Version: January 29, 2018

User Guide: Routine Task Intensity and Offshorability for the LIS

Assembled by Matthew C Mahutga, Michaela Curran, and Anthony Roberts

Comparative sociologists have long considered occupations to be a key source of remunerative inequality. However, data constraints make comparative research on two of the more important contemporary drivers of occupational stratification—globalization and technological change—relatively scarce. We provide a new dataset on occupational "routine task intensity" (RTI) and "offshorability" (OFFS) for use with the Luxembourg Income Study (LIS). To produce these data, we recoded 23 country-specific occupational schemes (74 LIS country-years) to the two-digit ISCO-88 scheme. When combined with the handful of LIS countries already reporting their occupations in ISCO-88, we provide individual level RTI and OFFS scores for 39 LIS countries and 178 LIS country-years.

This dataset was created during 2015-2017 with support from the National Science Foundation ("The Distributional Consequences of the Globalization of Production" SES 1528703). Please direct correspondence to Matthew C Mahutga at matthew.mahutga@ucr.edu.

Citation: When using data from this dataset, please cite Mahutga, Matthew C., Michaela Curran and Anthony Roberts. 2018. "Job Tasks and the Comparative Structure of Income: Routine Task Intensity and Offshorability for the LIS." *International Journal of Comparative Sociology* [UPDATE VOLUME AND PGS]

Dataset Download: The dataset is available for download via the following websites.

LIS Cross-National Data Center in Luxembourg: [WEBLINK]

University of California, Riverside, Department of Sociology:
http://matthewcm.ucr.edu/data.html

A detailed description of the production of these data is available in Mahutga, Matthew C., Michaela Curran and Anthony Roberts. 2018. "Job Tasks and the Comparative Structure of Income: Routine Task Intensity and Offshorability for the LIS." *International Journal of Comparative Sociology* [UPDATE VOLUME AND PGS]

Version: February 11, 2018

User Guide: Routine Task Intensity and Offshorability for the LIS

File Manifest

The full file package for the Routine Task Intensity and Offshorability database contains eight files. These files include the original data in Excel, Stata versions of the complete and abbreviated datasets, and scripts for producing and analyzing the data. We provide the file names, types, and a brief description for each in the table below.

Table 1: Routine Task Intensity and Offshorability Database File Manifest

File Name	File Type	Description
generate_recodes_dataset	Stata .do file	A Stata script used to generate the dataset from the complete Excel file.
lis_occ_recodes	Excel file	An Excel file that contains all of the recodes in their original format.
lis_recodes_complete	Stata .dta file; Excel file	Stata data file and Excel file containing the complete dataset, with all recodes, RTI/OFFS scores, labels, and notes.
lis_rti_offs	Stata .dta file; Excel file	Stata data file and Excel file containing an abbreviated version of the dataset with just the ISCO-88 recode variable, RTI/OFFS scores, and updated LIS occa1 and occb1 variables.
rti_offs_merge	Stata .do file	A Stata script that shows the user how to upload the dataset to LIS' servers and merge it with the relevant country-years.
rti_offs_replication	Stata .do file	A Stata script that shows the user how to reproduce the validation analyses presented in Mahutga, Curran, and Roberts (2018).

Codebook

The codebook below presents definitions for all of the variables contained in the lis_recodes_complete file. If an occupation code required more than one ISCO-88 category, a percentage weight was generated for the percent of occupations that fell in each category. Each of these ISCO-88 codes, labels, percentage weights, RTI and OFFS scores, and weighted RTI and OFFS scores are stored in columns in the dataset for ease of assigning values. The scripts detail how values are assigned based upon these columns. For approximately 90% of the occupation codes, a weighting procedure was not required because the occupation fit squarely in one ISCO-88 category. Therefore, for those codes, anything beyond the first set of codes (e.g., isco_88_code1, isco_88_percode1, rti1, etc.) will be missing.

dname	LIS dataset name, country code + year. It is used to merge the RTI and OFFS Database with LIS data.
country	LIS country name.
year	Survey year.
occ1_c	Occupation for Job 1. It is used to merge the RTI and OFFS Database with LIS data.
lis_label	Occupation label in LIS data.
text_label	Cleaned occupation label, if applicable. In some instances, the LIS codebook had unusual characters that had to be cleaned.
eng_label	Translated (English) occupation label. In some instances, the LIS codebook was in the country's official language. In these cases, we translated them to English using a combination of our own knowledge and translation software (Google Translate and Babylon).
coding_notes	Notes for the recodes, standardized to certain common themes across all country-years. These notes describe peculiarities in the data and in the recodes. The complete (non-standardized) versions of these notes are in Appendix D of Mahutga, Curran, and Roberts (2018).
isco_88_code1	ISCO-88 numeric occupational code 1.
isco_88_label1	ISCO-88 text occupational label 1.
isco_88_percode1	ISCO-88 occupation weight 1.
rti1	Routine task intensity score associated with ISCO-88 code 1.

weightedrti1	Weighted version of routine task intensity score associated with ISCO-88 code 1. This variable is equal to rti1*isco_88_percode1.
offs1	Offshoring score associated with ISCO-88 code 1.
weightedoffs1	Weighted version of offshoring score associated with ISCO-88 code 1. This variable is equal to offs1*isco_88_percode1.
isco_88_code2	ISCO-88 numeric occupational code 2.
isco_88_label2	ISCO-88 text occupational label 2.
isco_88_percode2	ISCO-88 occupation weight 2.
rti2	Routine task intensity score associated with ISCO-88 code 2.
weightedrti2	Weighted version of routine task intensity score associated with ISCO-88 code 2. This variable is equal to rti2*isco_88_percode2.
offs2	Offshoring score associated with ISCO-88 code 2.
weightedoffs2	Weighted version of offshoring score associated with ISCO-88 code 2. This variable is equal to offs2*isco_88_percode2.
isco_88_code3	ISCO-88 numeric occupational code 3.
isco_88_label3	ISCO-88 text occupational label 3.
isco_88_percode3	ISCO-88 occupation weight 3.
rti3	Routine task intensity score associated with ISCO-88 code 3.
weightedrti3	Weighted version of routine task intensity score associated with ISCO-88 code 3. This variable is equal to rti3*isco_88_percode3.
offs3	Offshoring score associated with ISCO-88 code 3.
weightedoffs3	Weighted version of offshoring score associated with ISCO-88 code 3. This variable is equal to offs3*isco_88_percode3.
isco_88_code4	ISCO-88 numeric occupational code 4.
isco_88_label4	ISCO-88 text occupational label 4.
isco_88_percode4	ISCO-88 occupation weight 4.

rti4	Routine task intensity score associated with ISCO-88 code 4.
weightedrti4	Weighted version of routine task intensity score associated with ISCO-88 code 4. This variable is equal to rti4*isco_88_percode4.
offs4	Offshoring score associated with ISCO-88 code 4.
weightedoffs4	Weighted version of offshoring score associated with ISCO-88 code 4. This variable is equal to offs4*isco_88_percode4.
isco_88_code5	ISCO-88 numeric occupational code 5.
isco_88_label5	ISCO-88 text occupational label 5.
isco_88_percode5	ISCO-88 occupation weight 5.
rti5	Routine task intensity score associated with ISCO-88 code 5.
weightedrti5	Weighted version of routine task intensity score associated with ISCO-88 code 5. This variable is equal to rti5*isco_88_percode5.
offs5	Offshoring score associated with ISCO-88 code 5.
weightedoffs5	Weighted version of offshoring score associated with ISCO-88 code 5. This variable is equal to offs5*isco_88_percode5.
isco_88_code6	ISCO-88 numeric occupational code 6.
isco_88_label6	ISCO-88 text occupational label 6.
isco_88_percode6	ISCO-88 occupation weight 6.
rti6	Routine task intensity score associated with ISCO-88 code 6.
weightedrti6	Weighted version of routine task intensity score associated with ISCO-88 code 6. This variable is equal to rti6*isco_88_percode6.
offs6	Offshoring score associated with ISCO-88 code 6.
weightedoffs6	Weighted version of offshoring score associated with ISCO-88 code 6. This variable is equal to offs6*isco_88_percode6.
isco_88_code7	ISCO-88 numeric occupational code 7.
isco_88_label7	ISCO-88 text occupational label 7.

isco_88_percode7	ISCO-88 occupation weight 7.
rti7	Routine task intensity score associated with ISCO-88 code 7.
weightedrti7	Weighted version of routine task intensity score associated with ISCO-88 code 7. This variable is equal to rti7*isco_88_percode7.
offs7	Offshoring score associated with ISCO-88 code 7.
weightedoffs7	Weighted version of offshoring score associated with ISCO-88 code 7. This variable is equal to offs7*isco_88_percode7.
isco_88_code8	ISCO-88 numeric occupational code 8.
isco_88_label8	ISCO-88 text occupational label 8.
isco_88_percode8	ISCO-88 occupation weight 8.
rti8	Routine task intensity score associated with ISCO-88 code 8.
weightedrti8	Weighted version of routine task intensity score associated with ISCO-88 code 8. This variable is equal to rti8*isco_88_percode8.
offs8	Offshoring score associated with ISCO-88 code 8.
weightedoffs8	Weighted version of offshoring score associated with ISCO-88 code 8. This variable is equal to offs8*isco_88_percode8.
isco_88_code9	ISCO-88 numeric occupational code 9.
isco_88_label9	ISCO-88 text occupational label 9.
isco_88_percode9	ISCO-88 occupation weight 9.
rti9	Routine task intensity score associated with ISCO-88 code 9.
weightedrti9	Weighted version of routine task intensity score associated with ISCO-88 code 9. This variable is equal to rti9*isco_88_percode9.
offs9	Offshoring score associated with ISCO-88 code 9.
weightedoffs9	Weighted version of offshoring score associated with ISCO-88 code 9. This variable is equal to offs9*isco_88_percode9.
isco_88_code10	ISCO-88 numeric occupational code 10.

isco_88_label10	ISCO-88 text occupational label 10.
isco_88_percode10	ISCO-88 occupation weight 10.
rti10	Routine task intensity score associated with ISCO-88 code 10.
weightedrti10	Weighted version of routine task intensity score associated with ISCO-88 code 10. This variable is equal to rti10*isco_88_percode10.
offs10	Offshoring score associated with ISCO-88 code 10.
weightedoffs10	Weighted version of offshoring score associated with ISCO-88 code 10. This variable is equal to offs10*isco_88_percode10.
isco_88_code11	ISCO-88 numeric occupational code 11.
isco_88_label11	ISCO-88 text occupational label 11.
isco_88_percode11	ISCO-88 occupation weight 11.
rti11	Routine task intensity score associated with ISCO-88 code 11.
weightedrti11	Weighted version of routine task intensity score associated with ISCO-88 code 11. This variable is equal to rti11*isco_88_percode11.
offs11	Offshoring score associated with ISCO-88 code 11.
weightedoffs11	Weighted version of offshoring score associated with ISCO-88 code 11. This variable is equal to offs11*isco_88_percode11.
rti_score	Total weighted routine task intensity score. This variable is the summation of the weighted RTI scores 1 through 11. If the occupational category did not require multiple ISCO-88 codes, rti_score will be equal to rti1.
offs_score	Total weighted offshoring score. This variable is the summation of the weighted offshoring scores 1 through 11. If the occupational category did not require multiple ISCO-88 codes, offs_score will be equal to offs1.
rti_weighted	An indicator variable coded as 1 if the total routine task intensity score had to be weighted because the occupational category required more than one ISCO-88 code.
offs_weighted	An indicator variable coded as 1 if the total offshoring score had to be weighted because the occupational category required more than one ISCO-88 code.

class_name	The name of the original country occupation classification scheme.
class_level	The level of the original country occupation classification scheme. Digit level refers to the level of detail of the scheme. For example, two digit refers to second level headings, three digit to third, etc. Higher numbers mean more detailed categories.
replication_dname	An indicator variable coded as 1 if the country-year was utilized in the analyses in Mahutga, Curran, and Roberts (2018).
replication_flag	An indicator variable coded as 1 if the occupation recode was utilized in the analyses in Mahutga, Curran, and Roberts (2018). These analyses assigned a recode only if an ISCO-88 weight was greater than 50 percent. Otherwise, that occupation's ISCO-88 recode, RTI score, and OFFS score were coded as missing.
occa1_r	A recode based on LIS *occa1* variable, which is the three-category recode. 1 refers to managers and professionals (ISCO 1 & 2), 2 to other skilled workers (ISCO 3-8, 10), and 3 to labourers/elementary (ISCO 9). This variable can be used in place of occa1 because it includes the recoded values not generated by LIS. It is generated in cases where an ISCO-88 weight is greater than 50%, otherwise it is missing.
occb1_r	A recode based on LIS *occb1* variable, which is the ten-category recode. 1 refers to managers, 2 to professionals, 3 to technicians and associate professionals, 4 to clerical support workers, 5 to service and sales workers, 6 to skilled agricultural, forestry and fishery workers, 7 to craft and related trades workers, 8 to plant and machine operators, and assemblers, 9 to elementary occupations, and 10 to armed forces occupations. This variable can be used in place of occb1 because it includes the recoded values not generated by LIS. It is generated in cases where an ISCO-88 weight is greater than 50%, otherwise it is missing. It is also assigned as missing for armed forces as it does not have an associated RTI or OFFS score.
isco_88_r	Occupation recode to an ISCO-88 category over 50%. This variable is used in the validation analyses in Mahutga, Curran, and Roberts (2018). It assigns an ISCO-88 occupation category to occ1_c on the basis of a 50% rule. If an ISCO-88 recode is weighted over 50%, this variable is assigned that category.

LIS Country-Years

To produce these data, we recoded 23 country-specific occupational schemes (74 LIS country-years) to the two-digit ISCO-88 scheme. When combined with the LIS countries already reporting their occupations in ISCO-88, we provide individual level RTI and OFFS scores for 39 LIS countries and 178 LIS country-years. These country-years are listed in the table below, along with the country name, year, and original occupational scheme.

Table 2: Routine Task Intensity and Offshorability Database Country-Years

LIS dname	Country Name	Year	Original Occupation Scheme
AU81	Australia	1981	Australia CCLO
AT95	Austria	1995	ISCO-88
AT04	Austria	2004	ISCO-88
AT07	Austria	2007	ISCO-88
AT10	Austria	2010	ISCO-08
AT13	Austria	2013	ISCO-08
BE95	Belgium	1995	ISCO-88
BE97	Belgium	1997	ISCO-88
BE00	Belgium	2000	ISCO-88
BR06	Brazil	2006	Brazil CBO-DOMICILIAR
BR09	Brazil	2009	Brazil CBO-DOMICILIAR
BR11	Brazil	2011	Brazil CBO-DOMICILIAR
BR13	Brazil	2013	Brazil CBO-DOMICILIAR
CA94	Canada	1994	Canada Standard Occupational Classification-1980 (SOC-80)
CA97	Canada	1997	Canada Standard Occupational Classification-1980 (SOC-80)
CA98	Canada	1998	Canada Standard Occupational Classification-1991 (SOC-91)
CA00	Canada	2000	Canada Standard Occupational Classification-1991 (SOC-91)
CA04	Canada	2004	Canada Standard Occupational Classification-1991 (SOC-91)
CA07	Canada	2007	Canada Standard Occupational Classification-1991 (SOC-91)
CA10	Canada	2010	Canada Standard Occupational Classification-1991 (SOC-91)
CO04	Colombia	2004	ISCO-68
CO07	Colombia	2007	ISCO-68
CO10	Colombia	2010	ISCO-68
CO13	Colombia	2013	ISCO-68
CZ92	Czech Republic	1992	ISCO-88
CZ96	Czech Republic	1996	ISCO-88
CZ02	Czech Republic	2002	ISCO-88
CZ04	Czech Republic	2004	ISCO-88
CZ07	Czech Republic	2007	ISCO-88
CZ10	Czech Republic	2010	ISCO-88
CZ13	Czech Republic	2013	ISCO-08
DK92	Denmark	1992	ISCO-88
DK04	Denmark	2004	ISCO-88
DK07	Denmark	2007	ISCO-88
DK10	Denmark	2010	ISCO-08
DK13	Denmark	2013	ISCO-08
DO07	Dominican Republic	2007	ISCO-68
EG12	Egypt	2012	ISCO-88
EE00	Estonia	2000	ISCO-88
EE07	Estonia	2007	ISCO-88
EE10	Estonia	2010	ISCO-88

LIS dname	Country Name	Year	Original Occupation Scheme
EE13	Estonia	2013	ISCO-08
FI87	Finland	1987	Finland TLN
FI91	Finland	1991	Finland TLN
FI95	Finland	1995	Finland TLN
FI00	Finland	2000	ISCO-88
FI04	Finland	2004	ISCO-88
FI07	Finland	2007	ISCO-88
FI10	Finland	2010	ISCO-88
FI13	Finland	2013	ISCO-08
FR78	France	1978	France PCS
FR84	France	1984	France PCS 1982 (PCS-82)
FR89	France	1989	France PCS 1982 (PCS-82)
FR94	France	1994	France PCS 1982 (PCS-82)
FR00	France	2000	France PCS 1982 (PCS-82)
FR05	France	2005	France PCS 1982 (PCS-82)
FR10	France	2010	France PCS 2003 (PCS-03)
GE10	Georgia	2010	ISCO-88
GE13	Georgia	2013	ISCO-88
DE84	Germany	1984	ISCO-88
DE89	Germany	1989	ISCO-88
DE94	Germany	1994	ISCO-88
DE00	Germany	2000	ISCO-88
DE04	Germany	2004	ISCO-88
DE07	Germany	2007	ISCO-88
DE10	Germany	2010	ISCO-88
DE13	Germany	2013	ISCO-88
GR04	Greece	2004	ISCO-88
GR07	Greece	2007	ISCO-88
GR10	Greece	2010	ISCO-88
GR13	Greece	2013	ISCO-08
GT06	Guatemala	2006	ISCO-88
GT11	Guatemala	2011	ISCO-88
GT14	Guatemala	2014	ISCO-08
HU91	Hungary	1991	ISCO-68
HU94	Hungary	1994	ISCO-88
HU99	Hungary	1999	ISCO-88
HU05	Hungary	2005	ISCO-88
HU07	Hungary	2007	Hungary FEOR-93
HU09	Hungary	2009	Hungary FEOR-93
HU12	Hungary	2012	Hungary FEOR-08
IS04	Iceland	2004	ISCO-88
IS07	Iceland	2007	ISCO-88
IS10	Iceland	2010	ISCO-88
IN04	India	2004	India NCO-1968
IN11	India	2011	India NCO-1968
IE87	Ireland	1987	Ireland CSO-1986
IE94	Ireland	1994	ISCO-88
IE95	Ireland	1995	ISCO-88
IE96	Ireland	1996	ISCO-88
IE00	Ireland	2000	ISCO-88
IE04	Ireland	2004	ISCO-88
IE07	Ireland	2007	ISCO-88
IE10	Ireland	2010	ISCO-08
IL07	Israel	2007	Israel Standard Classification of Occupations 1994
IL10	Israel	2010	Israel Standard Classification of Occupations 1994

LIS dname	Country Name	Year	Original Occupation Scheme
IL12	Israel	2012	Israel Standard Classification of Occupations 1994
LT10	Lithuania	2010	ISCO-88
LT13	Lithuania	2013	ISCO-08
LU97	Luxembourg	1997	ISCO-88
LU00	Luxembourg	2000	ISCO-88
LU04	Luxembourg	2004	ISCO-88
LU07	Luxembourg	2007	ISCO-88
LU10	Luxembourg	2010	ISCO-88
LU13	Luxembourg	2013	ISCO-08
MX08	Mexico	2008	Mexican Classification of Occupations (CMO)
MX10	Mexico	2010	Mexico SINCO
MX12	Mexico	2012	Mexico SINCO
NL90	Netherlands	1990	Netherlands BC-84
NL93	Netherlands	1993	Netherlands BC-84
NL99	Netherlands	1999	Netherlands SBC-1992
NL04	Netherlands	2004	ISCO-88
NL07	Netherlands	2007	ISCO-88
NL10	Netherlands	2010	ISCO-88
NL13	Netherlands	2013	ISCO-08
PA07	Panama	2007	Panama CNO 2000
PA10	Panama	2010	Panama CNO 2000
PA13	Panama	2013	Panama CNO 2010
PE04	Peru	2004	Peru INEI
PE07	Peru	2007	Peru INEI
PE10	Peru	2010	Peru INEI
PE13	Peru	2013	Peru INEI
PL99	Poland	1999	ISCO-88
PL04	Poland	2004	ISCO-88
PL07	Poland	2007	ISCO-88
PL10	Poland	2010	ISCO-88
PL13	Poland	2013	ISCO-08
RO95	Romania	1995	ISCO-88
RU00	Russia	2000	ISCO-88
RU04	Russia	2004	ISCO-88
RU07	Russia	2007	ISCO-88
RU10	Russia	2010	ISCO-88
RU13	Russia	2013	ISCO-88
RS06	Serbia	2006	ISCO-88
RS10	Serbia	2010	ISCO-88
RS13	Serbia	2013	ISCO-88
SK92	Slovakia	1992	ISCO-88
SK04	Slovakia	2004	ISCO-88
SK07	Slovakia	2007	ISCO-88
SK10	Slovakia	2010	ISCO-88
SK13	Slovakia	2013	ISCO-88
SI97	Slovenia	1997	ISCO-88
SI99	Slovenia	1999	ISCO-88
SI04	Slovenia	2004	ISCO-88
SI07	Slovenia	2007	ISCO-88
SI10	Slovenia	2010	ISCO-88
SI12	Slovenia	2012	ISCO-08
ES80	Spain	1980	Spain CNO-79
ES90	Spain	1990	Spain CNO-79
ES95	Spain	1995	ISCO-88
ES00	Spain	2000	ISCO-88

LIS dname	Country Name	Year	Original Occupation Scheme
ES04	Spain	2004	ISCO-88
ES07	Spain	2007	ISCO-88
ES10	Spain	2010	ISCO-88
ES13	Spain	2013	ISCO-08
CH92	Switzerland	1992	Switzerland PBER
CH00	Switzerland	2000	ISCO-88
CH02	Switzerland	2002	ISCO-88
CH07	Switzerland	2007	ISCO-88
CH10	Switzerland	2010	ISCO-08
CH13	Switzerland	2013	ISCO-08
UK91	United Kingdom	1991	UK SOC-90
US74	United States	1974	US SOC-70
US79	United States	1979	US SOC-70
US86	United States	1986	US SOC-80
US91	United States	1991	US SOC-90
US94	United States	1994	US SOC-90
US97	United States	1997	US SOC-90
US00	United States	2000	US SOC-90
US04	United States	2004	US Census 2002
US07	United States	2007	US Census 2002
US10	United States	2010	US Census 2010
US13	United States	2013	US Census 2010
UY04	Uruguay	2004	ISCO-88
UY07	Uruguay	2007	Uruguay CNUO-95
UY10	Uruguay	2010	Uruguay CNUO-95
UY13	Uruguay	2013	ISCO-08
UY16	Uruguay	2016	ISCO-08

Script Instructions

The Routine Task Intensity and Offshorability Database contains three scripts. Script 1 builds the dataset from the "Full Recodes" (lis_occ_recodes.xlsx) Excel file that contains every occupation code (occ1_c), label, cleaned label (if applicable), translated label (if applicable), ISCO-88 recode, ISCO-88 label, and their ISCO-88 percentage weight. **If no weighting procedure is required for an occupation code, the *isco_88_percode1* variable is assigned 100%.** Script 2 provides code for a user to merge the Routine Task Intensity and Offshorability Database with LIS data. Script 3 supplies replication code for the recodes validation analyses outlined in Mahutga, Curran, and Roberts (2018). Instructions for each script are provided below. Each script also contains comment instructions.

Script 1: generate_recodes_dataset.do

This script generates the dataset based on the Full Recodes Excel document (lis_occ_recodes.xlsx). It proceeds in several steps. These steps are also denoted in the script as comments. In cases where a user should adjust a file path, this is noted within the script with [adjust file path].

Each step for this script is outlined below:

1. Change the directory to where all the files are stored. Adjust the address accordingly.

2. Import the lis_occ_recodes.xlsx document's file manifest, store the names of each dataset (dname), and clear.

3. Import each recode tab (named as dnames) from lis_occ_recodes.xlsx based on the stored list, create temporary files, and append these files. Save as a master temporary file.

4. Get country name, survey year, classification scheme name, level, and country-year replication flag by merging this master temporary file created in step 3 with the file manifest utilized in step 2.

5. Clean-up, label, and notate variables and dataset.

6. Recode the 9999 "UNKNOWN" values to missing for each *isco_88_code*, *isco_88_label*, and *isco_88_percode*, where relevant.

7. Prepare percentages for weighting procedure by dividing each *isco_88_percode* variable by 100.

8. Loop through each *isco_88_code* and *isco_88_percode*, generating associated RTI and OFFS scores, and weighting these RTI and OFFS scores.

9. Sum all weighted RTI and OFFS scores to create composite RTI and OFFS scores. See Mahutga, Curran, and Roberts (2018) for information about the weighting procedure.

10. Generate indicator variables to note if a weighting procedure was used (i.e., isco_88_percode1 was not equal to 100%_ to create the RTI and OFFS scores and move variables.

11. Generate recoded version of LIS occa1 (three category) variable.

12. Generate recoded version of LIS occb1 (ten category) variable

13. Fix some peculiarities in certain LIS ISCO-88 datasets for occa1 and occb1 recodes.

14. Generate ISCO-88 recode variable for use in replicating the validation analyses.

15. Generate paper replication flag for each occupation recode.

16. Uncomment lines where appropriate to save the full and/or abbreviated datasets. The abbreviated dataset only contains the *dname*, *occ1_c*, *isco_88_r*, *occa1_r*, *occb1_r*, *rti_score*, *rti_weighted*, *offs_score*, *offs_weighted*, and *replication_flag* variables.

Script 2: rti_offs_merge.do

This script provides code for a user to put into *LISSY* that will merge the Routine Task Intensity and Offshorability Database with LIS data. It proceeds in several steps. These steps are also denoted in the script as comments. In cases where a user should adjust a file path, this is noted within the script with [adjust file path]. Note, LIS will provide you with a file path once your external file is uploaded. A user will use that file path to access the database and merge it with LIS data.

Each step for this script is outlined below:

1. Send the RTI / OFFS dataset as an attachment (zipped file) to LIS via email at usersupport@lisdatacenter.org. Please note: LIS must review the file before uploading it to their server. This may take time. After your file is accepted, LIS will send you a LISSY address for it. The address will follow this format: $mydata/mcurra/lis_external_merge.dta (where mcurra is the user's name for LISSY and lis_external_merge.dta is the name of the uploaded file). You are able to access the uploaded file in LISSY in .dta format with this address. Please adjust the file path to this address where noted with [adjust file path] in the script.

2. Log into LISSY and append the relevant datasets using Stata code like in the example below. This example will append all country-years for which there are available RTI and OFFS scores. Note: This may take a while because it contains many records. You can always append and merge sections at time and save to your user file, if needed. To save

to your user file: save $mydata/mcurra/append1.dta, replace (where mcurra is the user's name for LISSY and lis_external_merge.dta is the name of the uploaded file).

3. Merge the appended files to the external file that contains the RTI and OFFS scores. Paste this code in the same script in LISSY as the append statements. Note: This may take awhile because it contains many records. You can always append and merge sections at time and save to your user file, if needed. To save to your user file: save $mydata/mcurra/append1.dta, replace (where mcurra is the user's name for LISSY and lis_external_merge.dta is the name of the uploaded file).

4. Check the _merge variable. One entry in the RTI/OFFS file for US91 will fail to merge as it is a zero code in the LIS data. Two entries from Germany 2010, occ1_c codes 8262 and 9111 will fail to merge because they no longer exist in LIS data. Paste this code in the same script in LISSY as the append and merge statements from Steps 2 and 3. If you plan on doing other analyses besides those using RTI/OFFS, drop if _merge==2. If you plan on doing analyses using RTI/OFFS variables in every analysis, keep if _merge==3. Note: if you do not plan to append all available country-years in the RTI/OFFS file, you will have some country-years that you do not use that will not merge. Check your merge to ensure all the country-years you appended merged, and then drop the remainder that were not appended with drop if _merge==2. Also, if you wish to be able to tabulate the occ1_c variable, you must take it to string format.

5. Step 5: You can now access the merged RTI and OFFS dataset by a use statement in LISSY with a use statement like so: use $mydata/mcurra/rti_offs_merge.dta [adjust file path]

Script 3: rti_offs_replication.do

This script provides code for a user to put into *LISSY* that allow him or her to generate the ISCO-88 recode validation analyses in Mahutga, Curran, and Roberts (2018). These steps are also denoted in the script as comments. In cases where a user should adjust a file path, this is noted within the script with [adjust file path]. Note, A user will use the save file path that they created using the second script that contains the appended and merged LIS data.

Each step for this script is outlined below:

1. Send the RTI / OFFS dataset as an attachment (zipped file) to LIS via email at usersupport@lisdatacenter.org. Please note: LIS must review the file before uploading it to their server. This may take time. After your file is accepted, LIS will send you a LISSY address for it. The address will follow this format: $mydata/mcurra/lis_external_merge.dta (where mcurra is the user's name for LISSY and lis_external_merge.dta is the name of the uploaded file). You are able to access the

uploaded file in LISSY in .dta format with this address. Please adjust the file path to this address where noted with [adjust file path] in the script.

2. Log into LISSY and append the relevant validation datasets using the append Stata code. The following country-years are part of the validation analysis: Finland 1995, 2000, 2004, 2010; Hungary 1991, 1994, 1999, 2005, 2009; Netherlands 1999, 2004, 2010; Spain 1990, 1995, 2004, 2010.

3. Merge the appended files to the external file that contains the RTI and OFFS scores. Paste this code in the same script in LISSY as the append statements. To save to your user file: save $mydata/mcurra/append1.dta, replace (where mcurra is the user's name for LISSY and lis_external_merge.dta is the name of the uploaded file).

4. Check the _merge variable. For the validation analyses, keep if _merge==3.

5. Trim and generate labor income and total income variables for the analyses.

6. Create data for Figure 1 using the “table” function.

7. Run country-specific regressions comparing ISCO_88 income estimates across aggregate recode. These regressions include the following country-years: Finland - compare 1995 (recode year) to 2000 (ISCO-88 year) and 2004 to 2010 for baseline; Hungary - compare 1991 (recode year) to 1994 (ISCO-88 year) and 1994 to 1999 for baseline; Hungary - Compare 2005 (ISCO-88 year) to 2009 (recode year) and 1999 to 2005 for baseline; Netherlands - Compare 2004 (recode year) to 2007 (ISCO-88 year) and 2007 to 2010 for baseline; Spain - Compare 1990 (recode year) to 1995 (ISCO-88 year) and 2004 to 2010 for baseline.

Crosswalk Citations

The table and citation list below provides a list of all citations in cases where existing crosswalks were utilized to generate the ISCO-88 recodes.

Table 3: ISCO-88 Survey Years, Crosswalk Years, and Citations

Country	ISCO-88 Survey Years	Recoded Survey Years	Unable to Recode Survey Years	Notes
Australia		1981	1985, 1989, 1995, 2001, 2003, 2008, 2010	CCLO Scheme – crosswalk created from list of occupations
Austria	1995, 2004, 2007	2010, 2013	1987, 1994, 1997, 2000	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Belgium	1995, 1997, 2000		1985, 1988, 1992	
Brazil		2006, 2009, 2011, 2013		CBO-DOMICILIAR Scheme – crosswalk created from list of occupations
Canada		1994, 1997, 1998, 2000, 2004, 2007, 2010	1971, 1975, 1981, 1987, 1991	SOC-80 (1994-1997) and SOC-90 (1998-2010) Schemes – crosswalks created from list of occupations
Colombia		2004, 2007, 2010, 2013		ISCO-68 Scheme – crosswalk from Ganzeboom and Treiman (2012)
Czech Republic	1992, 1996, 2002, 2004, 2007, 2010	2013		ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Denmark	1992, 2004, 2007	2010, 2013	1987, 1995, 2000	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Dominican Republic	2007			
Egypt	2012			
Estonia	2000, 2007, 2010	2013	2004	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Finland	2000, 2004, 2007, 2010	1987, 1991, 1995, 2013		TLN Scheme (1987-1995) – crosswalk created from list of occupations and ISCO-08 Scheme (2013) – crosswalk from International Labour Organization (2012)
France		1978, 1984, 1989, 1994, 2000, 2005, 2010		PCS (1978), PCS-82 (1984-2005), and PCS-03 (2010) Schemes – crosswalks from Ganzeboom and Treiman (2012)
Germany	1984, 1989, 1994, 2000, 2004, 2007, 2010, 2013		1973, 1978, 1981, 1983	

Country	ISCO-88 Survey Years	Recoded Survey Years	Unable to Recode Survey Years	Notes
Georgia		2010, 2013		
Greece	2004, 2007, 2010	2013	1995, 2000	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Guatemala	2006, 2011	2014		ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Hungary	1994, 1999, 2005	1991, 2007, 2009, 2012		ISCO-68 (1991) Scheme – crosswalk from Ganzeboom and Treiman (2012) and FEOR-93 (2007-2009) and FEOR-08 (2012) Schemes – crosswalks from Hungarian Central Statistics Office (1999; 2011)
Iceland	2004, 2007, 2010			
India		2004, 2011		NCO-68 Scheme – crosswalk from International Household Survey Network
Ireland	1994, 1995, 1996, 2000, 2004, 2007	1987, 2010		CSO-86 (1987) Scheme – crosswalk created from list of occupations and ISCO-08 (2010) – crosswalk from International Labour Organization (2012)
Israel		2007, 2010, 2012	1979, 1986, 1992, 1997, 2001, 2005	Standard Classification of Occupations 1994 (2007-2012) – crosswalk from Israel Central Bureau of Statistics (1994)
Lithuania	2010	2013		ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Luxembourg	1997, 2000, 2004, 2007, 2010	2013	1985, 1991, 1994	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Mexico		2008, 2010, 2012	1984, 1989, 1992, 1994, 1996, 1998, 2000, 2002, 2004	CMO (2008) and SINCO-2011 (2010-2012) Schemes – crosswalk from INEGI (2012)
Netherlands	2004, 2007, 2010	1990, 1993, 1999, 2013	1987, 1983	CBS-90 (1990-1993) and SBC-1992 (1999) Schemes – crosswalks from Ganzeboom and Treiman (2012); ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Panama		2007, 2010, 2013		CNO 2000 (2007-2010) and CNO 2010 (2013) – crosswalks created from list of occupations
Peru		2004, 2007, 2010, 2013		INEI Occupational Scheme – crosswalk created from list of occupations

Country	ISCO-88 Survey Years	Recoded Survey Years	Unable to Recode Survey Years	Notes
Poland	1999, 2004, 2007, 2010	2013	1986, 1992, 1995	ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Romania	1995		1997	
Russia	2000, 2004, 2007, 2010, 2013			
Serbia	2006, 2010, 2013			
Slovak Rep.	1992, 2004, 2007, 2010, 2013		1996	
Slovenia	1997, 1999, 2004, 2007, 2010	2012		ISCO-08 Scheme – crosswalk from International Labour Organization (2012)
Spain	1995, 2000, 2004, 2007, 2010	1980, 1990, 2013	1985	CNO-79 (1980-1990) – crosswalk created from list of occupations and ISCO-08 Scheme (2013) – crosswalk from International Labour Organization (2012)
Switzerland	2000, 2002, 2007	1992, 2010, 2013	1982, 2004	PBER Scheme – crosswalk from Lambert and Prandy (2012); ISCO-08 Scheme – crosswalk from International Labour Organization (2012) for 2013
United Kingdom		1991	1969, 1974, 1979, 1986, 1994, 1995, 1999, 2004, 2007, 2010, 2013	UK SOC-90 Scheme – crosswalk from Lambert and Prandy (2012)
United States		1974, 1979, 1986, 1991, 1994, 1997, 2000, 2004, 2007, 2010, 2013		SOC-70 (1974-1979) – crosswalk created from work based on Lambert and Prandy (2012), SOC-80 (1986) – crosswalk from Lambert and Prandy (2012), SOC-90 (1991-2000) – crosswalk from Lambert and Prandy (2012), Census 2002 (2004-2007) – crosswalk created from list of occupations and crosswalk from Analyst Resource Center (2016), and Census 2010 (2010-2013) – crosswalk created from list of occupations and crosswalk from Analyst Resource Center (2016)
Uruguay	2004	2007, 2010, 2013, 2016		CNUO-95 (2007-2010) Scheme – crosswalk created from list of occupations, ISCO-08 Scheme – crosswalk from International Labour Organization (2012) (2013-2016)

Crosswalk Full Citations

Analyst Resource Center. 2016. "U.S. Census to Standard Occupation Classification." U.S. Department of Labor, Employment and Training Administration: National Crosswalk Service Center. Retrieved on October 7, 2016 from http://www.workforceinfodb.org/

Ganzeboom, Harry B.G., Donald J. Treiman. 2012. "International Stratification and Mobility File: Conversion Tools." Amsterdam: Department of Social Research Methodology, Retrieved on October 7, 2016 from http://www.harryganzeboom.nl/ISMF/ismf.htm

Hungarian Central Statistical Office. 1999. "FEOR-93 Hungarian Standard Classification of Occupations." Population Census Department of the Hungarian Central Statistical Office. Retrieved on October 7, 2016 from https://www.ksh.hu/feor_eng_menu

Hungarian Central Statistical Office. 2011. "Hungarian Standard Classification of Occupations (HCSO-08/FEOR-08)." Living Condition, Labour Market and Education Statistics Department of the Hungarian Central Statistical Office. Retrieved on October 7, 2016 from https://www.ksh.hu/feor_eng_menu

International Labor Organization. 2012. "ISCO-08 Structure, index correspondence with ISCO-88." Retrieved on October 7, 2016 from http://www.ilo.org/public/english/bureau/stat/isco/isco08/

Instituto Nacional de Estadística y Geografía (INEGI). 2012. "Sistema Nacional de Clasificación de Ocupaciones (SINCO), 2011." Tablas comparativas. Retrieved on October 7, 2016 from http://www.inegi.org.mx/inegi/contacto/default.aspx

Israel Central Bureau of Statistics (CBS). 1994. "The Conversion Table for the Classification of Occupations." Retrieved on October 7, 2016 from http://www.cbs.gov.il/publications10/conver10/pdf/h_print.pdf

Lambert, P.S. and K. Prandy. 2012. "CAMSIS project webpages: Cambridge Social Interaction and Stratification Scales." Retrieved on October 7, 2016 from http://www.camsis.stir.ac.uk/