in economics (Cherrier 2017; Kosnik 2018).

Majority of economics journals require authors to choose JEL codes which best describe their manuscripts when submitting (Kosnik 2018) and bibliographic databases such as IDEAS and SSRN allow users to browse articles by JEL codes.

"The JEL classification system was developed for use in the Journal of Economic Literature (JEL), and is a standard method of classifying scholarly literature in the field of economics. The system is used to classify articles, dissertations, books, book reviews, and working papers in EconLit, and in many other applications."

JEL codes have received only limited attention in research until recently (Cherrier 2017; Kosnik 2018).

1st level JEL codes	Number of 2nd level codes	Number of 3rd level codes
1 A General Economics and Teaching	3	16
2 B History of Economic Thought, Methodology, and Heterodox Approaches	5	32
3 C Mathematical and Quantitative Methods	9	70
4 D Microeconomics	9	65
5 E Macroeconomics and Monetary Economics	7	47
6 F International Economics	6	53
7 G Financial Economics	5	33
8 H Public Economics	8	56
9 I Health, Education, and Welfare	3	23
10 J Labor and Demographic Economics	8	62
11 K Law and Economics	4	30
12 L Industrial Organization	9	72
13 M Business Administration and Business Economics, Marketing, Accounting, Personnel Economics	5	29
14 N Economic History	9	74
15 O Economic Development, Innovation, Technological Change, and Growth	5	41
16 P Economic Systems	5	43
17 Q Agricultural and Natural Resource Economics, Environmental and Ecological Economics	5	49
18 R Urban, Rural, Regional, Real Estate, and Transportation Economics	5	31
19 Y Miscellaneous Categories	9	11
20 Z Other Special Topic	3	19
Min	3	11
Max	9	74
Average	6.10	42.80
Median	5	42
Total sum	122	856

Notes: "General" JEL classes under 1st level codes with no 2nd level codes (e.g., B00 and C00) have been counted as 3rd level codes.

Source: https://www.aeaweb.org/econlit/jelCodes.php?view=jel
Accessed on 21 March 2020.

1st level ➤

Q Agricultural and Natural Resource Economics; Environmental and Ecological Economics

Guideline: Covers studies about economic issues pertaining to three closely related fields-agriculture (Q1), natural resources including energy (Q2, Q3, and Q4), and environment and ecology (Q5). Natural resources are divided into three categories, renewable (Q2), nonrenewable (Q3) and energy (Q4). Studies about these topics in the context of economic development should be cross-classified here and under O13. Studies in the context of socialist, transitional, and other economic systems should be cross-classified similarly here and under P32 (if related to agriculture) or P28 (if related to natural resources, energy, or the environment). Studies about these topics in the context of economic systems other than capitalist, socialist, and transitional economies should be classified under P42.

Keywords: Agricultural Economics, Ecological Economics, Environmental Economics, Natural Resource Economics

2nd level ➤

Q0 General

Guideline: *Not Specified*

Keywords: *None Specified*

Q00 General

3rd level ➤ **Q01 Sustainable Development**

Q010 Sustainable Development

Guideline: Covers studies about issues related to sustainable development in the broadest context. That is, studies should include agriculture, natural resources, energy sources, and the environment.

Keywords: Green Growth, Sustainability, Sustainability Forecast, Sustainable Development, Sustainable Governance, Sustainable Growth, Sustainable Regional Development

Caveats: Studies about sustainable agriculture should be classified under Q11, or O13 if related to economic development. Studies related to sustainable environment should be classified under Q56.

Examples:

- Participating or Just Talking? Sustainable Development Councils and the Implementation of Agenda 21
- Toward a New Welfare Economics for Sustainability
- Sustainable Development: Conventional versus Emergent Alternative Wisdom

Connecting JEL codes and SDGs?

Q2   Renewable Resources and Conservation

    Q20   General

    Q21   Demand and Supply • Prices

    Q22   Fishery • Aquaculture

    Q23   Forestry

    Q24   Land

    Q25   Water

    Q26   Recreational Aspects of Natural Resources

    Q27   Issues in International Trade

    Q28   Government Policy

    Q29   Other

?

J1   Demographic Economics

    J10   General

    J11   Demographic Trends, Macroeconomic Effects, and Forecasts

    J12   Marriage • Marital Dissolution • Family Structure • Domestic Abuse

    J13   Fertility • Family Planning • Child Care • Children • Youth

    J14   Economics of the Elderly • Economics of the Handicapped • Non-Labor Market Discrimination

    J15   Economics of Minorities, Races, Indigenous Peoples, and Immigrants • Non-labor Discrimination

    J16   Economics of Gender • Non-labor Discrimination

    J17   Value of Life • Forgone Income

    J18   Public Policy

In an "ideal world"…

- There could be a JEL classification system for SDGs, a separate JEL code for each of the 17 SDGs.
    - Would decrease search costs

X Sustainable Development Goals
      X1 Goal 1. End poverty…
      X2 Goal 2. End hunger…
      X3…
      X4…

Data and methods

- Data sources:
  - Keywords for 2-digit JEL codes from JEL codes guide, available at: https://www.aeaweb.org/jel/guide/jel.php
  - SDGs
  - LaFleur's (2019) keywords that are related to SDGs

- Method: Keyword overlap between keywords of 3rd level JEL codes and
  1. Selected three keywords for each SDG
  2. LaFleur (2019) keywords (modified)
  3. LaFleur (2019), three selected keywords

1st level ➡️

Q Agricultural and Natural Resource Economics; Environmental and Ecological Economics

Guideline: Covers studies about economic issues pertaining to three closely related fields-agriculture (Q1), natural resources including energy (Q2, Q3, and Q4), and environment and ecology (Q5). Natural resources are divided into three categories, renewable (Q2), nonrenewable (Q3) and energy (Q4). Studies about these topics in the context of economic development should be cross-classified here and under O13. Studies in the context of socialist, transitional, and other economic systems should be cross-classified similarly here and under P32 (if related to agriculture) or P28 (if related to natural resources, energy, or the environment). Studies about these topics in the context of economic systems other than capitalist, socialist, and transitional economies should be classified under P42.

Keywords: Agricultural Economics, Ecological Economics, Environmental Economics, Natural Resource Economics

2nd level ➡️

Q0 General

Guideline: *Not Specified*

Keywords: *None Specified*

Q00 General

3rd level ➡️

Q01 Sustainable Development

Q010 Sustainable Development

Guideline: Covers studies about issues related to sustainable development in the broadest context. That is, studies should include agriculture, natural resources, energy sources, and the environment.

Keywords: Green Growth, Sustainability, Sustainability Forecast, Sustainable Development, Sustainable Governance, Sustainable Growth, Sustainable Regional Development

Caveats: Studies about sustainable agriculture should be classified under Q11, or O13 if related to economic development.Studies related to sustainable environment should be classified under Q56.

Examples:

- Participating or Just Talking? Sustainable Development Councils and the Implementation of Agenda 21
- Toward a New Welfare Economics for Sustainability
- Sustainable Development: Conventional versus Emergent Alternative Wisdom

SDG	LaFleur (2019) keywords	Selected three
1	poverty social protection poor social_protection extreme disasters extreme_poverty poverty_line day end_pov-erty line losses living disaster cash protection_systems person poor_vulnerable disaster_risk	poverty poor social_protection
2	food hunger agricultural agriculture children malnutrition production genetic prices export markets hungry food_production subsidies food_security nutrition undernourished breeds aid insecurity	food agriculture nutrition
3	health deaths diseases people mortality births live_births maternal children hiv age live care rate years_age reproductive deaths_live worldwide risk women	health disease mortality
4	education primary children school primary_education quality secondary schools learning quality_education skills secondary_education reading primary_school proficiency mathematics teachers minimum saharan basic	education school learning
5	women girls gender women_girls equality gender_equality violence sexual age marriage female married work rights genital_mutilation mutilation female_genital genital partner globally	women gender equality
6	water sanitation management water_sanitation people drinking_water drinking population improved hygiene facilities safely water_resources global_population wastewater freshwater water_scarcity scarcity resources water_stress	water sanitation hygiene
7	energy electricity renewable renewable_energy clean affordable modern cooking fuels access energy_efficiency energy_consumption energy_intensity intensity consumption access_electricity reliable efficiency technologies affordable_reliable	energy electricity renewable
8	growth labour employment unemployment work decent financial productivity decent_work financial_services productive men adults working youth economic_growth child labour_productivity jobs developed	labor employment productivity
9	manufacturing infrastructure developing added manufacturing_added industrialization innovation gdp devel-oped employment industries industrial mobile research job research_development intensity resilient_infrastruc-ture resilient emissions	infrastructure industrialization innovation
10	inequality developed income developing duty exports oda money duty_free developing_states tariff remit-tances migration treatment reducing inequalities products migrant policies island	inequality income migration
11	cities urban waste air pollution slums urban_population solid_waste solid land urbanization management disas-ters air_pollution rapid safe resilient housing inclusive risk	cities urban housing
12	consumption production material consumption_production sustainable sustainable_consumption water conven-tion material_consumption food domestic_material domestic impacts patterns natural capita production_pat-terns environmental pollutants wastes	consumption production sustainable
13	climate change climate_change agreement paris paris_agreement action global parties emissions adaptation convention temperature framework nations framework_convention united_nations determined climate_action degrees	climate climate_change emission
14	marine oceans ocean coastal resources areas fisheries ecosystems pollution protected_areas marine_resources fish overfishing biodiversity protected management stocks eutrophication ocean_acidification acidification	marine ocean fish
15	biodiversity land species forests areas loss forest degradation wildlife desertification protected ecosystems ter-restrial conservation resources halt land_degradation management covered biodiversity_loss	biodiversity land forest
16	institutions rights justice violence inclusive victims access_justice children human_rights data human societies trafficking effective peaceful levels sexual forms birth_registration registration	institutions rights justice
17	developed development data oda developing capacity registration partnerships capacity_building building regions trade received agenda statistical enhance debt areas complete death_registration	development official_development_assistance trade

Sustainable Development Goal	Keywords	Number of 3rd level JEL codes	Example
Goal 1. End poverty in all its forms everywhere	Poverty	9	I32 Measurement and Analysis of Poverty
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Hunger	1	O15 Human Resources • Human Development • Income Distribution • Migration
	Food	12	Q18 Agricultural Policy • Food Policy
	Nutrition	4	I12 Health Behavior
	Agricultur	17	O13 Agriculture • Natural Resources • Energy • Environment • Other Primary Products
Goal 3. Ensure healthy lives and promote well-being for all at all ages	Health	21	I15 Health and Economic Development
	Well-being	3	I31 General Welfare, Well-Being
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	Education	20	I25 Education and Economic Development
	Learning	5	J24 Human Capital • Skills • Occupational Choice • Labor Productivity
Goal 5. Achieve gender equality and empower all women and girls	Gender	7	K38 Human Rights Law • Gender Law
	Women	2	J16 Economics of Gender • Non-labor Discrimination
	Girl	0	-
Goal 6. Ensure availability and sustainable management of water and sanitation for all	Water	6	Q25 Water
	Sanitation	0	-
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	Energy	12	O13 Agriculture • Natural Resources • Energy • Environment • Other Primary Products
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	Economic growth	5	O47 Empirical Studies of Economic Growth • Aggregate Productivity • Cross-Country Output Convergence
	Employment	24	E24 Employment • Unemployment • Wages • Intergenerational Income Distribution • Aggregate Human Capital • Aggregate Labor Productivity
	Work	29	J81 Working Conditions
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	Infrastructure	9	H54 Infrastructures • Other Public Investment and Capital Stock
	Industrialization	3	L52 Industrial Policy • Sectoral Planning Methods
	Innovation	7	O32 Management of Technological Innovation and R&D
Goal 10. Reduce inequality within and among countries	Inequality	12	J15 Economics of Minorities, Races, Indigenous Peoples, and Immigrants • Non-labor Discrimination
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	Cities	6	R23 Regional Migration • Regional Labor Markets • Population • Neighborhood Characteristics
	Housing	11	R31 Housing Supply and Markets
	Transport	18	O18 Urban, Rural, Regional, and Transportation Analysis • Housing • Infrastructure
Goal 12. Ensure sustainable consumption and production patterns	Consumption	11	E21 Consumption • Saving • Wealth
	Production	28	D62 Externalities
Goal 13. Take urgent action to combat climate change and its impacts*	Climate	3	Q58 Government Policy
	Climate change	1	Q54 Climate • Natural Disasters and Their Management • Global Warming
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Ocean	2	Q25 Water
	Marine or maritime	2	Q22 Fishery • Aquaculture
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Ecosystem	2	Q57 Ecological Economics: Ecosystem Services • Biodiversity Conservation • Bioeconomics • Industrial Ecology
	Forest	3	Q23 Forestry
	Desertification	3	O13 Agriculture • Natural Resources • Energy • Environment • Other Primary Products
	Land	17	Q24 Land
	Biodiversity	1	Q57 Ecological Economics: Ecosystem Services • Biodiversity Conservation • Bioeconomics • Industrial Ecology
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive	Peace	2	D74 Conflict • Conflict Resolution • Alliances • Revolutions
	Justice	3	D63 Equity, Justice, Inequality, and Other Normative Criteria and Measurement
	Institution	22	D02 Institutions: Design, Formation, Operations, and Impact
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	International	63	F02 International Economic Order and Integration

Sustainable Development Goal	Keywords	Number of 3rd level JEL codes	Example
Goal 1. End poverty in all its forms everywhere	Poverty	9	I32 Measurement and Analysis of Poverty
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	Hunger	1	O15 Human Resources • Human Development • Income Distribution • Migration
	Food	12	Q18 Agricultural Policy • Food Policy
	Nutrition	4	I12 Health Behavior
	Agriculture	17	O13 Agriculture • Natural Resources • Energy • Environment • Other Primary Products
Goal 3. Ensure healthy lives and promote well-being for all at all ages	Health	21	I15 Health and Economic Development
	Well-being	3	I31 General Welfare, Well-Being

SDG		Top three JEL codes	Covers studies about/related to	Overlapping keywords
Goal 1. End poverty in all its forms everywhere	I32	Measurement and Analysis of Poverty	issues related to poverty, its measurement and analysis.	poverty, poor, poverty line, line
	O15	Human Resources • Human Development • Income Distribution • Migration	issues related to labor, demography, health, education, and welfare in the context of economic development and developing economies. Includes studies on nutrition, health, education, fertility, household structure and formation, labor markets and social policy.	poverty, social, living
	H53*	Government Expenditures and Welfare Programs	issues related to government expenditures on welfare and related policies, including food stamp programs and studies about HUD.	poverty, social
Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture	O13	Agriculture • Natural Resources • Energy • Environment • Other Primary Products	development issues related to agriculture, natural resources, other primary products, energy, and the environment.	food, agricultural, agriculture, production, food production, markets
	Q11	Aggregate Supply and Demand Analysis • Prices	issues related to aggregate agricultural market, including supply, demand, prices and sustainable agriculture.	food, agricultural, agriculture, production, food production
	Q13	Agricultural Markets and Marketing • Cooperatives • Agribusiness	issues related to agricultural markets and marketing, cooperatives, and agribusiness.	food, agricultural, agriculture
Goal 3. Ensure healthy lives and promote well-being for all at all ages	I12	Health Behavior	issues related to health production and conditions and their consequences. Covers studies about the causes and effects of being healthy or unhealthy, including studies about quality-adjusted life years. Includes studies on nutrition, mortality, morbidity, suicide, substance abuse and addiction, and disability as related to economic behavior. Studies should be cross-classified here and under I11 if they cover topics in both categories.	health, deaths, mortality, rate
	I14	Health and Inequality	the impact of health on social and economic inequality, and the impact of inequality on health. May cross-list with O15.	deaths, mortality, births, age, rate
	I15*	Health and Economic Development	the impact of health on economic development, and the impact of levels of development on health. May cross-list with O15.	health, mortality
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	I21	Analysis of Education	all the economic issues, including output, quality, and demand and supply, related to education, except for educational finance.	education, primary, school, quality, secondary, learning, primary school
	A21	Pre-college	issues related to teaching economics at a pre-college level. For example, it includes studies on how to teach economics, what to teach in economics, and the outcomes from economic education at the pre-college level. Also covers the economic knowledge of the public at large.	education, primary, school
	I24	Education and Inequality	the impact of education on social and economic inequality, and the impact of inequality on education. May cross-list with O15.	education, school, quality
Goal 5. Achieve gender equality and empower all women and girls	J16	Economics of Gender • Non-labor Discrimination	economic issues related to gender, except for labor market discrimination, which is classified under J71 or J78.	women, gender, equality, gender equality, sexual, female
	J71	Discrimination	issues related to labor discrimination, including wage discrimination and discrimination in hiring and firing.	women, gender, equality, sexual, age
	I24*	Education and Inequality	the impact of education on social and economic inequality, and the impact of inequality on education. May cross-list with O15.	gender, equality
Goal 6. Ensure availability and sustainable management of water and sanitation for all	Q53	Air Pollution • Water Pollution • Noise • Hazardous Waste • Solid Waste • Recycling	issues related to environmental degradation, its impacts and its solution.	water, management
	R53	Public Facility Location Analysis • Public Investment and Capital Stock	issues related to public facility location and public investment, including infrastructure.	management, facilities
	Q25	Water	issues related to water as a renewable resource and its conservation.	water, wastewater
Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all	Q42	Alternative Energy Sources	issues related to alternative energy sources, for example non-hydrocarbon fuels or wind.	energy, renewable, renewable energy
	L94	Electric Utilities	issues related to the electric utility industry.	enertgy, electricity
	Q48	Government Policy	issues related to government policy on energy.	energy, clean
Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all	E24	Employment • Unemployment • Wages • Intergenerational Income Distribution • Aggregate Human Capital • Aggregate Labor Productivity	issues related to the aggregate labor market, including unemployment, wage level, wage indexation, intergenerational income distribution and aggregate labor productivity. Also covers studies about intergenerational income mobility.	employment, unemployment, work, productivity, men
	E31	Price Level • Inflation • Deflation	issues related to aggregate price levels, inflation, and deflation, including the CPI and the Phillips curve.	growth, employment, unemployment, men
	J68	Public Policy	public policy issues related to labor mobility and unemployment, including employment services.	employment, unemployment, work, men
Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation	O14	Industrialization • Manufacturing and Service Industries • Choice of Technology	issues related to industrialization and industries in developing countries, including manufacturing, service and transportation and the choice of technology.	manufacturing, industrialization, industrial
	O11	Macroeconomic Analyses of Economic Development	macroeconomic issues related to development, including economic growth of developing countries. These studies include both theoretical models and empirical studies (time series and cross-sectional).	developing, gdp
	F63	Economic Development	the impact of globalization on economic development, including poverty, labor markets, and gender issues.	developing, developed

Goal 10. Reduce inequality within and among countries	F63	Economic Development	the impact of globalization on economic development, including poverty, labor markets, and gender issues.	inequality, developed, developing
	F61*	Microeconomic Impacts	to the impact of globalization on various microeconomic issues, including income distribution, market structure and pricing, and the behavior of consumers and firms.	inequality, income
	I32*	Measurement and Analysis of Poverty	issues related to poverty, its measurement and analysis.	inequality, income
Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable	Q53	Air Pollution • Water Pollution • Noise • Hazardous Waste • Solid Waste • Recycling	issues related to environmental degradation, its impacts and its solution.	waste, air, pollution, solid waste, solid, land, management, air pollution
	K32	Energy, Environmental, Health, and Safety Law	the intersections of environmental, health and safety laws and economics or economies.	waste, air, pollution, management, safe
	R11	Regional Economic Activity: Growth, Development, Environmental Issues, and Changes	issues related to regional economic activity including growth, development, and changes. Studies may also include the effects of agglomeration economies and foreign linkages (for example foreign direct investment or foreign trade) on regional economic activities. Includes environmental aspects of regional economics, such as the regional effects of climate change.	cities, urban, slums, urbanization
Goal 12. Ensure sustainable consumption and production patterns	Q11	Aggregate Supply and Demand Analysis • Prices	issues related to aggregate agricultural market, including supply, demand, prices and sustainable agriculture.	production, sustainable, food
	E27*	Forecasting and Simulation: Models and Applications	issues related to forecasting or simulation of aggregate consumption, saving, production, employment and/or investment.	consumption, production
	D62*	Externalities	mostly theoretical studies about issues related to externalities and welfare analysis.	consumption, production
Goal 13. Take urgent action to combat climate change and its impacts*	Q54	Climate • Natural Disasters and Their Management • Global Warming	issues related to climate and natural disasters, including desertification and drought.	climate, change, climate change, global, emissinos
	C22	Time-Series Models • Dynamic Quantile Regressions • Dynamic Treatment Effect Models • Diffusion Processes	econometric issues related to a single time series variable or single-equation models using time-series variables. These studies include such subjects as: unit root tests, trend or difference stationarity, autocorrelated error terms, AR(I)MA models, switching regression models, single-equation error correction models, and spectral analysis.	change, action
	J52	Dispute Resolution: Strikes, Arbitration, and Mediation • Collective Bargaining	issues related to labor dispute resolution, including collective bargaining.	agreement, action
Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development	Q25	Water	issues related to water as a renewable resource and its conservation.	oceans, ocean, pollution
	L92	Railroads and Other Surface Transportation	issues related to surface transportation, including trains, autos, buses, trucks, and water carries. Also covers studies related to ports as they influence the performance of the transportation industry.	marine, ocean
	K32	Energy, Environmental, Health, and Safety Law	the intersections of environmental, health and safety laws and economics or economies.	resources, pollution, management
Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss	Q57	Ecological Economics: Ecosystem Services • Biodiversity Conservation • Bioeconomics • Industrial Ecology	issues related to topics in ecological economics including ecosystem services and biodiversity.	biodiversity, species, wildlife, conservation, management
	O13	Agriculture • Natural Resources • Energy • Environment • Other Primary Products	development issues related to agriculture, natural resources, other primary products, energy, and the environment.	land, forest, desertification, resources, management
	Q24	Land	issues related to land as a renewable resource and its conservation.	land, degradation, desertification, conservation
Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels	O17	Formal and Informal Sectors • Shadow Economy • Institutional Arrangements	development issues related to formal and informal sectors, shadow economy, and legal, social, economic, and political institutional arrangements, including privatization, property rights, and social unrest.	institutions, rights, human rights, human
	P48	Political Economy • Legal Institutions • Property Rights • Natural Resources • Energy • Environment • Regional Studies	issues related to political economy, legal institutions and property rights in economic systems other than capitalist, socialist, and transitional economic systems. This includes roles of government and/or power relationships in resource allocation.	institutions, rights
	F33	International Monetary Arrangements and Institutions	issues related to exchange rate regimes, including fixed or flexible exchange rate systems and their impacts. Also covers studies related to international financial organizations, for example the IMF or the World Bank, and their roles.	institutions, rights
Goal 17. Strengthen the means of implementation and revitalize the global partnership for sustainable development	F63	Economic Development	the impact of globalization on economic development, including poverty, labor markets, and gender issues.	developed, development, developing
	O11	Macroeconomic Analyses of Economic Development	macroeconomic issues related to development, including economic growth of developing countries. These studies include both theoretical models and empirical studies (time series and cross-sectional).	development, data, developing
	I25	Education and Economic Development	the impact of education on economic development, and the impact of levels of development on education. May cross-list with O15.	development, developing, capacity

SDG	Top three JEL codes		Covers studies about/related to	Overlapping keywords
Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all	I21	Analysis of Education	all the economic issues, including output, quality, and demand and supply, related to education, except for educational finance.	education, school, learning
	J24	Human Capital • Skills • Occupational Choice • Labor Productivity	issues related to labor quality. Includes studies about the effects of education as human capital (or the pecuniary return to schooling) as well as those about training programs (public or private) and occupational choices. Micro-studies about labor productivity are also classified here.	education, school, learning
	A21*	Pre-college	issues related to teaching economics at a pre-college level. For example, it includes studies on how to teach economics, what to teach in economics, and the outcomes from economic education at the pre-college level. Also covers the economic knowledge of the public at large.	education, school

Limitations

- Some JEL codes cannot be directly linked to specific SDGs.
  - E.g., economic methods (e.g., JEL code class C "Mathematical and Quantitative Methods" with its subclasses) are not SDG-specific.

- For some JEL codes the guideline mentions that documents classified to that specific JEL code may, or in some cases should, be "cross-listed" or "cross-classified" to other JEL codes. These nuances in JEL- code-specific guidelines were ignored in this article. For instance,
  - JEL code "I15 Health and Economic Development" notes that it "covers studies about the impact of health on economic development, and the impact of levels of development on health. May cross-list with O15"
  - JEL code "J83 Workers' Rights" notes that it "covers studies about labor standard issues related to workers' rights. Studies should be cross-classified here and under the other appropriate categories in J, if they are relevant."

Limitations

- Very simple keyword overlap analyses. Necessarily imperfect and incomplete.

- Multiple ways to improve these linkages.
  - E.g., use the corpus or keywords of economics articles that are tagged with a specific JEL code to establish the link to the closest SDGs.
  - More advanced bibliometric, topic modelling and science mapping analyses (cf. Aria & Cuccurullo 2017; Körfgen et al. 2018; Ambrosino et al. 2019; LaFleur 2019) left for future studies.

Takeaway

- There could be a JEL classification system for SDGs, a separate JEL code for each of the 17 SDGs.

- This note provides simple ways to connect Journal of Economic Literature (JEL) codes to SDGs.
  - The themes of SDGs have corresponding JEL classification codes.

- As the mappings presented here are necessarily imperfect and incomplete, there is plenty of room for improvements.

- Economics - not so dismal science after all?

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