

NISTIR 8280

**Ongoing Face Recognition  
Vendor Test (FRVT)  
Part 3: Demographic Effects**

**Annex 7 : Cross-race and sex false match rates in  
worldwide application images**

This document is an annex of NIST Interagency Report 8280:  
<https://doi.org/10.6028/NIST.IR.8280>

2019/12/19

**NIST**  
**National Institute of  
Standards and Technology**  
U.S. Department of Commerce

## 1 Overview

This annex includes figures that shows cross-country false match rates. Each page contains one figure corresponding to one algorithm. Each figure is a heatmap, showing a matrix of values. The value in cell  $ij$  is the FMR obtained when images of persons born in country  $i$  are compared with images of persons born in country  $j$ . Here the people are all males, and all aged 35 to 50.

## 2 Data

The images are all high-quality frontal portraits collected in immigration offices. All images have a white background and are in close approximation to ISO/IEC 39794-5 / ICAO specifications. As such, potential quality related drivers of high false match rates (such as blur) can be expected to be absent.

The total number of images is 883 356. The total number of persons is 696 288. The total number of comparisons is just over 195 billion (195 158 902 823) produced by full cross-comparison of two subject-disjoint and image-disjoint sets containing 442 019 and 441 517 respectively.

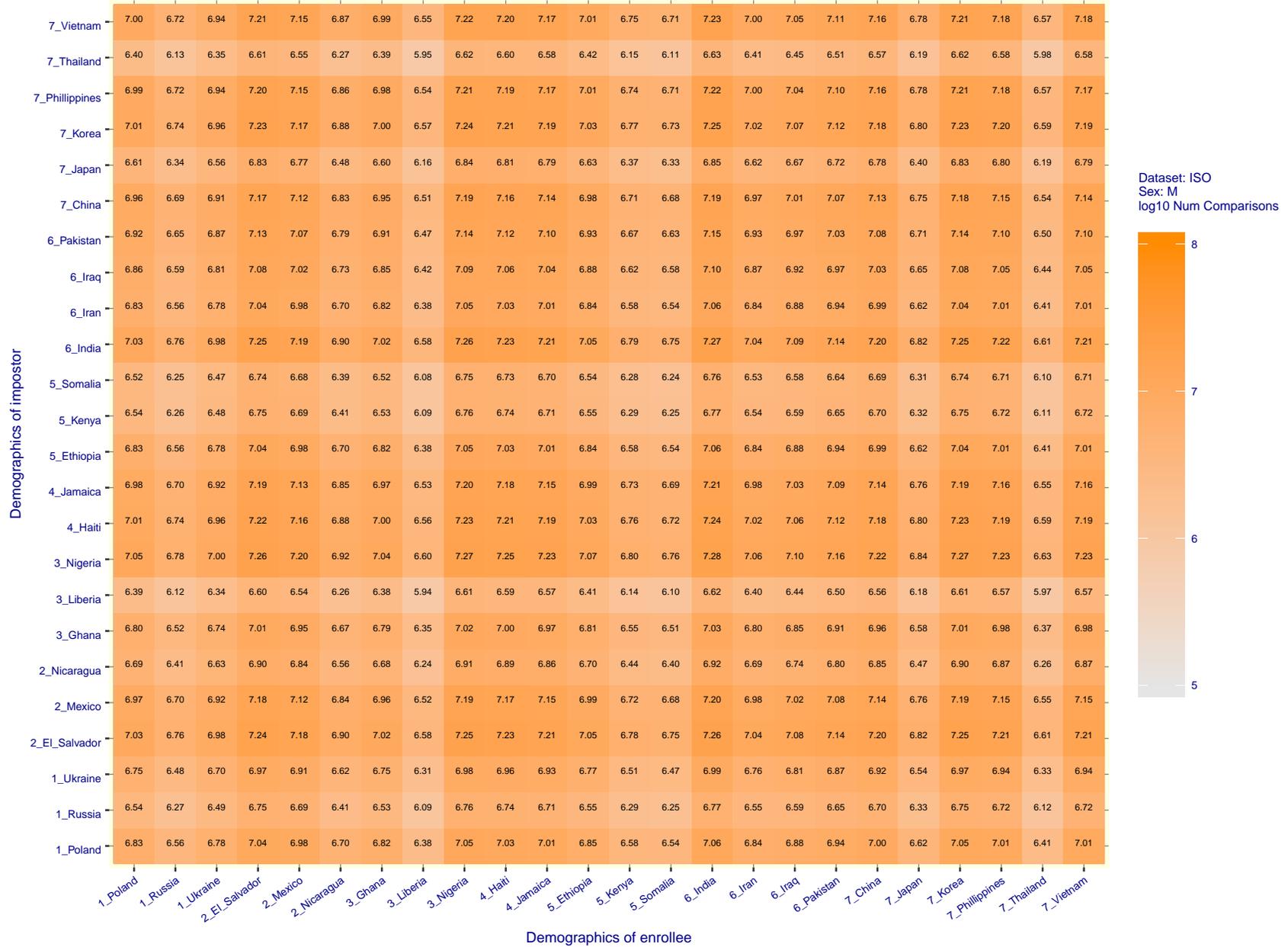
## 3 Fixed Threshold

A false match is declared if the comparison score is equal to, or exceeds, a threshold. This same value applies to all comparisons in all cells. The threshold value could be any value germane to that comparison algorithm. The threshold value was taken from a different experiment in which mugshot impostor pairs were compared. It is the value that gave a FMR of 0.00003 over that set.

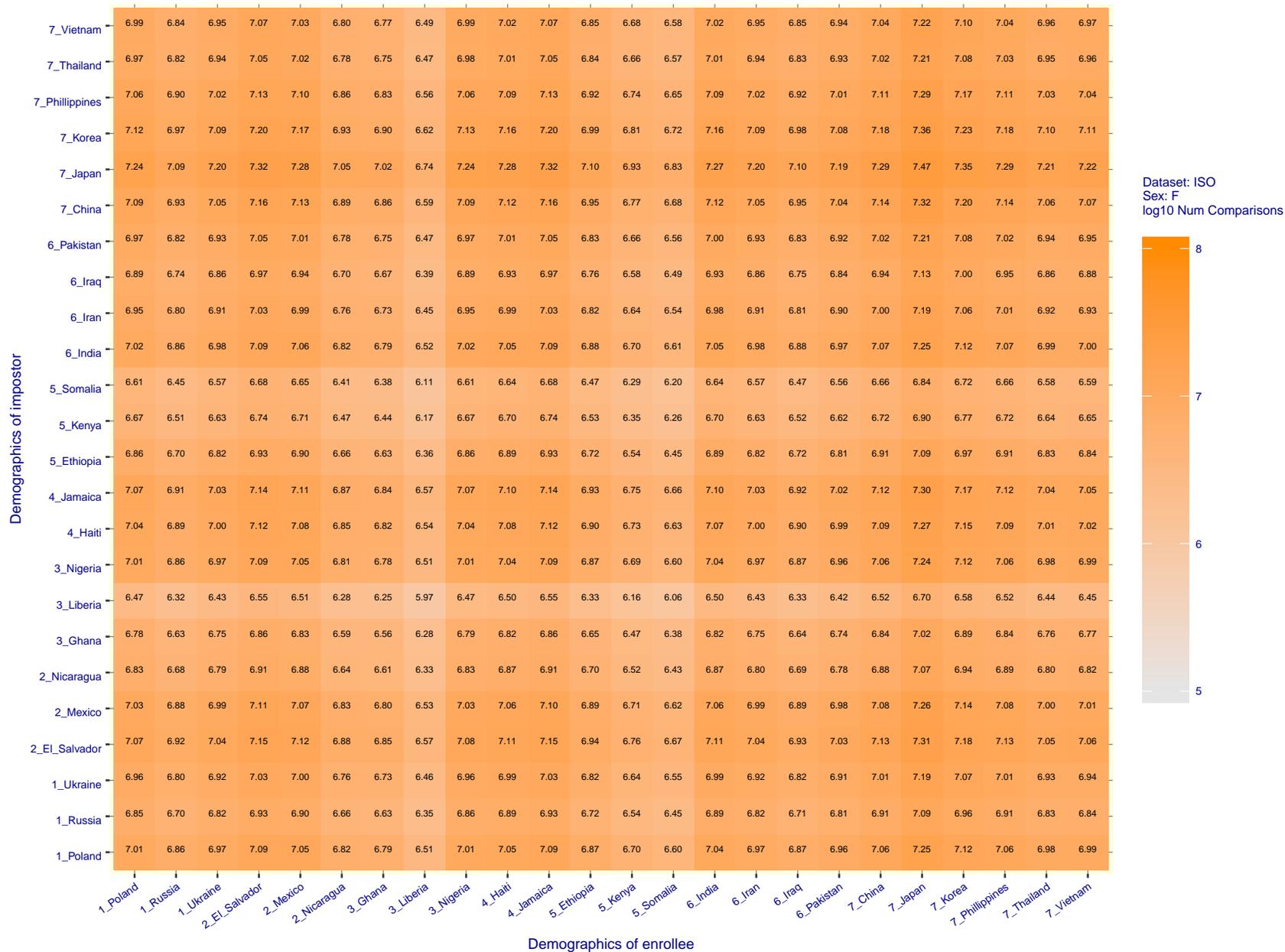
## 4 Plot

The figure groups countries by region. The regions are: 1 - Eastern Europe; 2 - Central America; 3 - West Africa; 4 - The Caribbean; 5 - East Africa; 6 - South Asia; 7 - East Asia.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fm\_r\_country\_x\_country\_only\_male\_35\_50/counts.pdf



reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fm\_r\_country\_x\_country\_only\_female\_35\_50/counts.pdf



reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/3divi\_003.pdf

Algorithm: 3divi\_003 Threshold: 2.767660 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

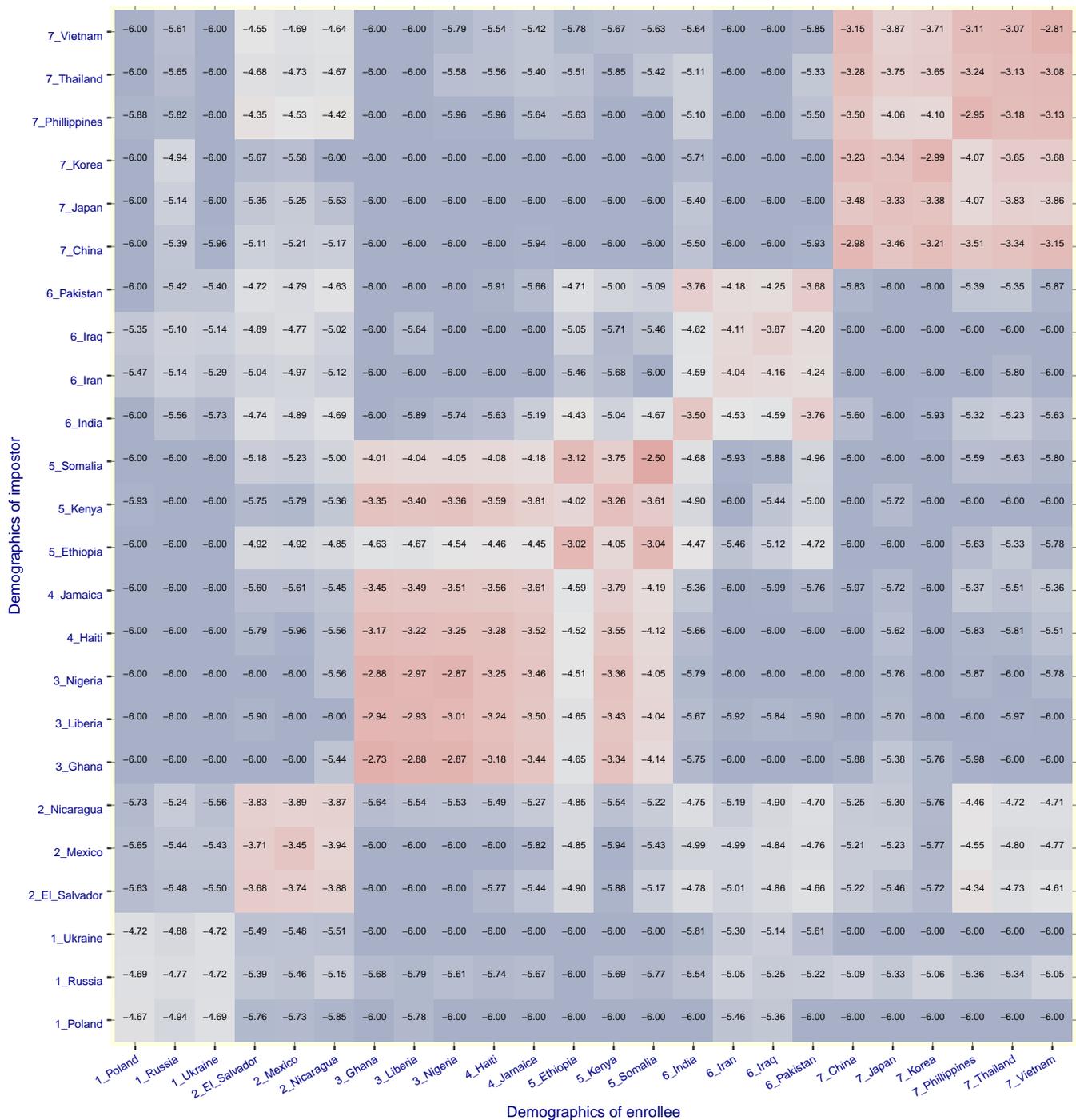
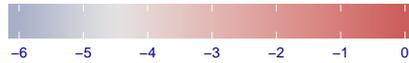


Figure 1: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/3divi\_003.pdf

Algorithm: 3divi\_003 Threshold: 2.767660 Dataset: Application  
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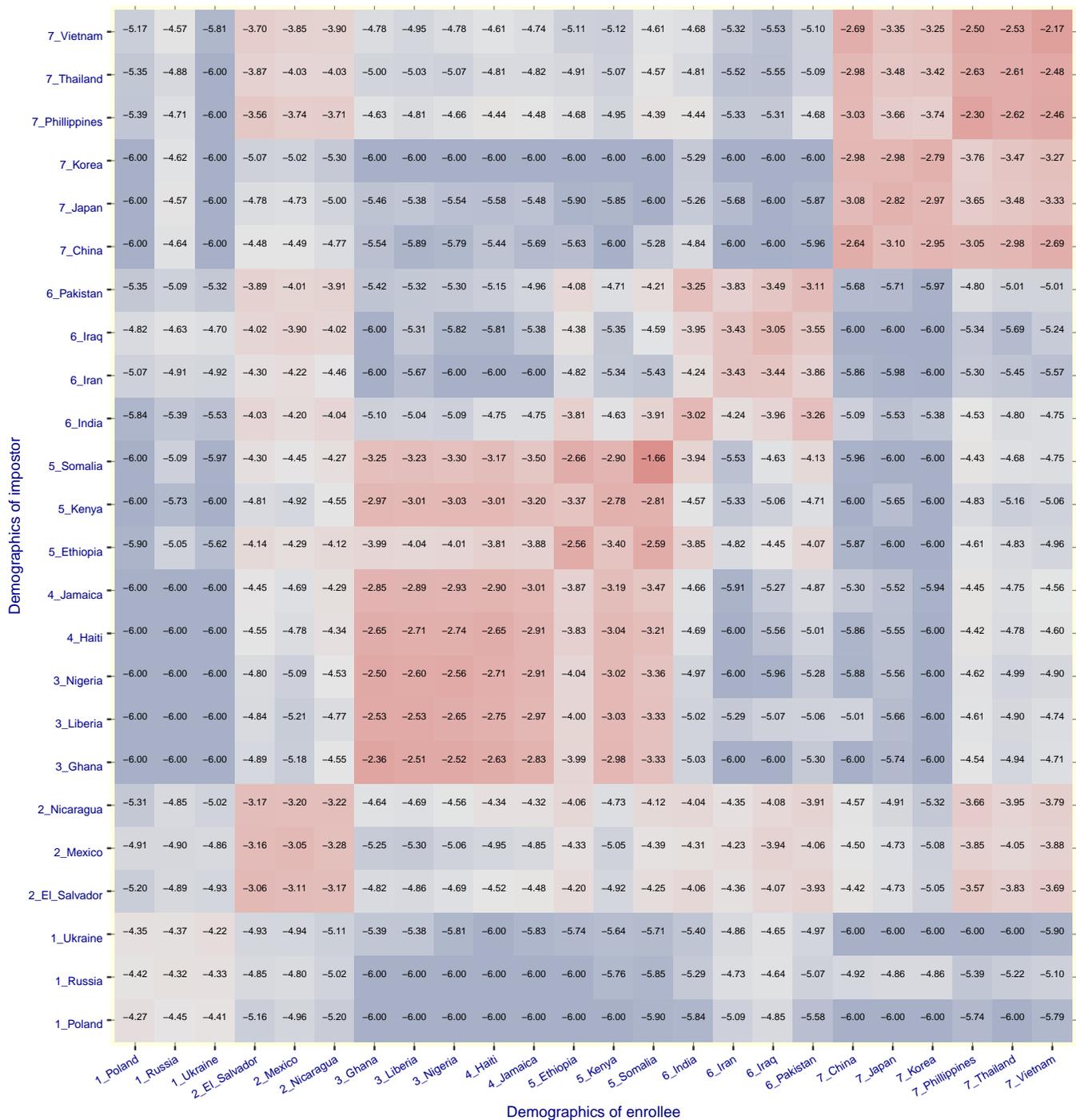
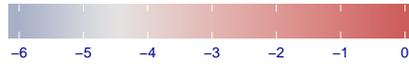


Figure 2: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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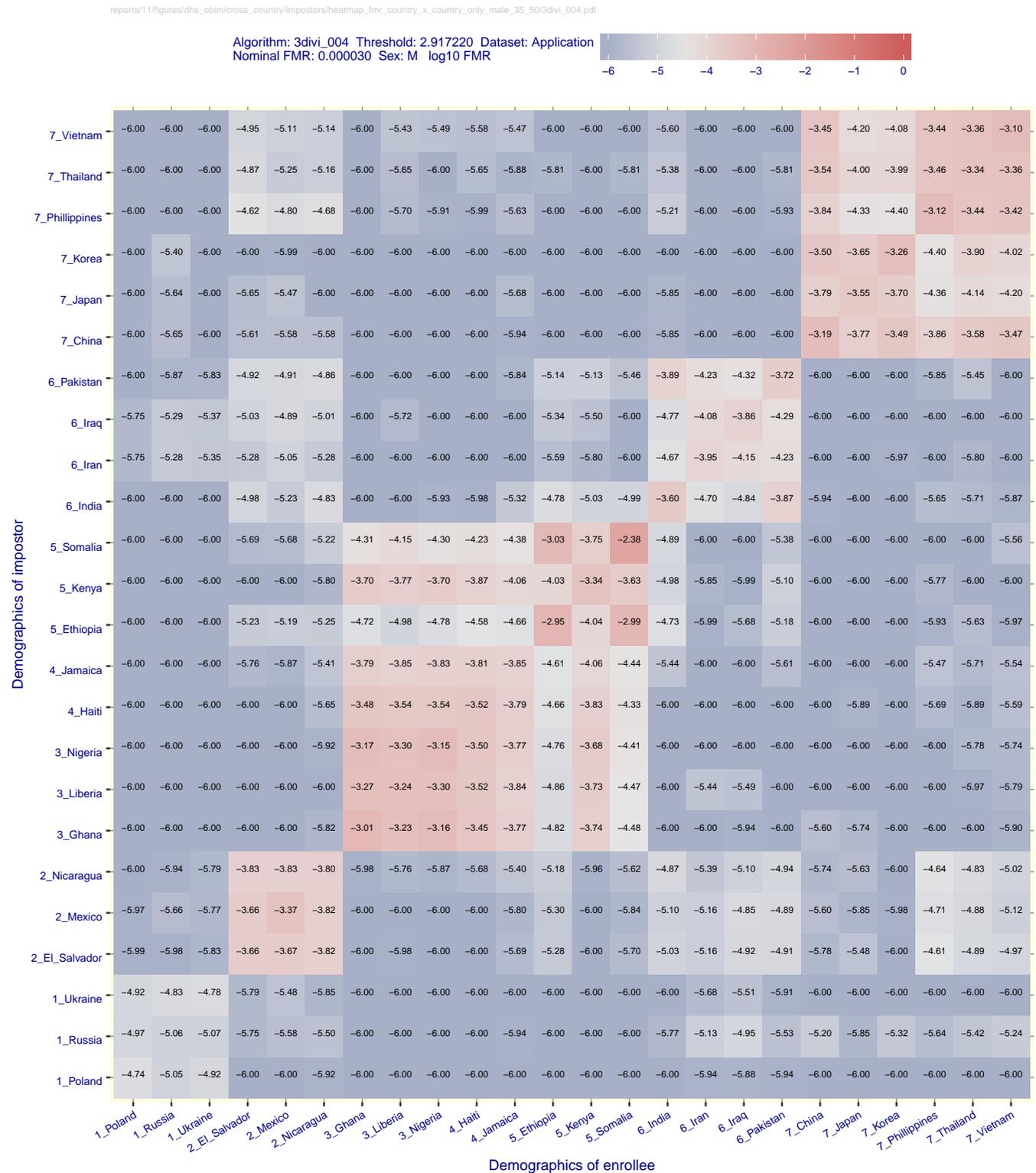


Figure 3: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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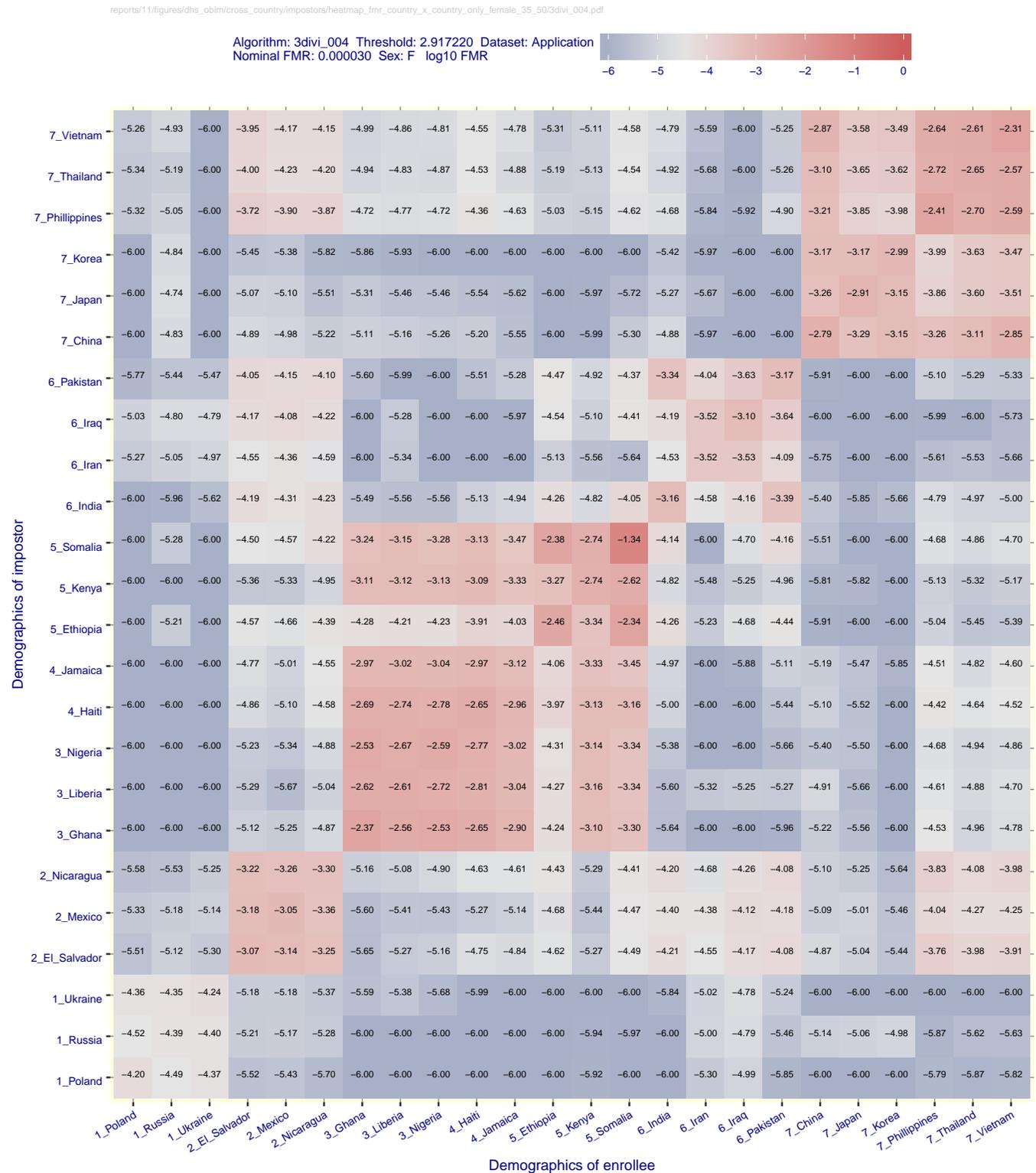


Figure 4: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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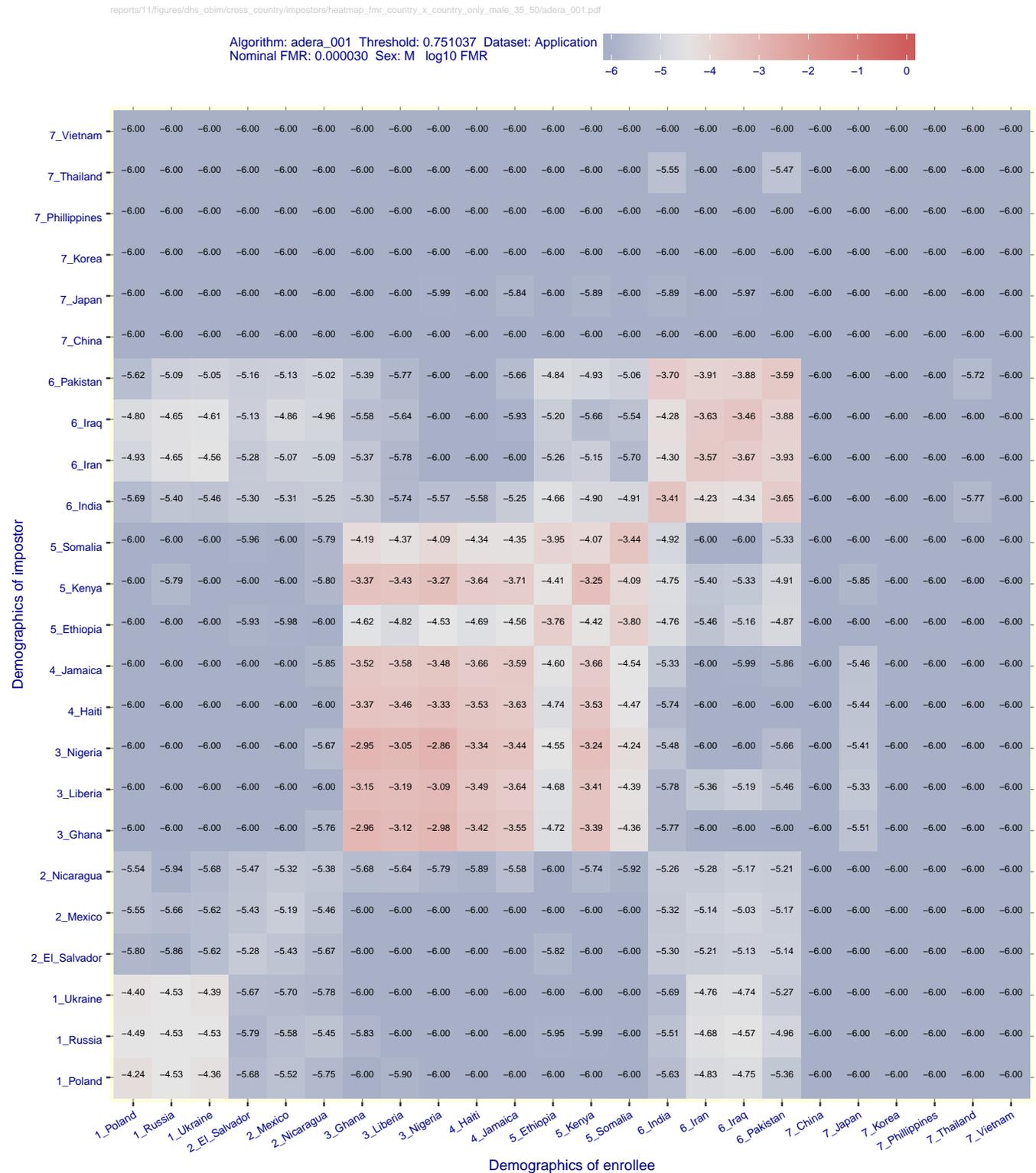


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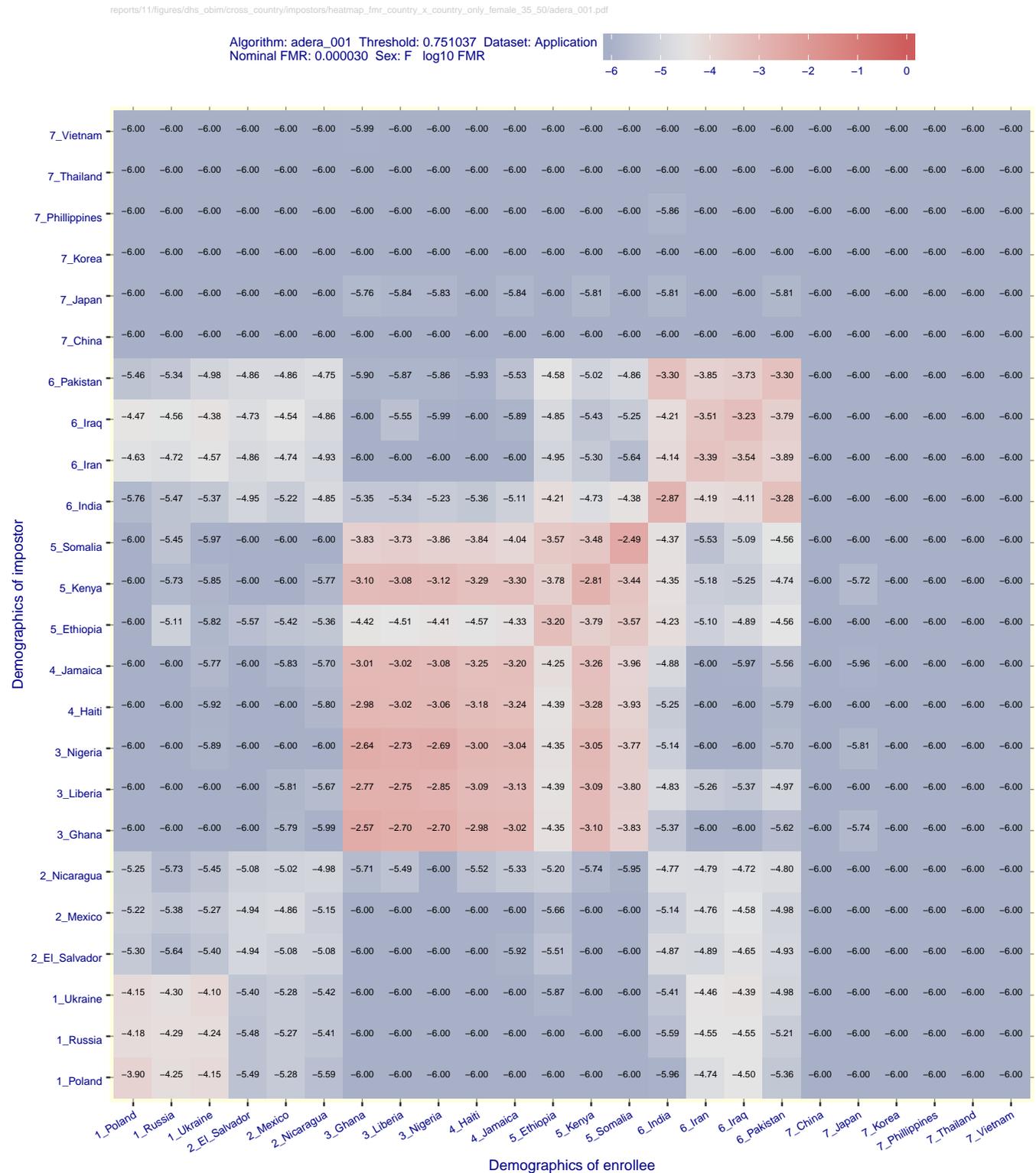


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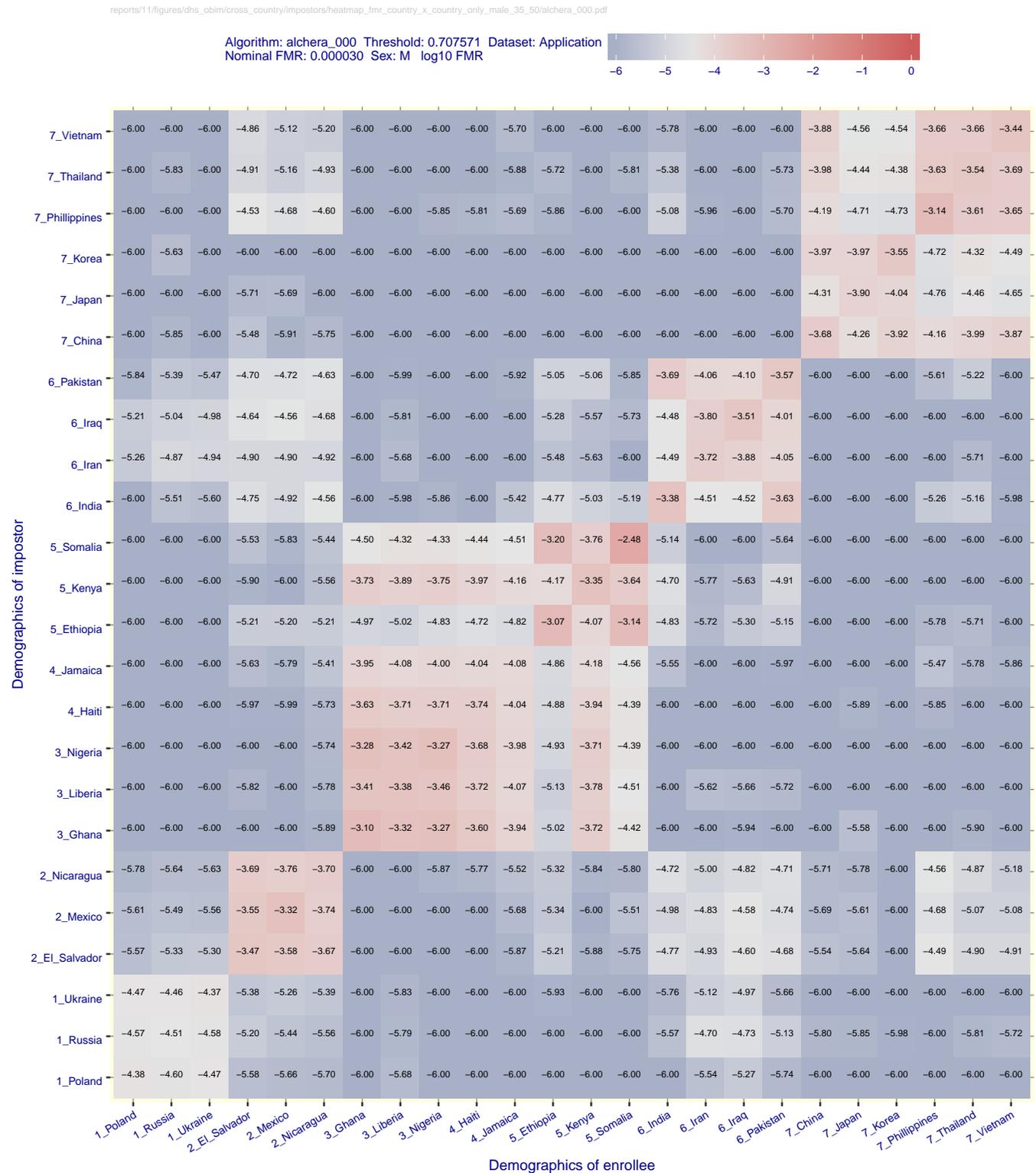


Figure 7: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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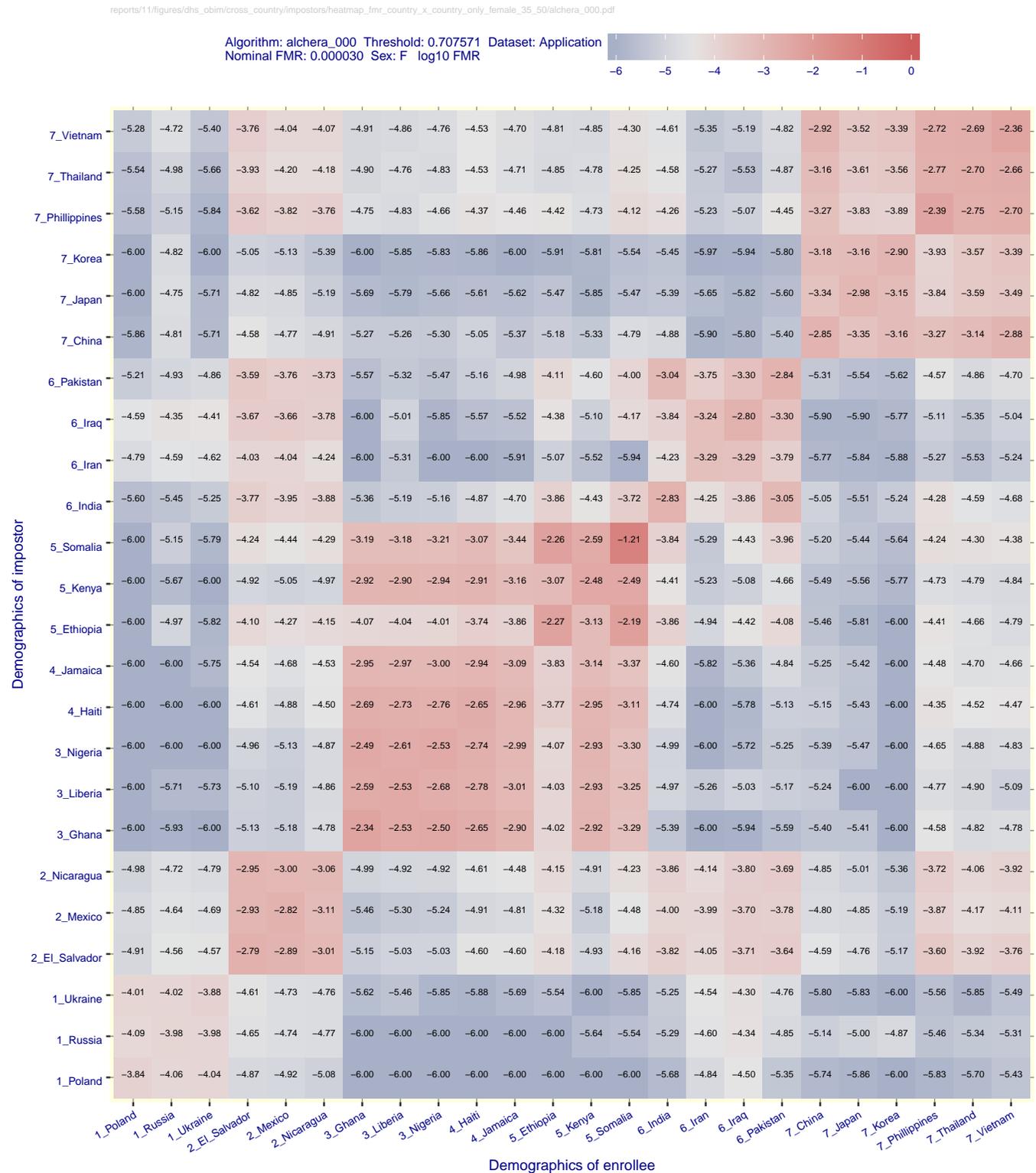


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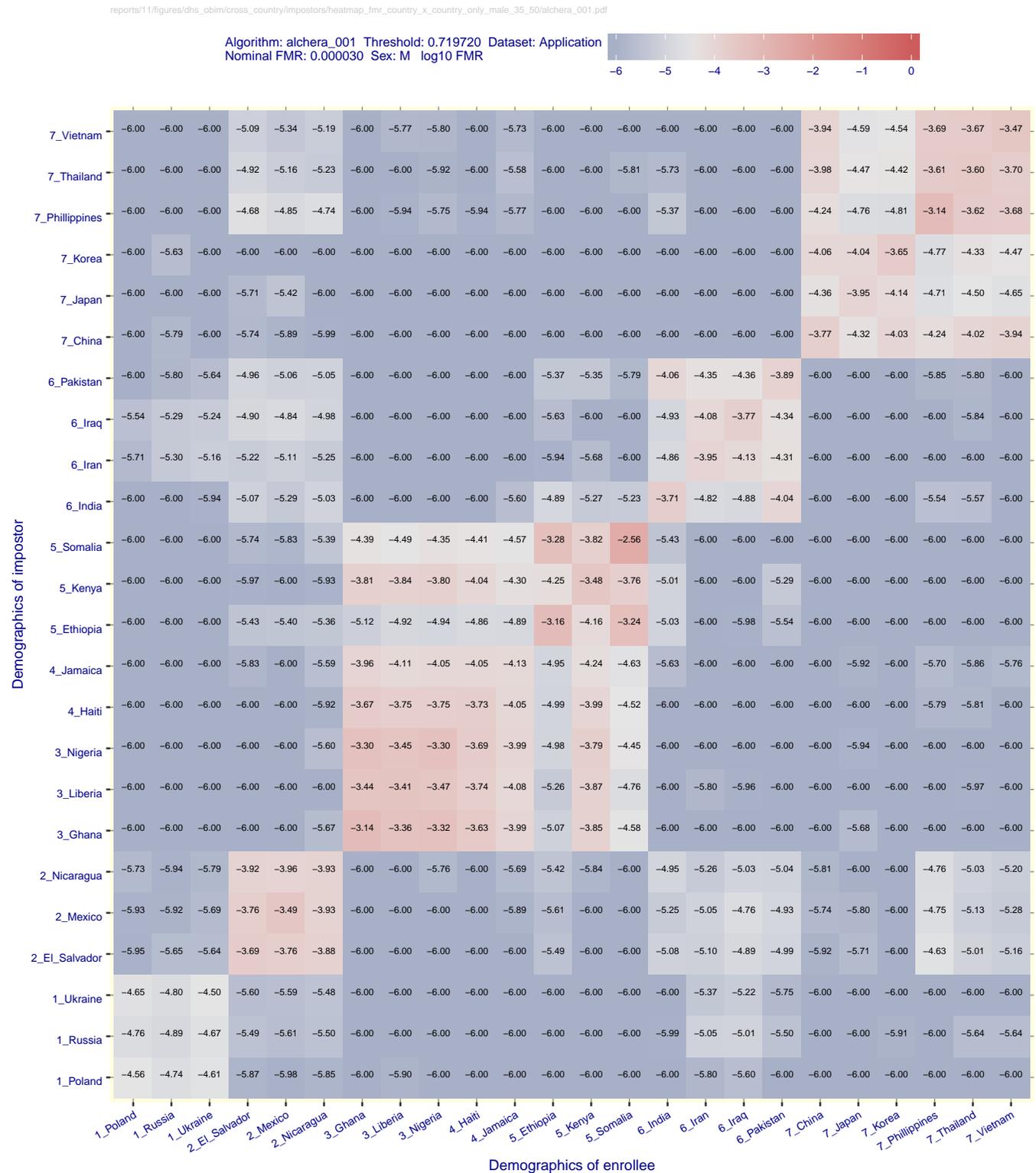


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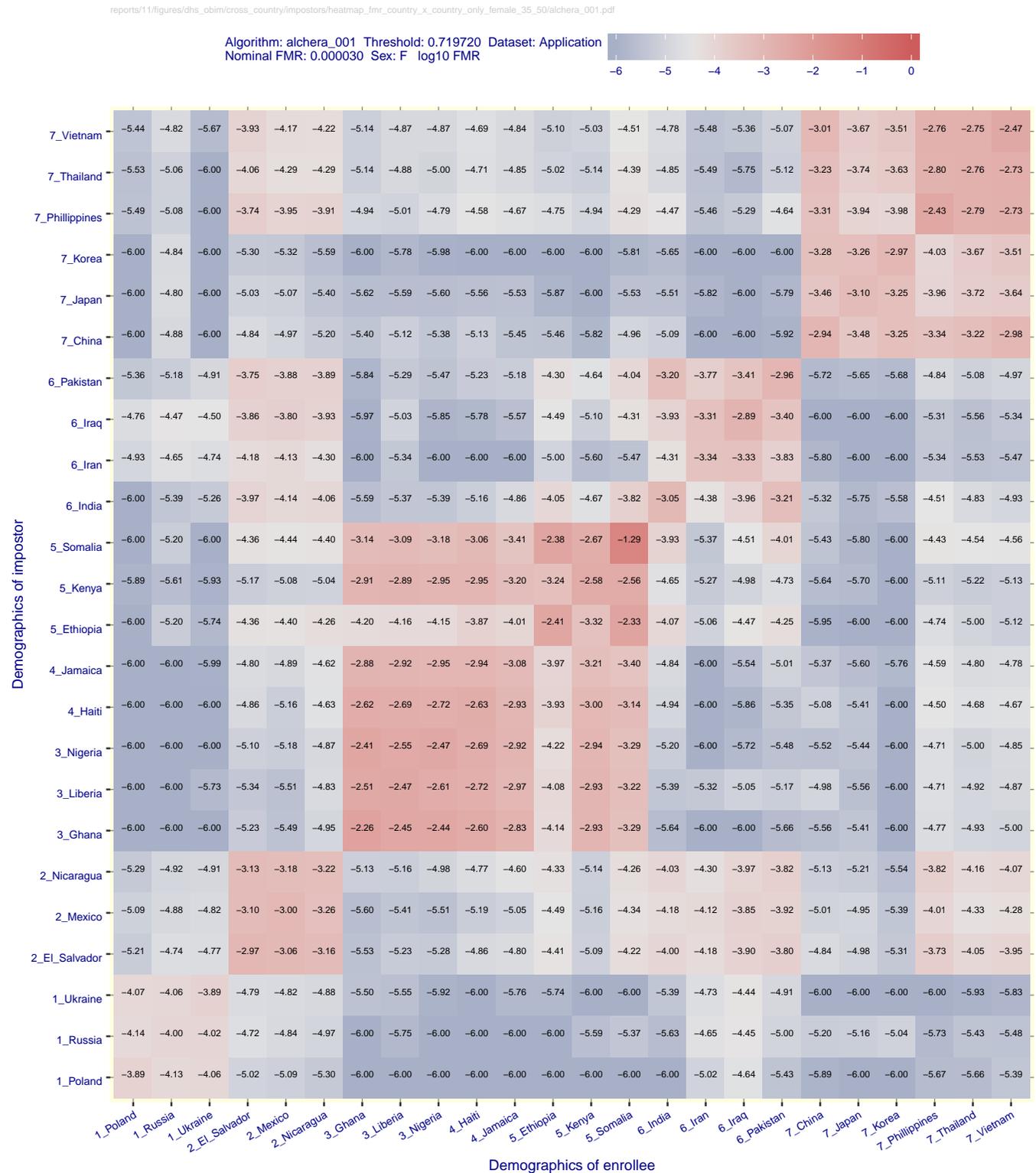


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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/allgovision\_000.pdf

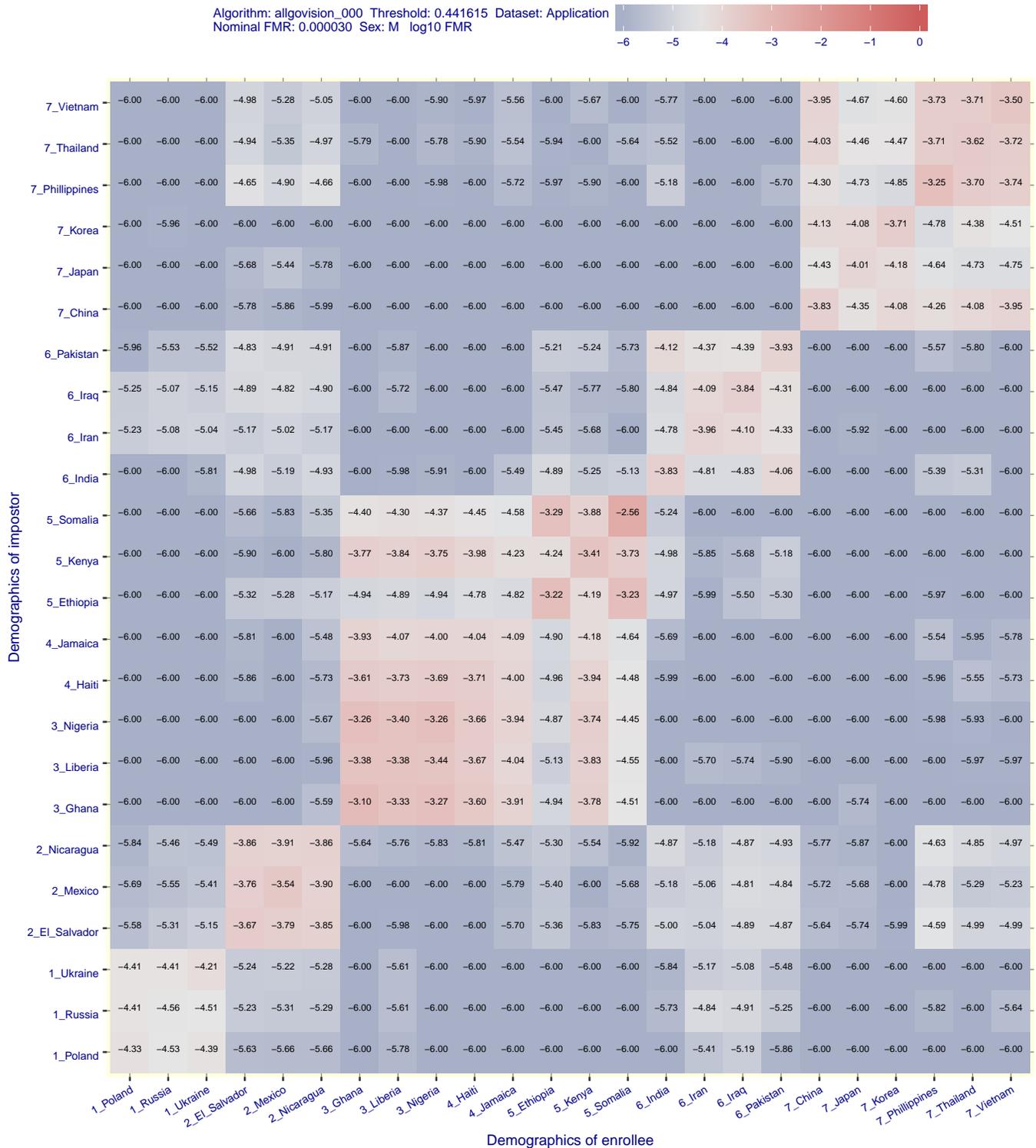


Figure 11: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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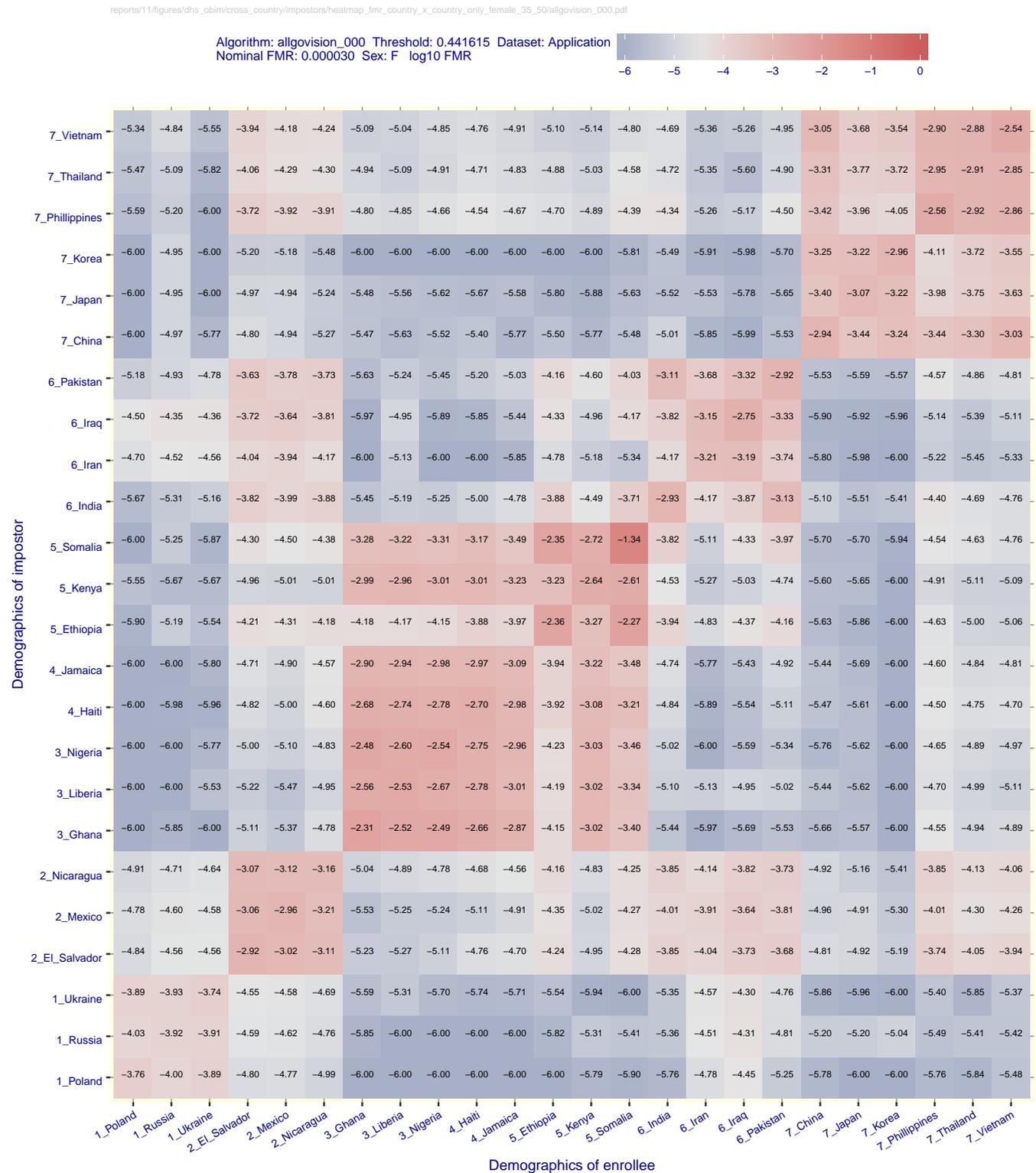


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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/alphaface\_001.pdf

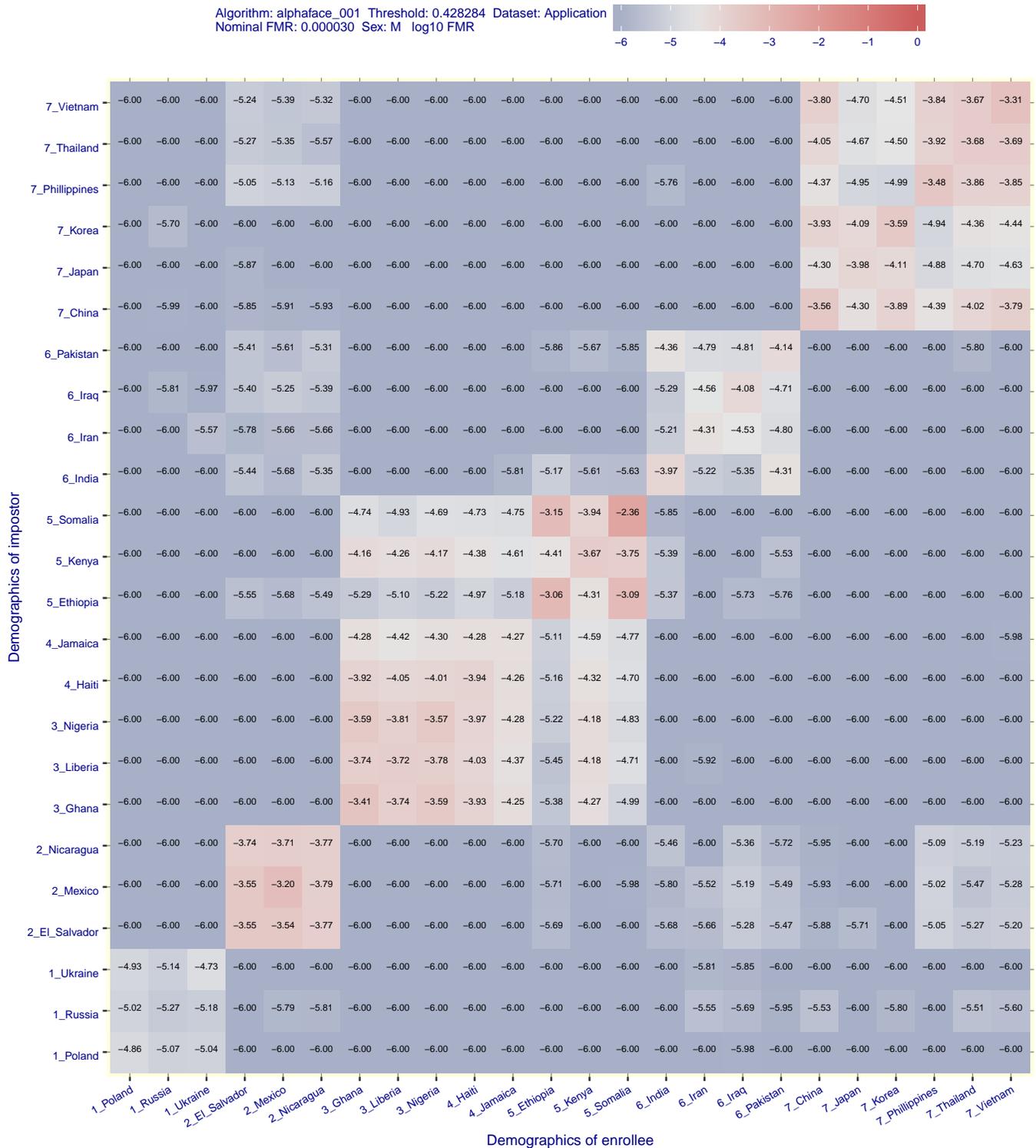


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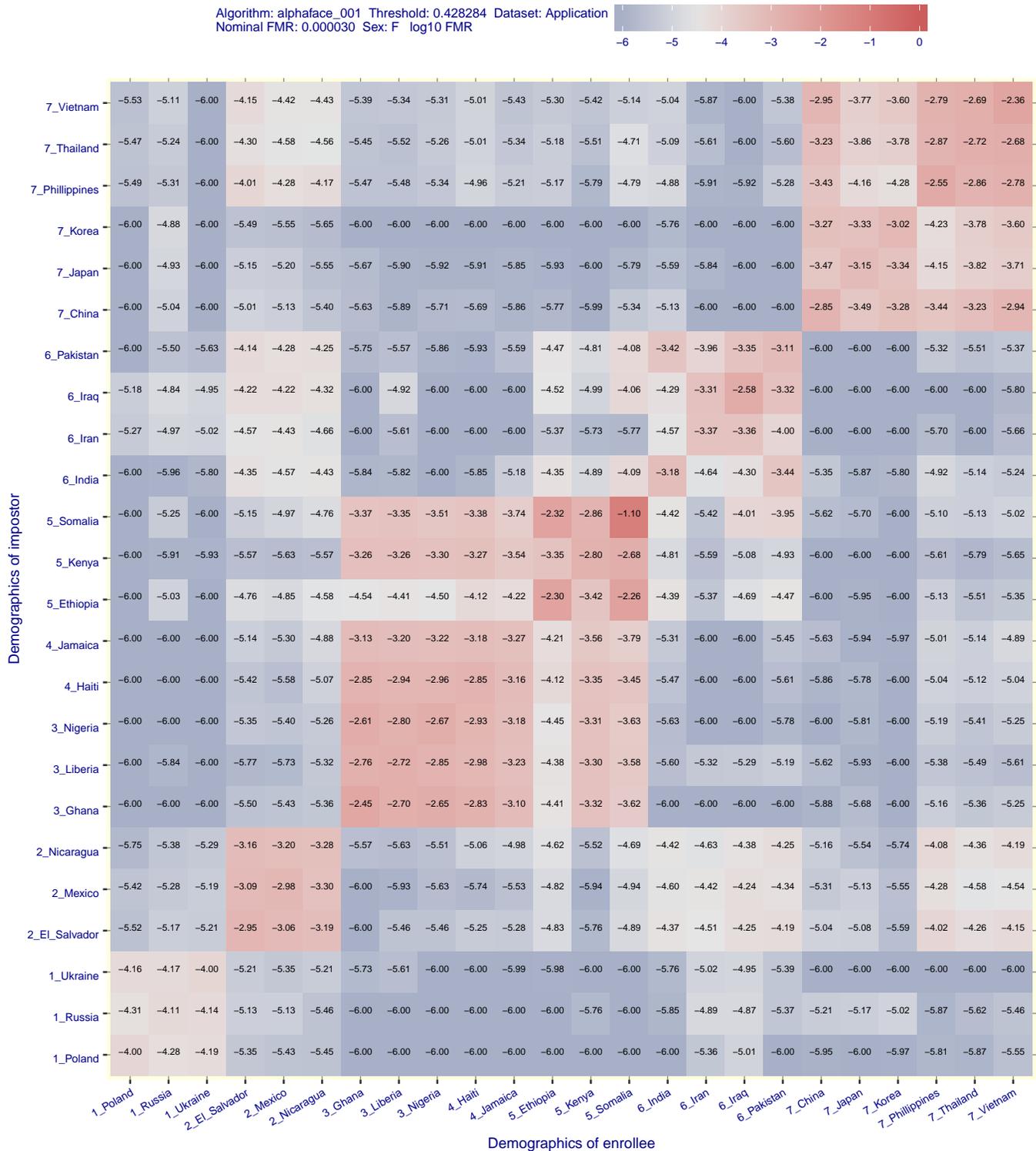


Figure 14: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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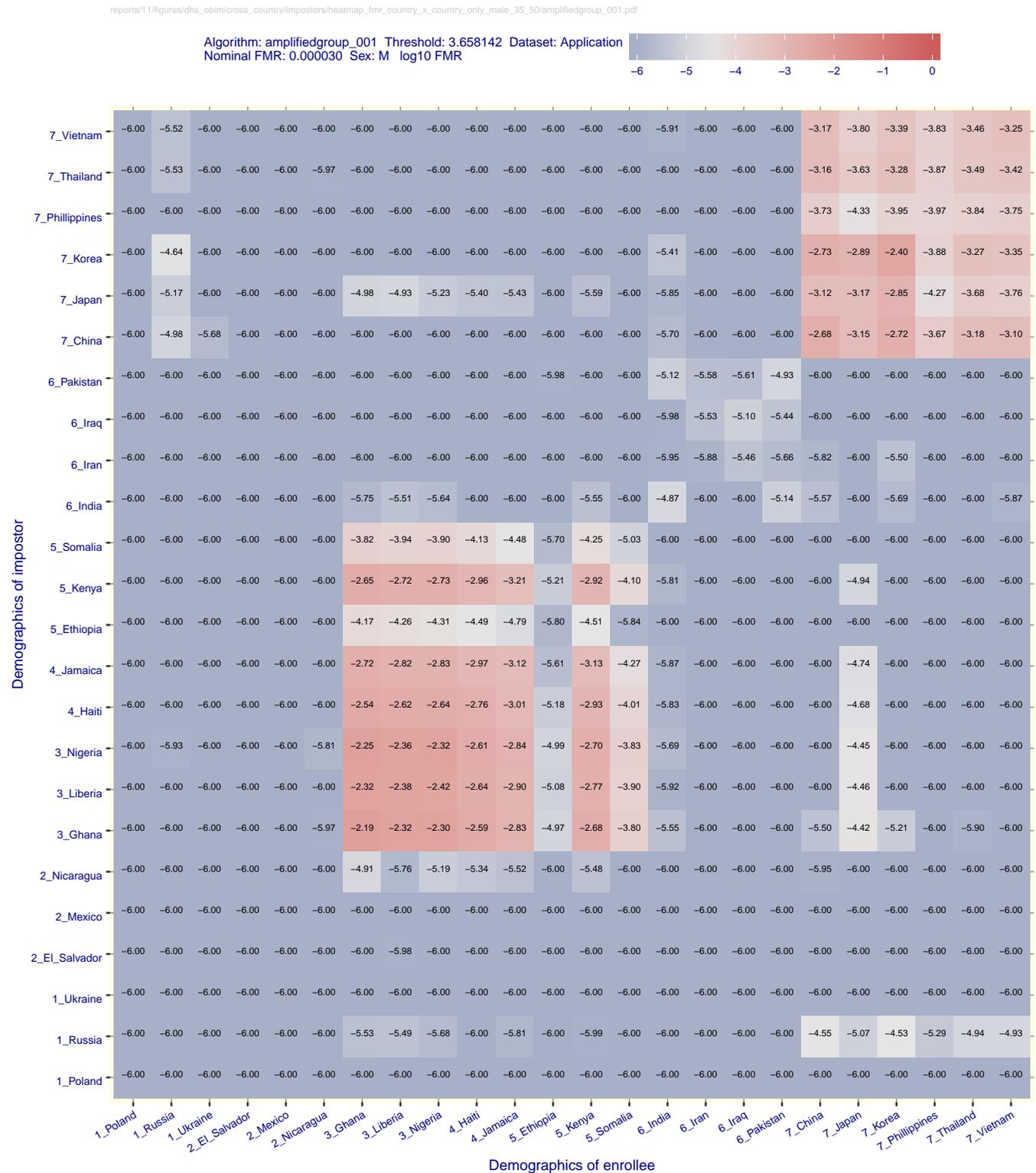


Figure 15: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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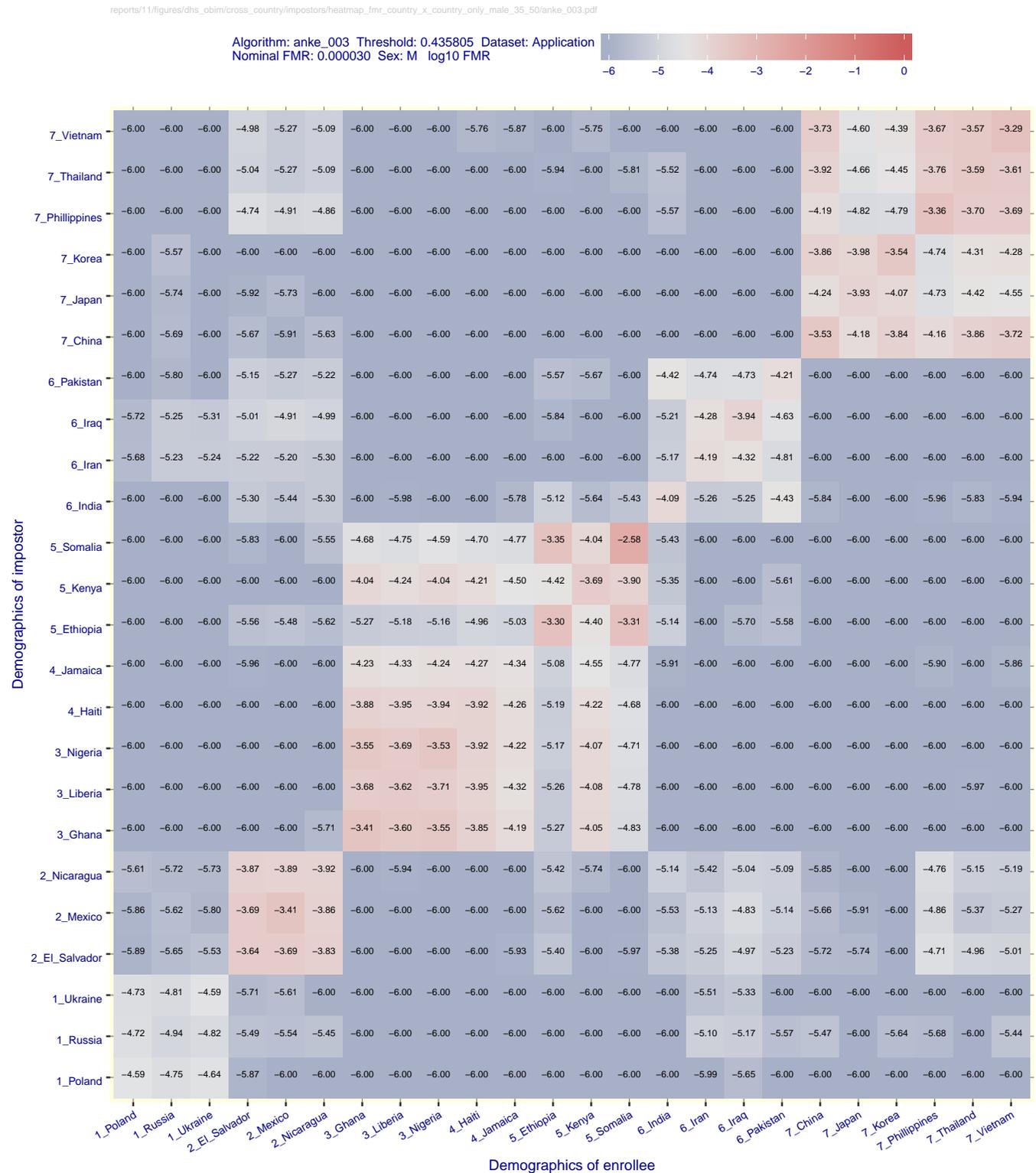


Figure 17: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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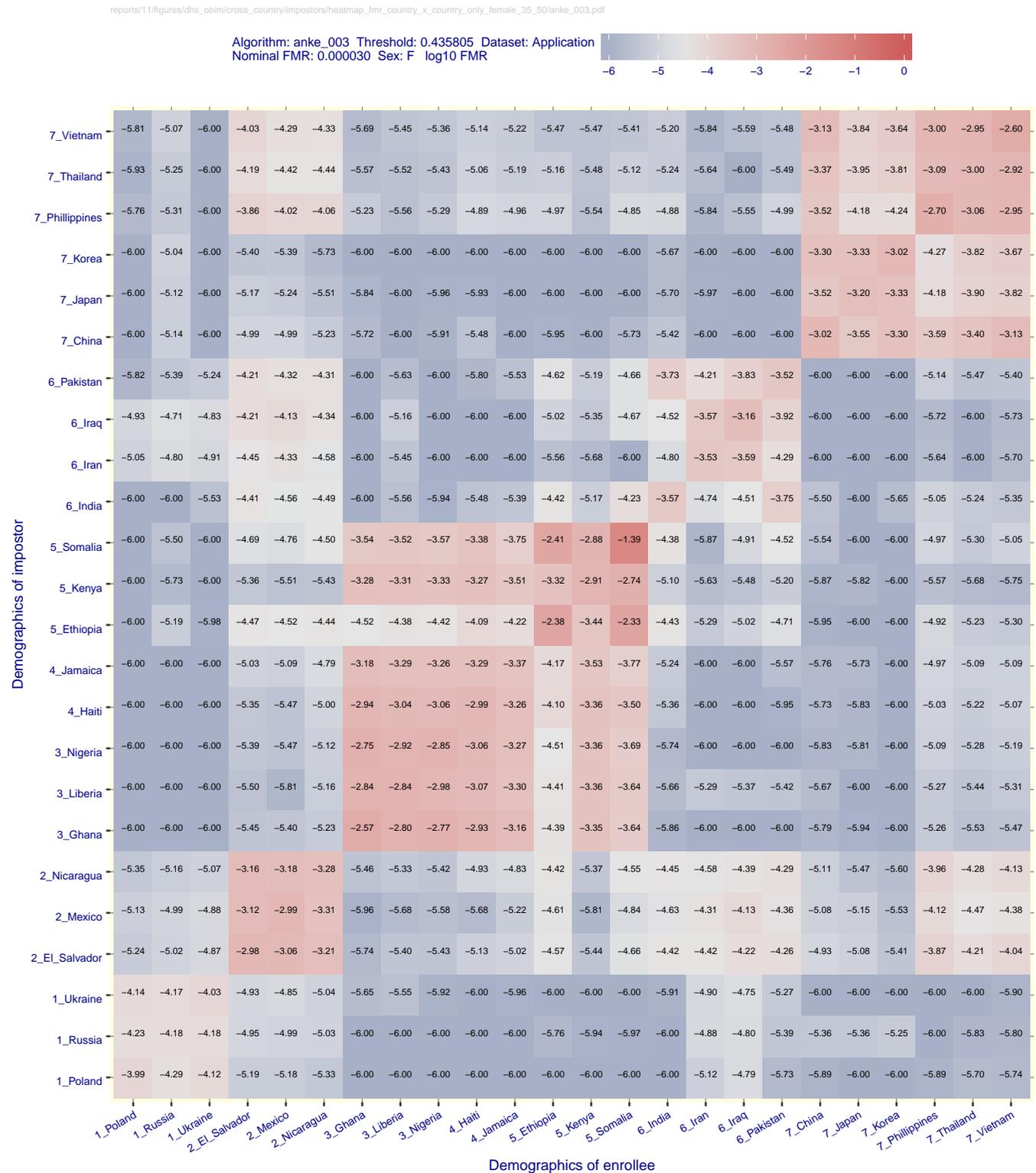


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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/anke\_004.pdf

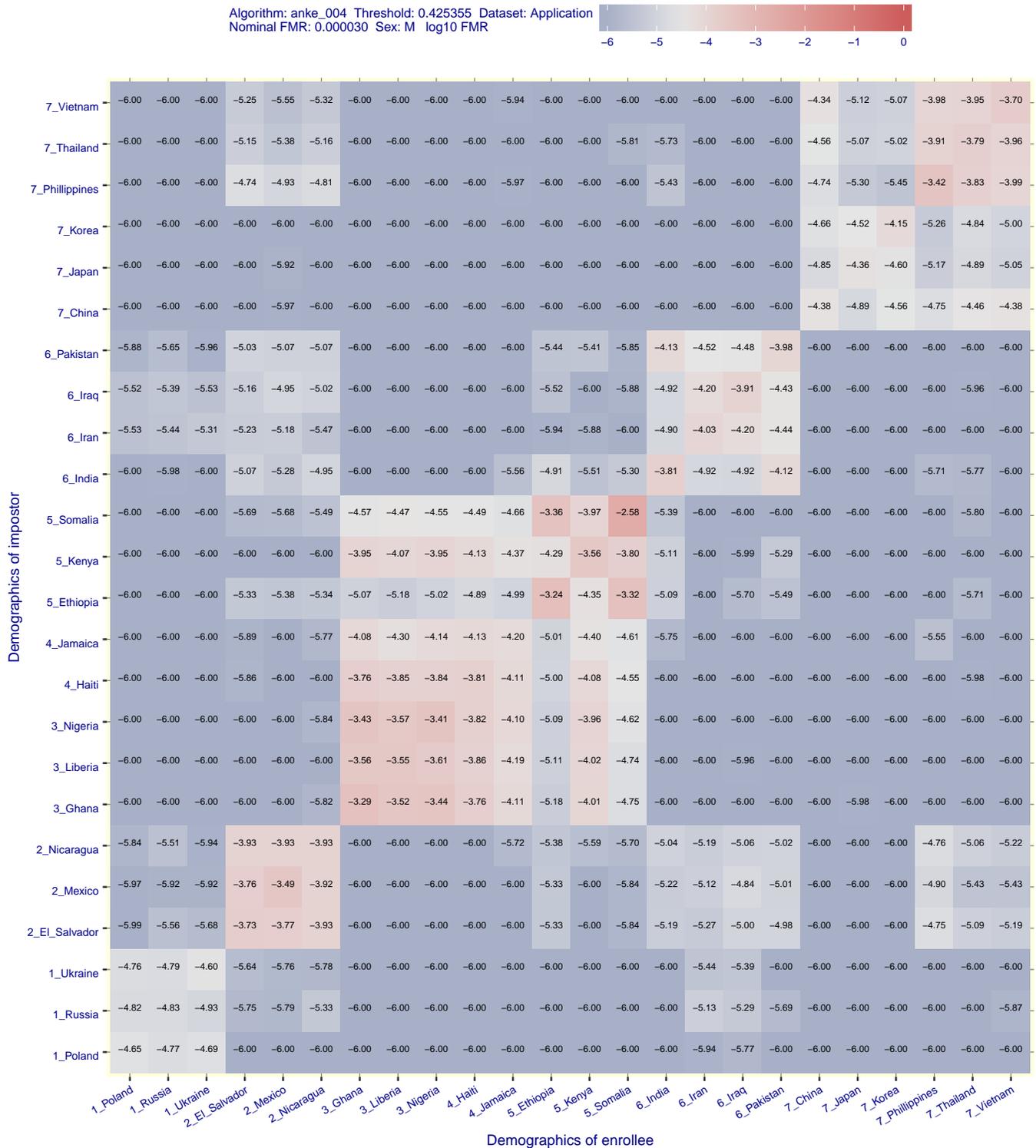


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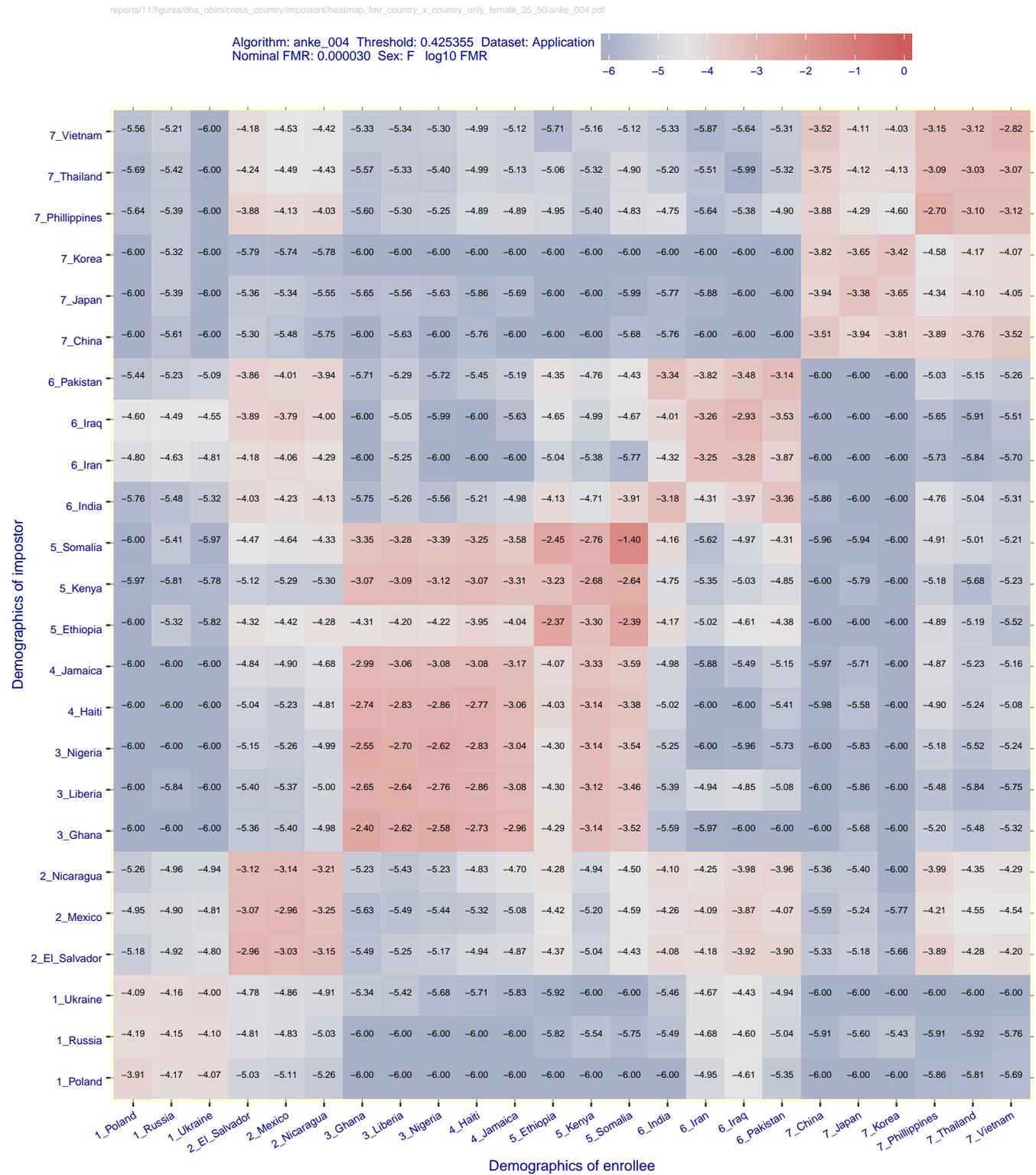


Figure 20: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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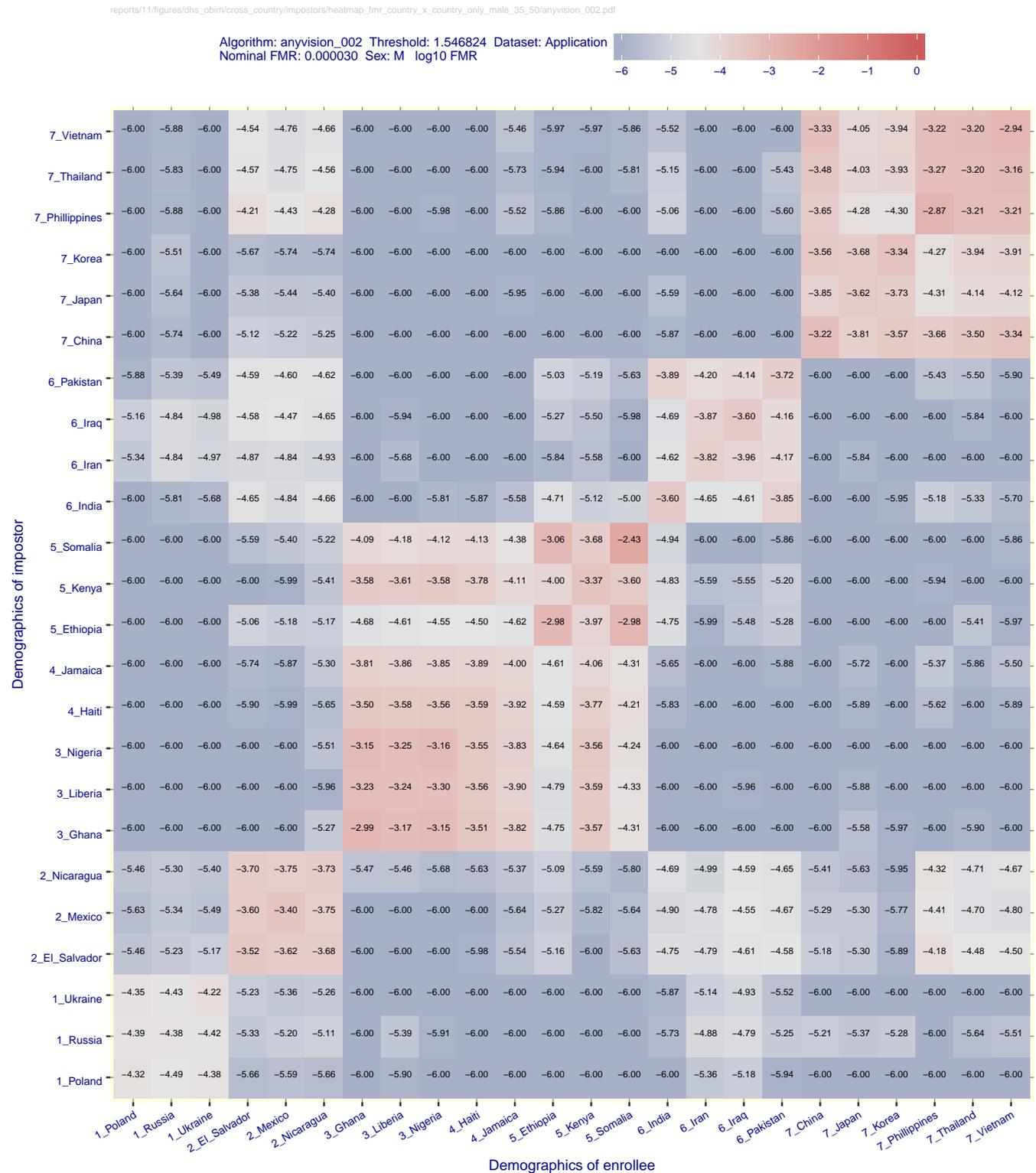


Figure 21: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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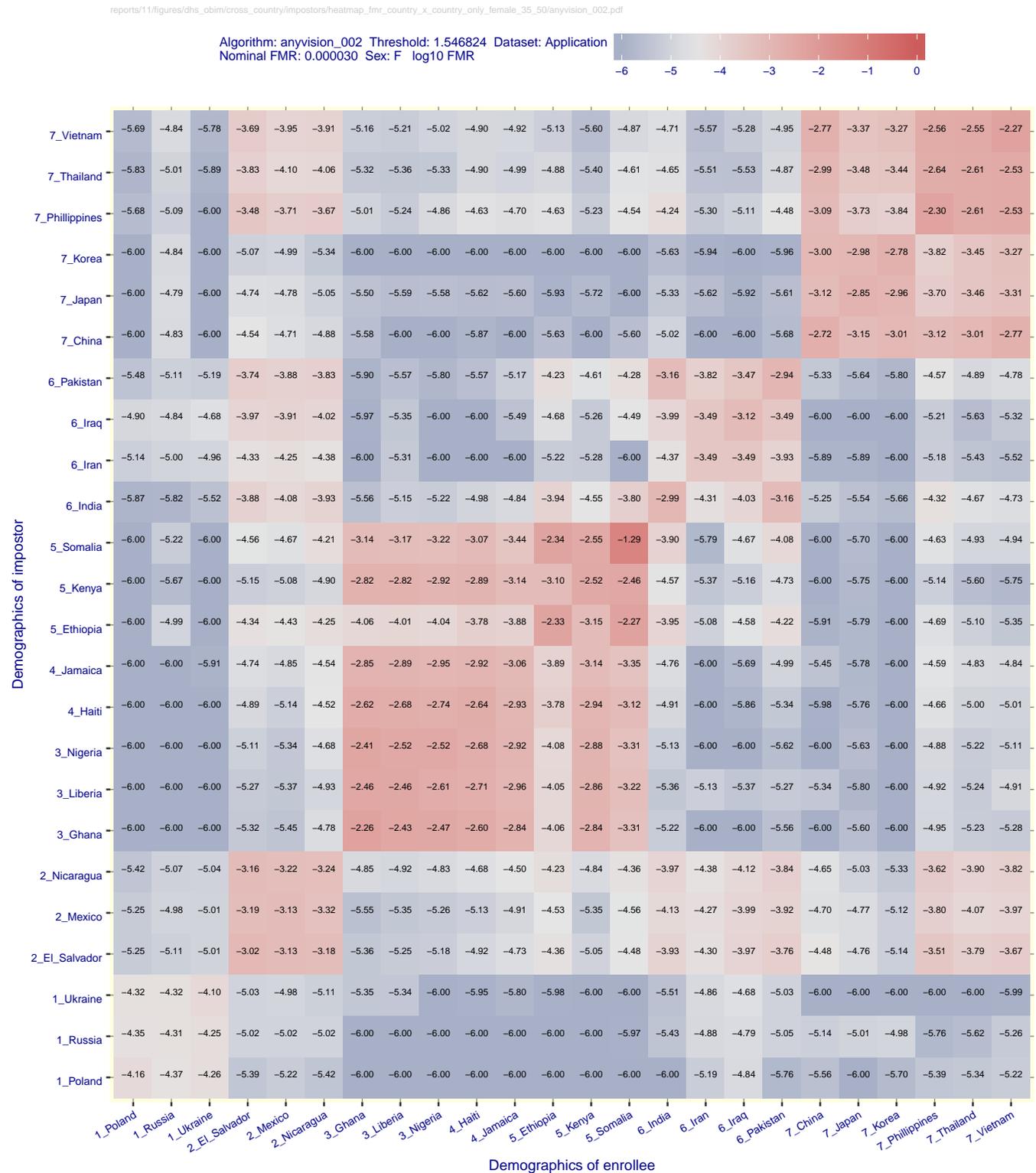


Figure 22: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/anyvision\_004.pdf

Algorithm: anyvision\_004 Threshold: 1.423870 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

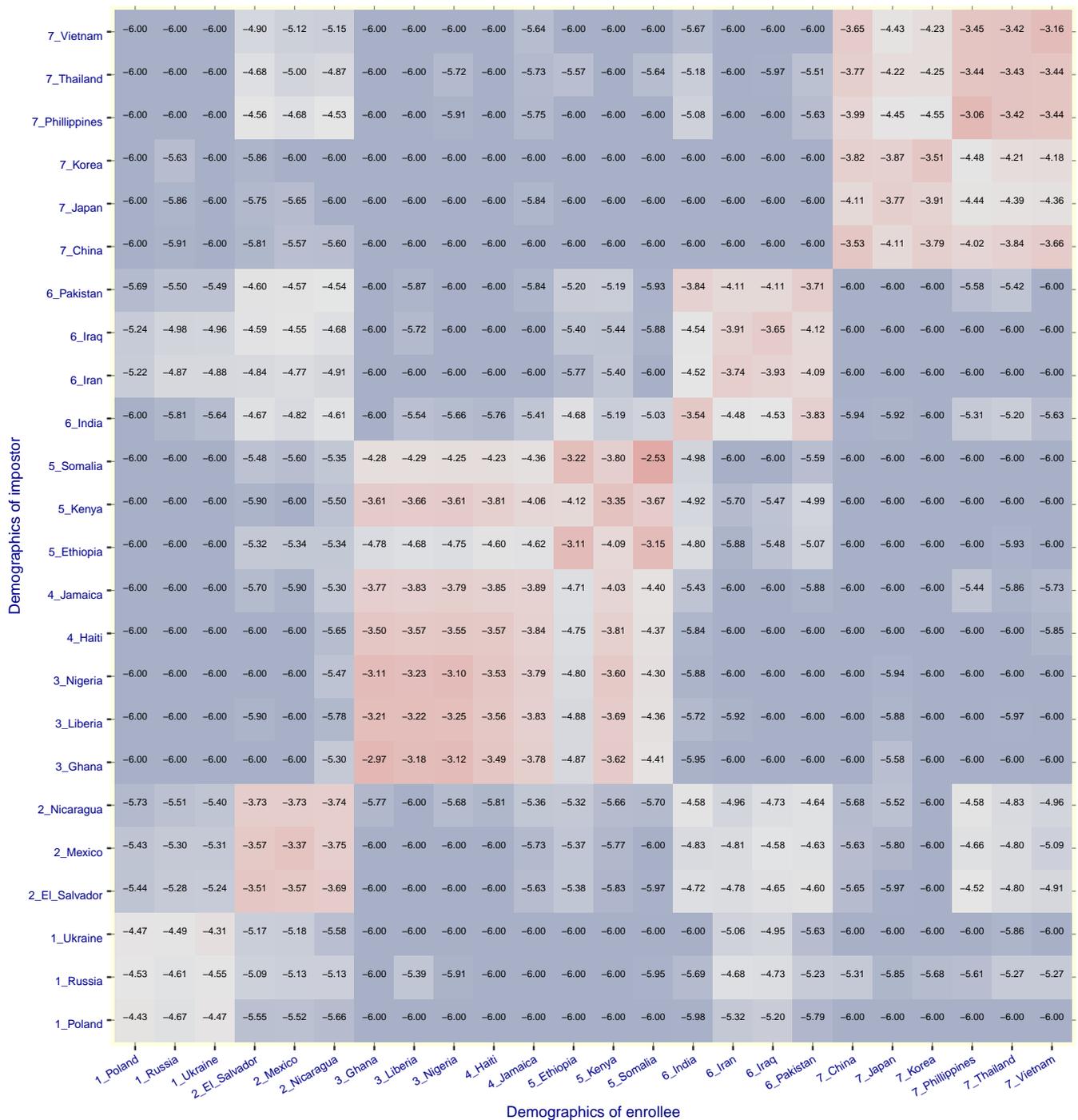
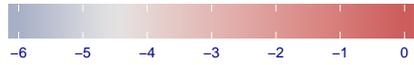


Figure 23: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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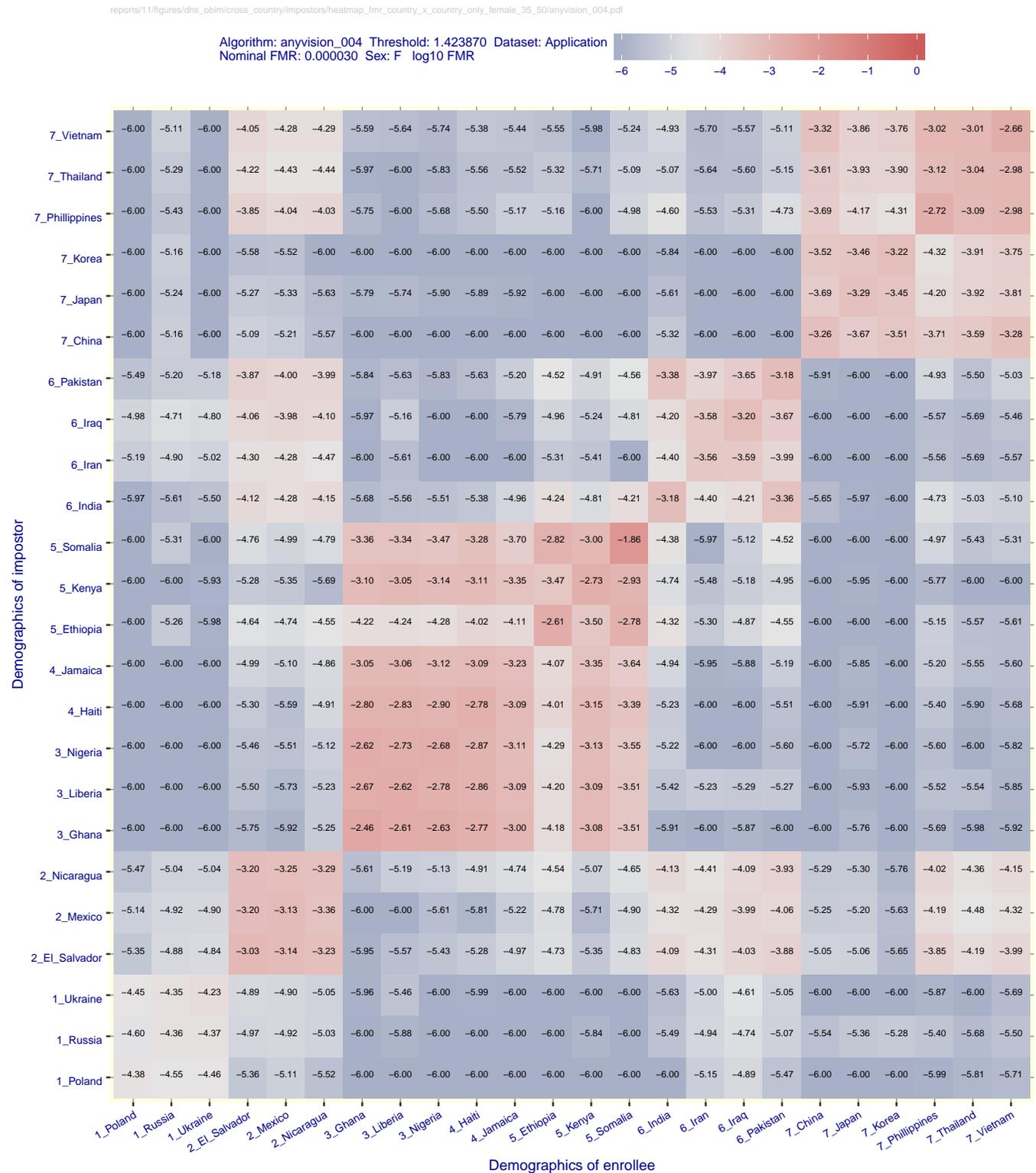


Figure 24: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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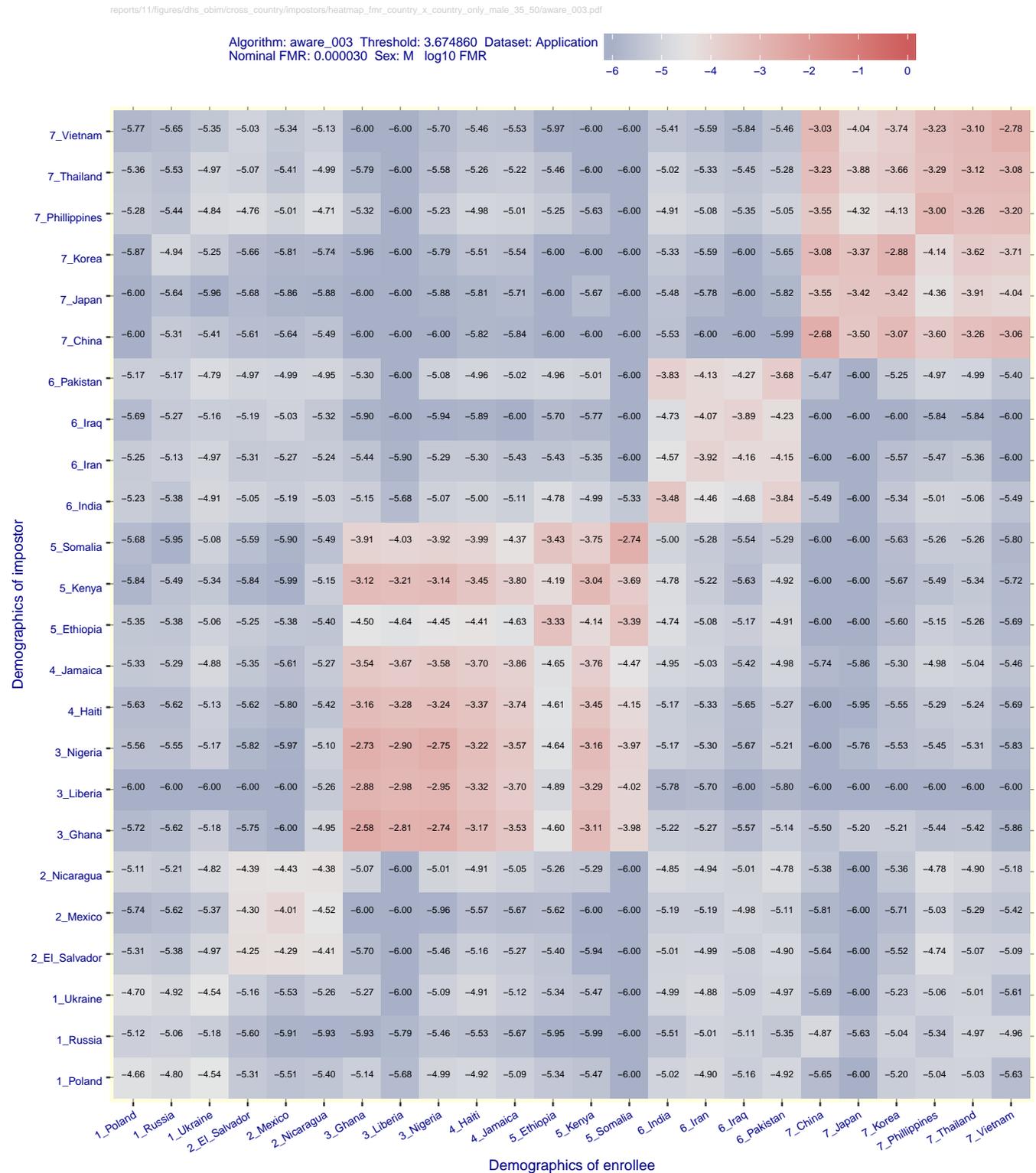


Figure 25: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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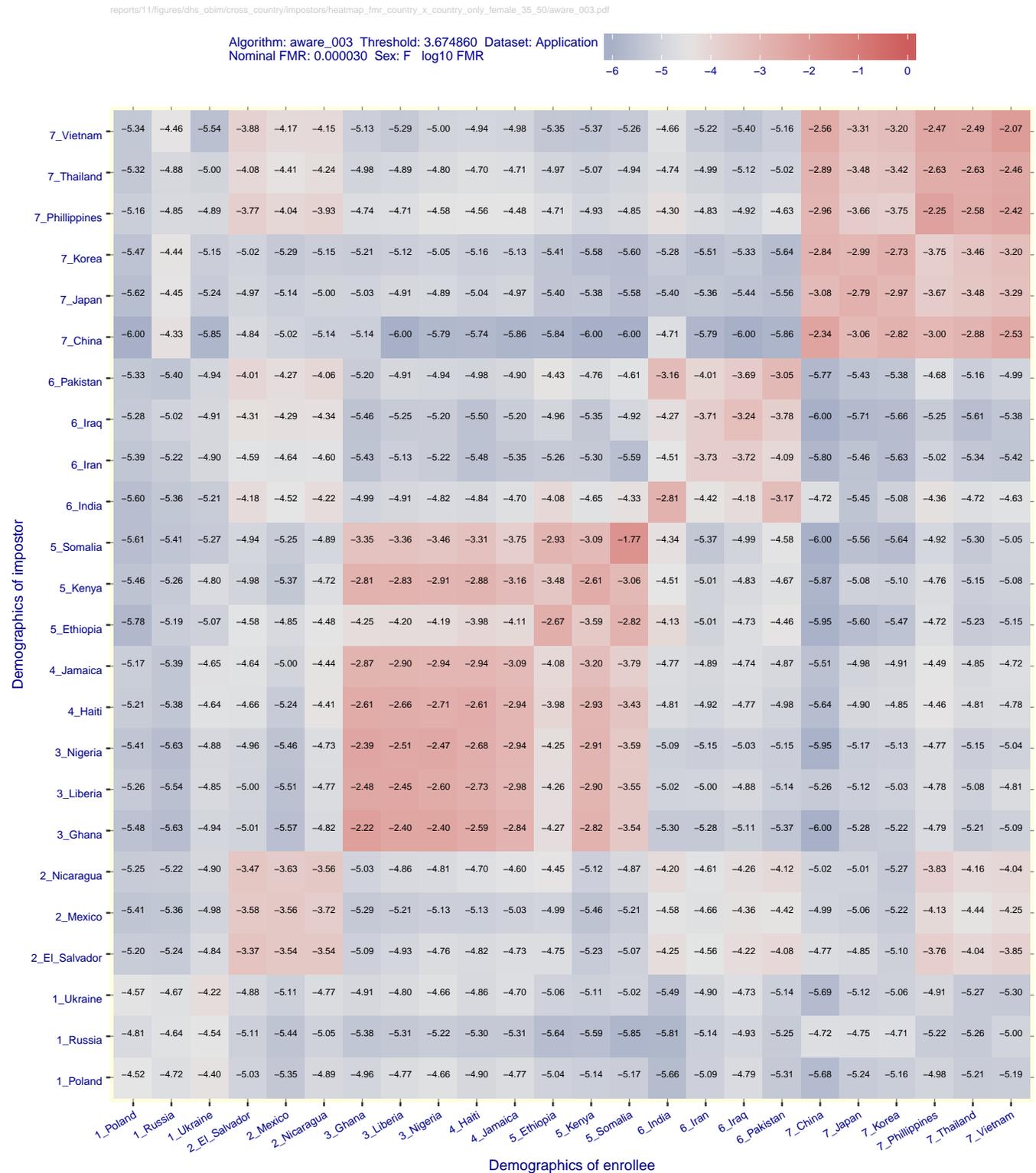


Figure 26: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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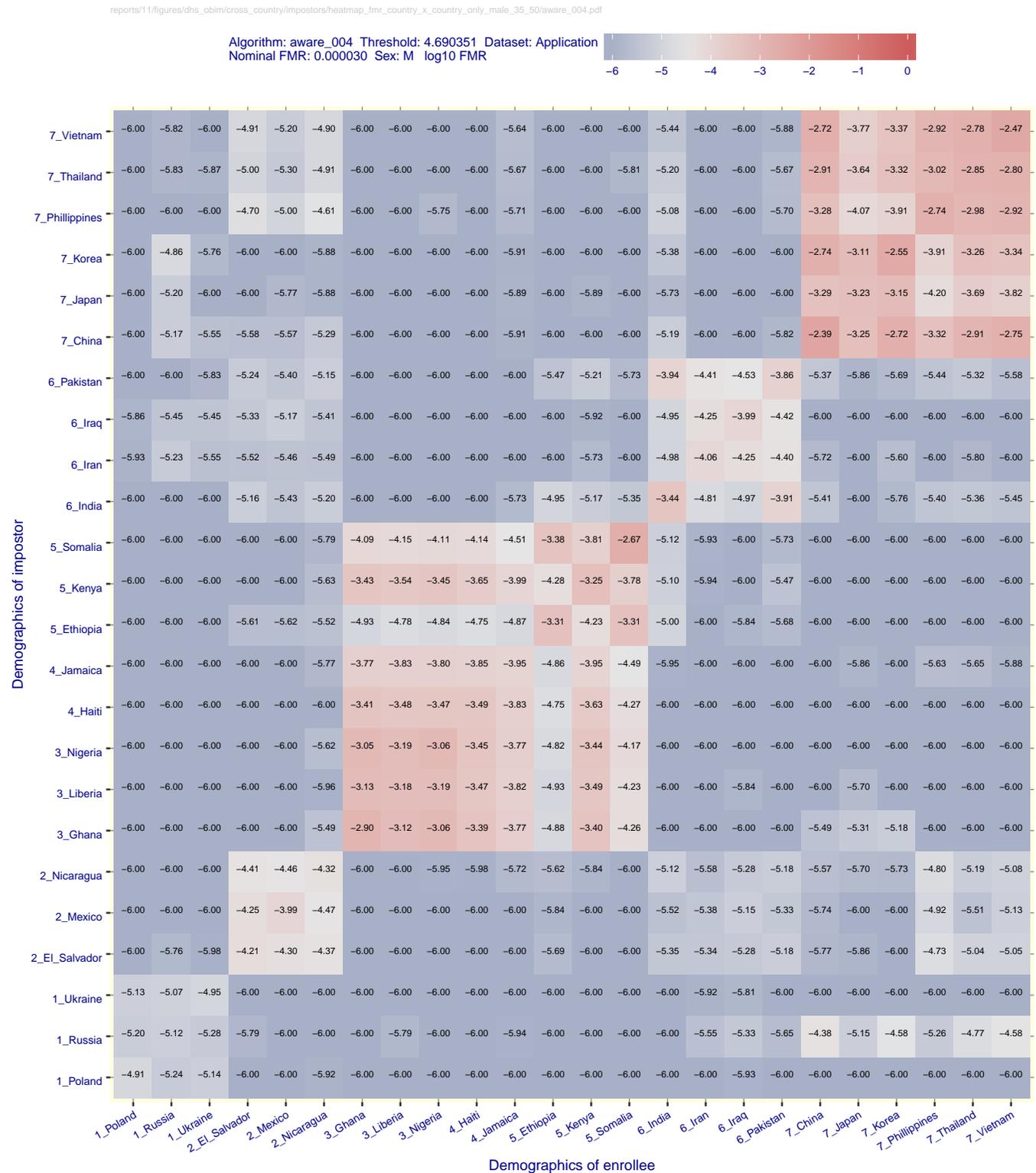


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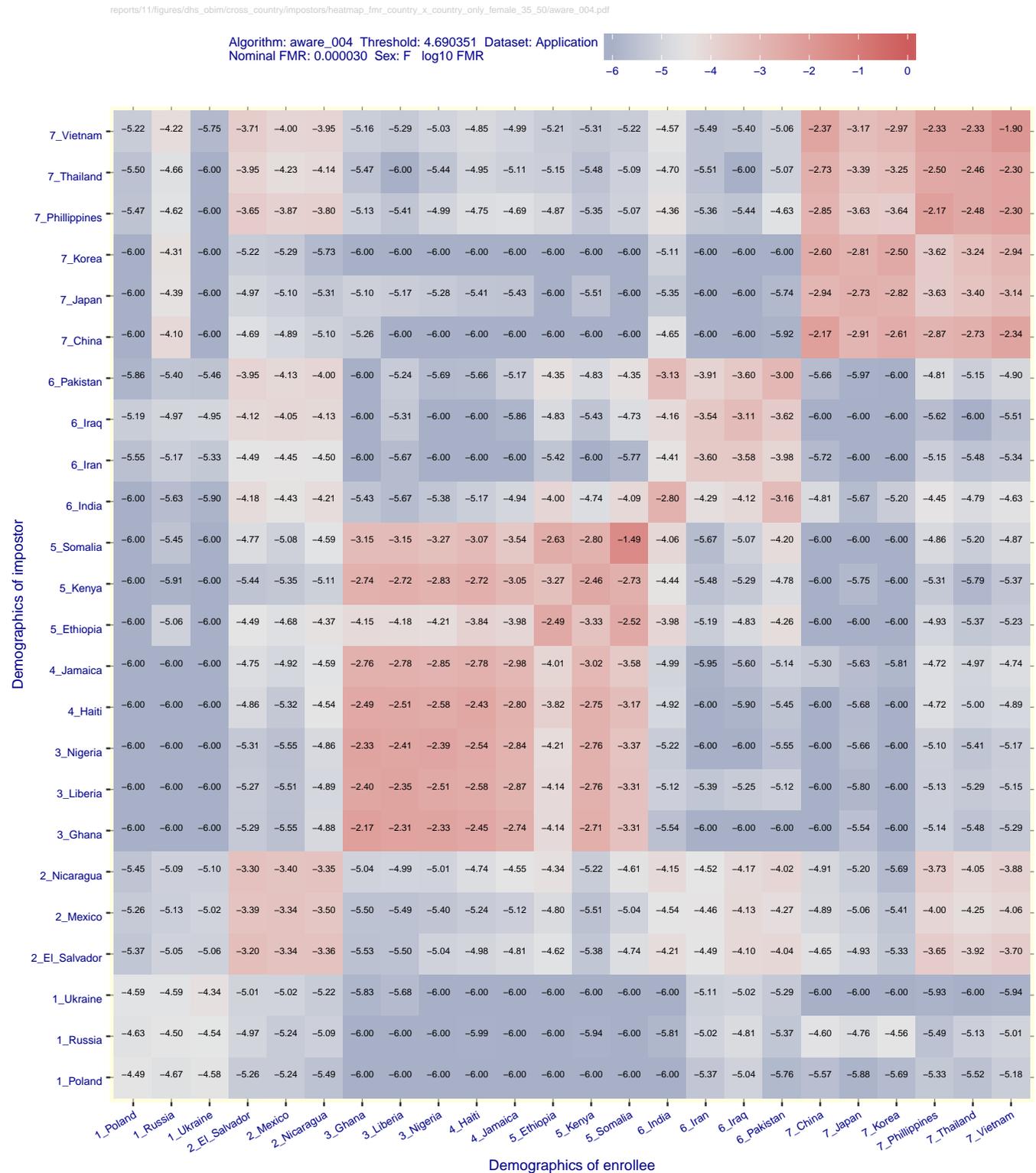


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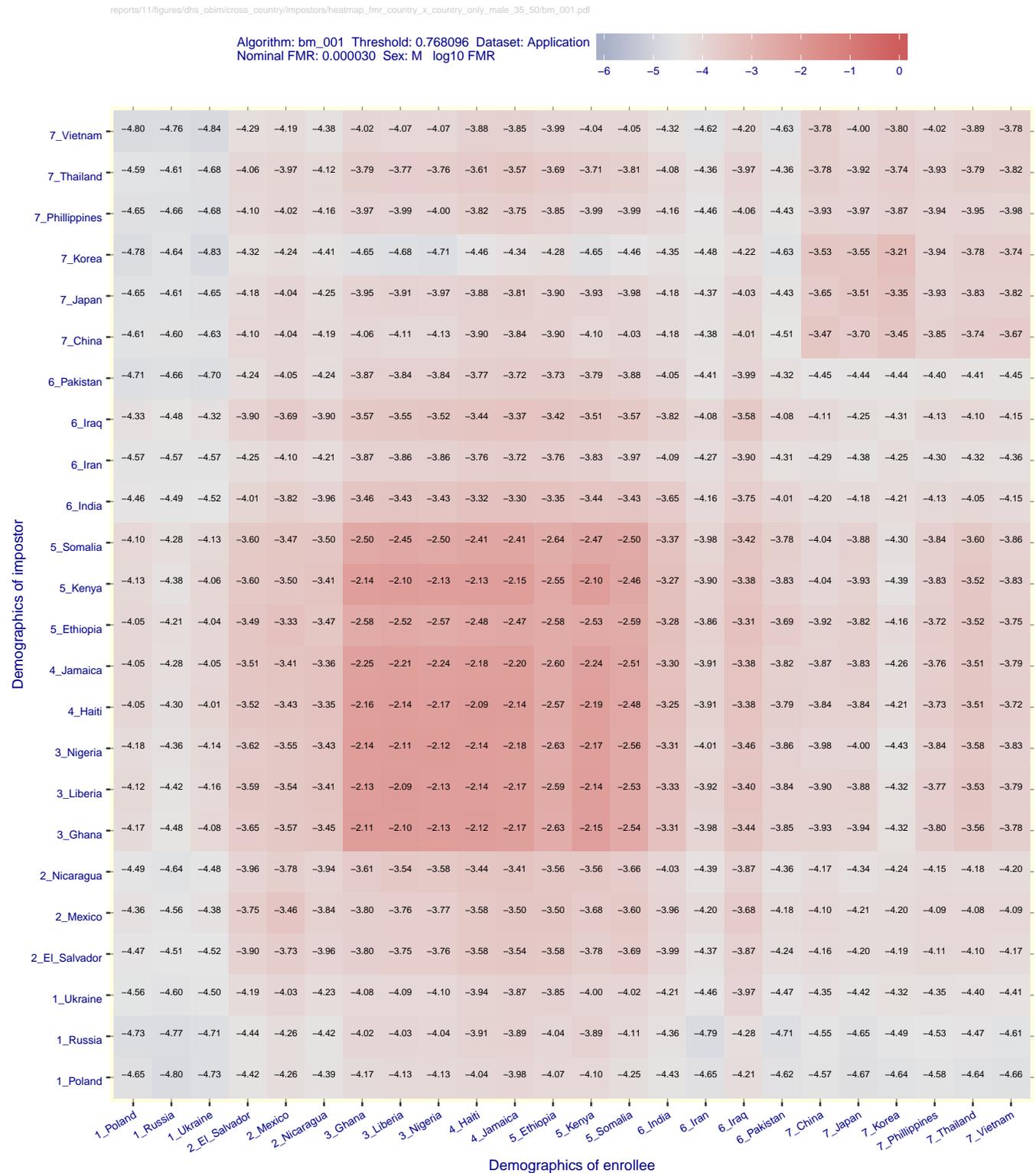


Figure 29: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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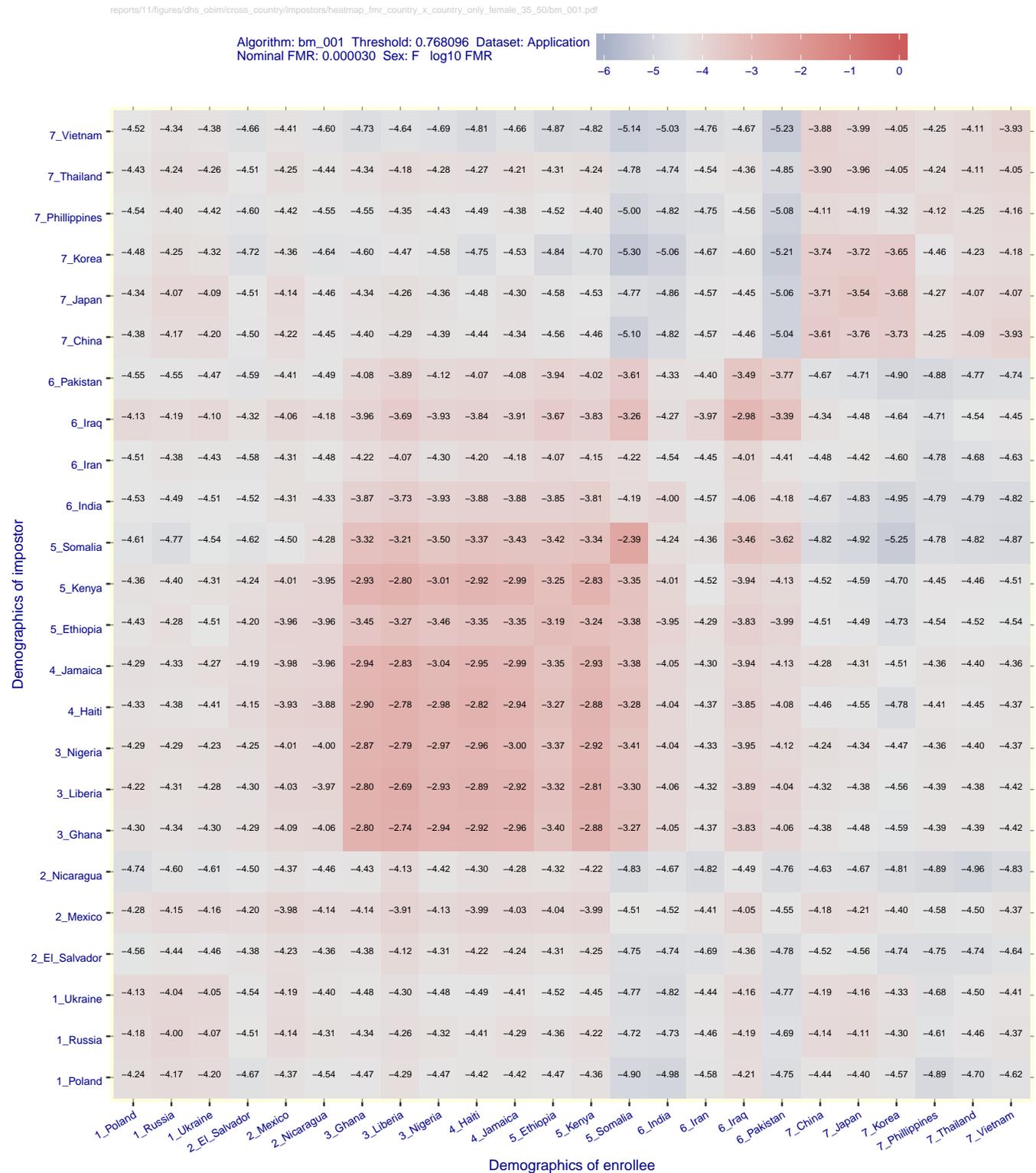


Figure 30: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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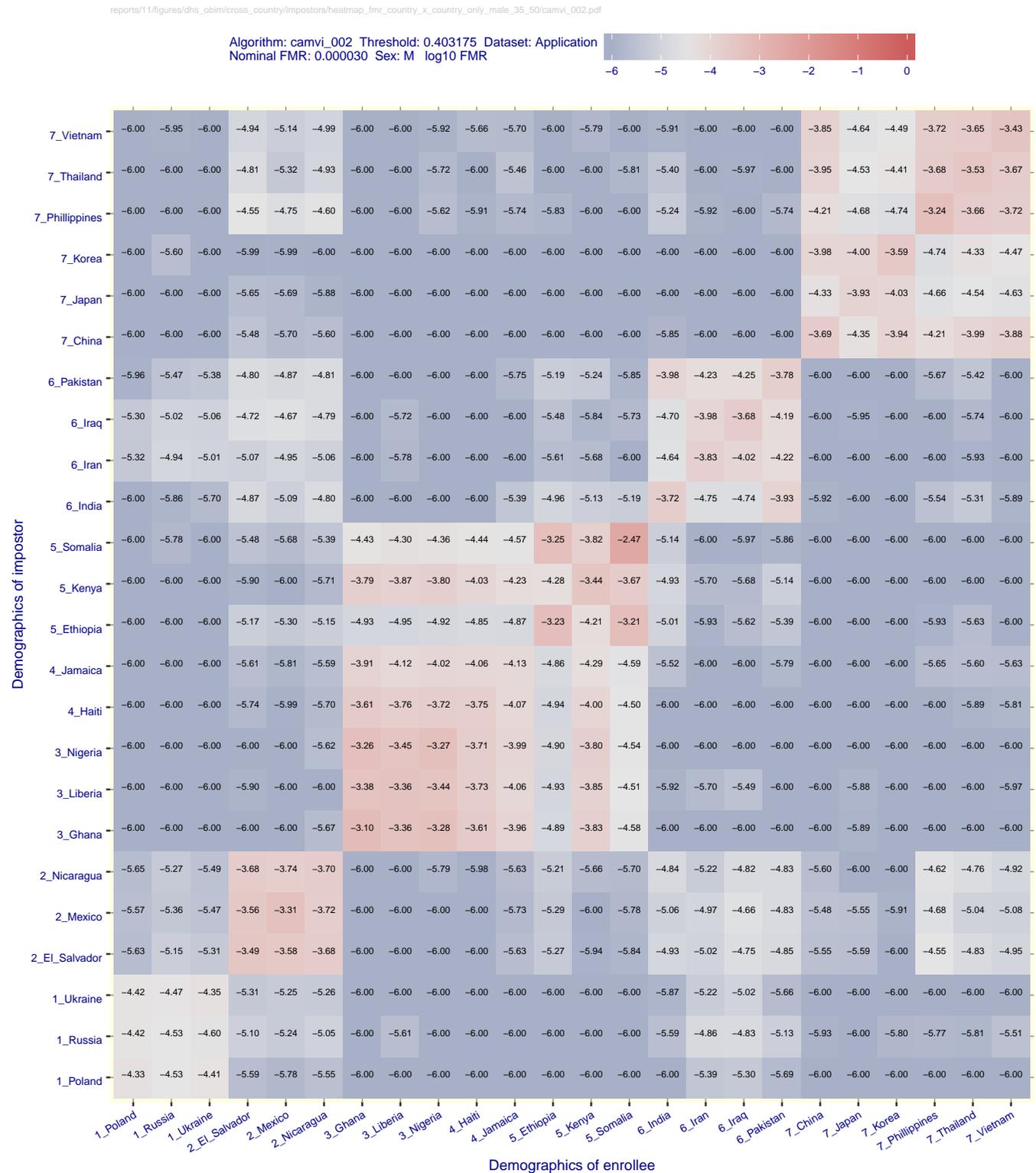


Figure 31: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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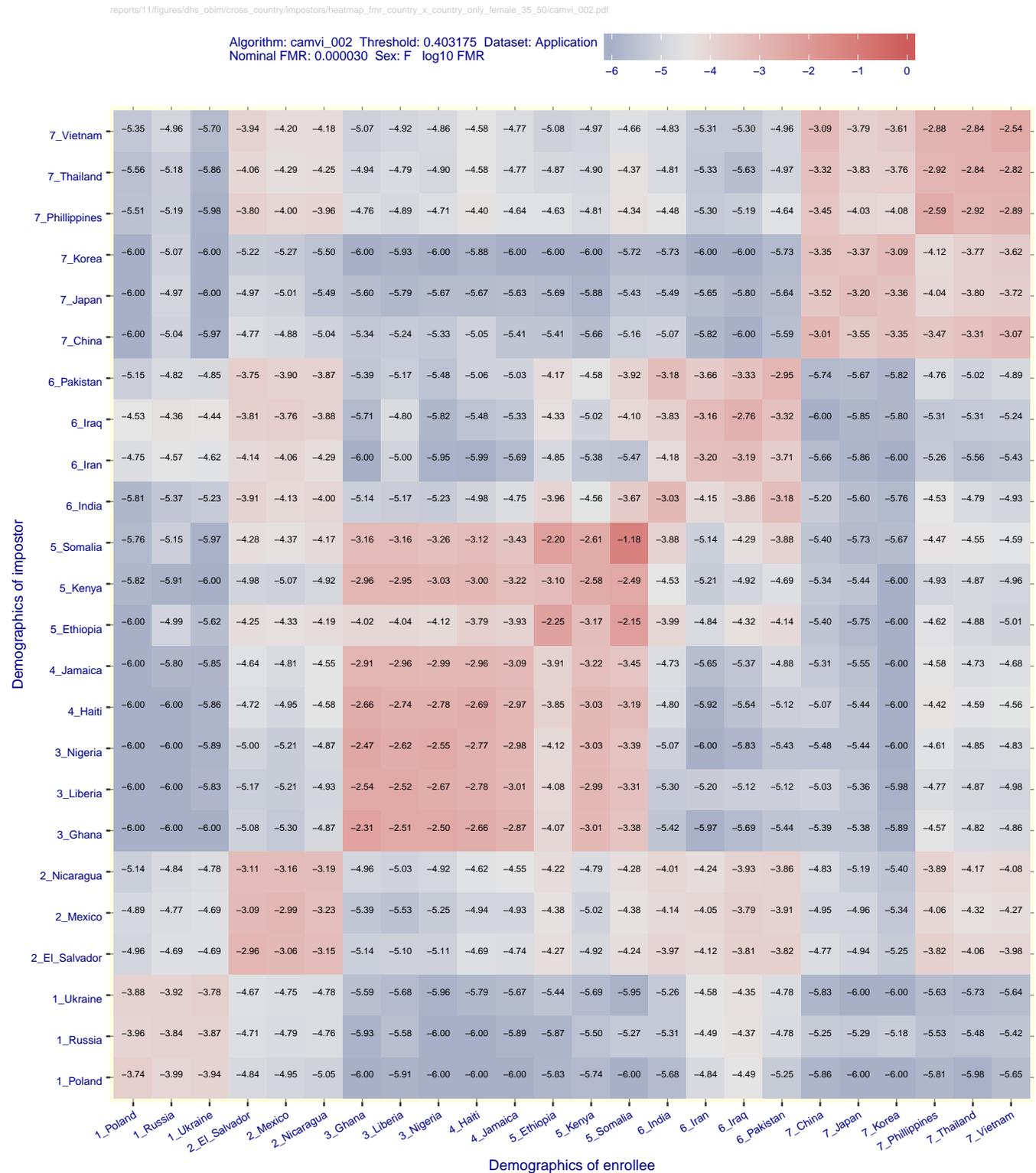


Figure 32: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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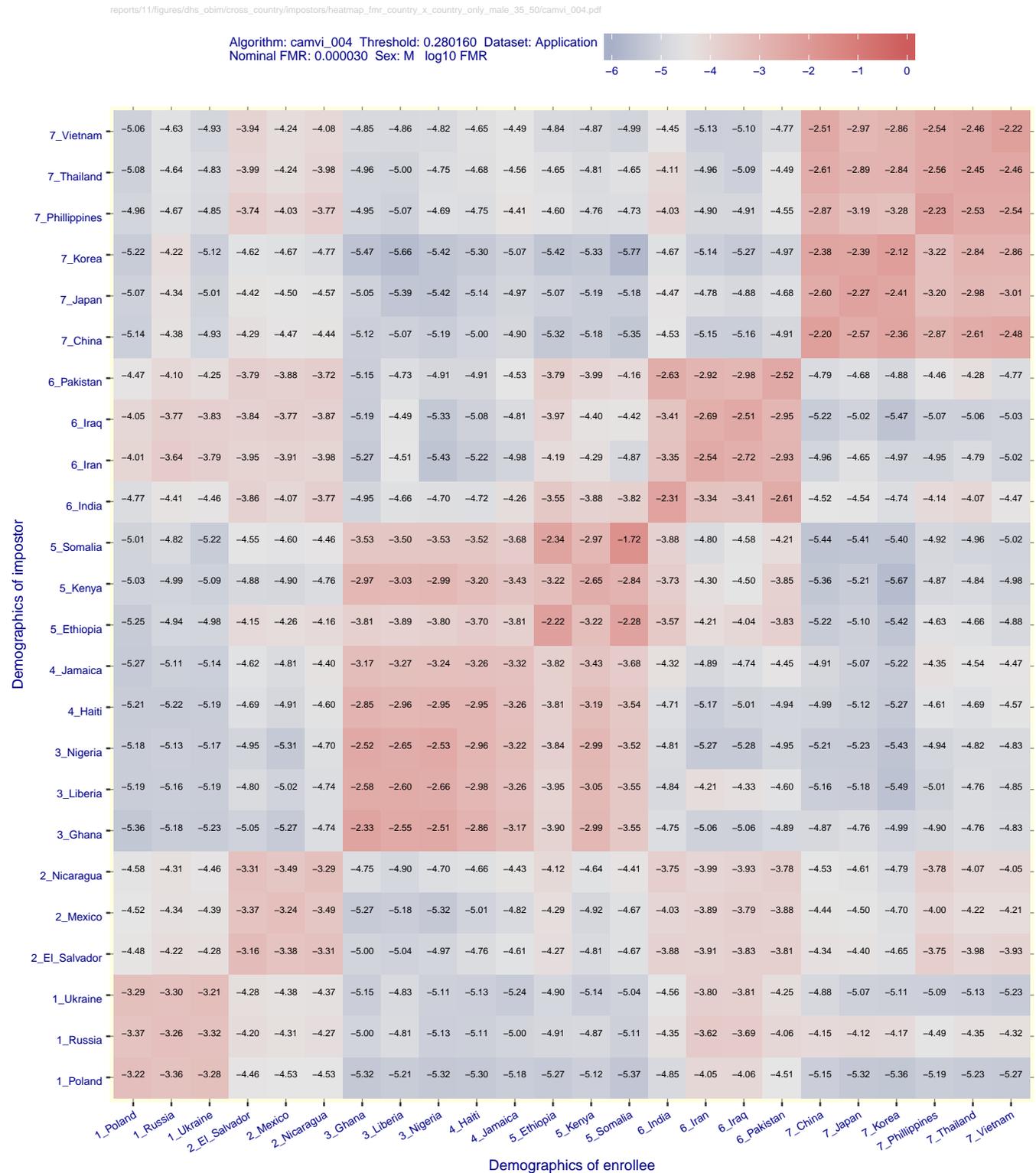


Figure 33: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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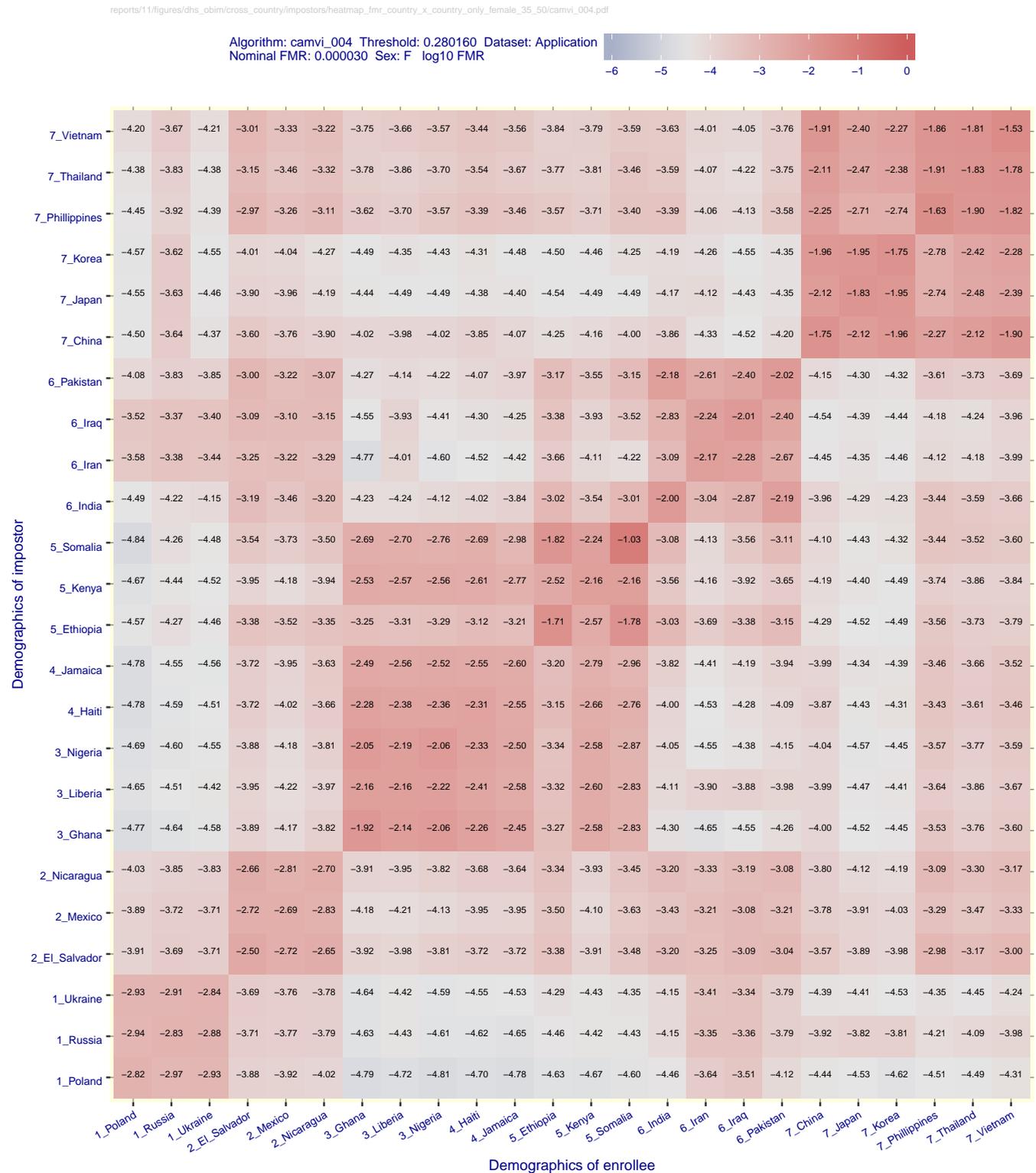


Figure 34: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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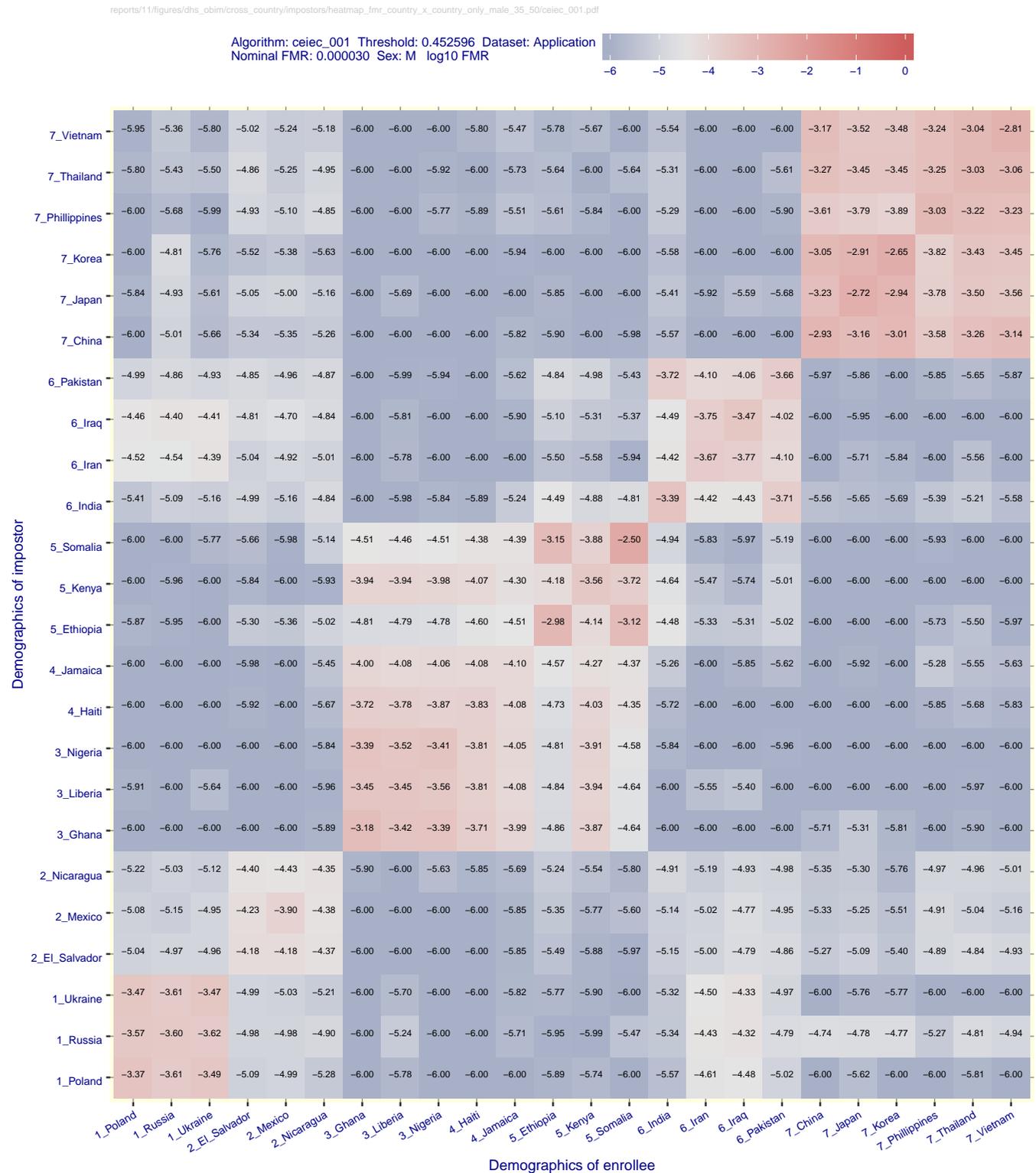


Figure 35: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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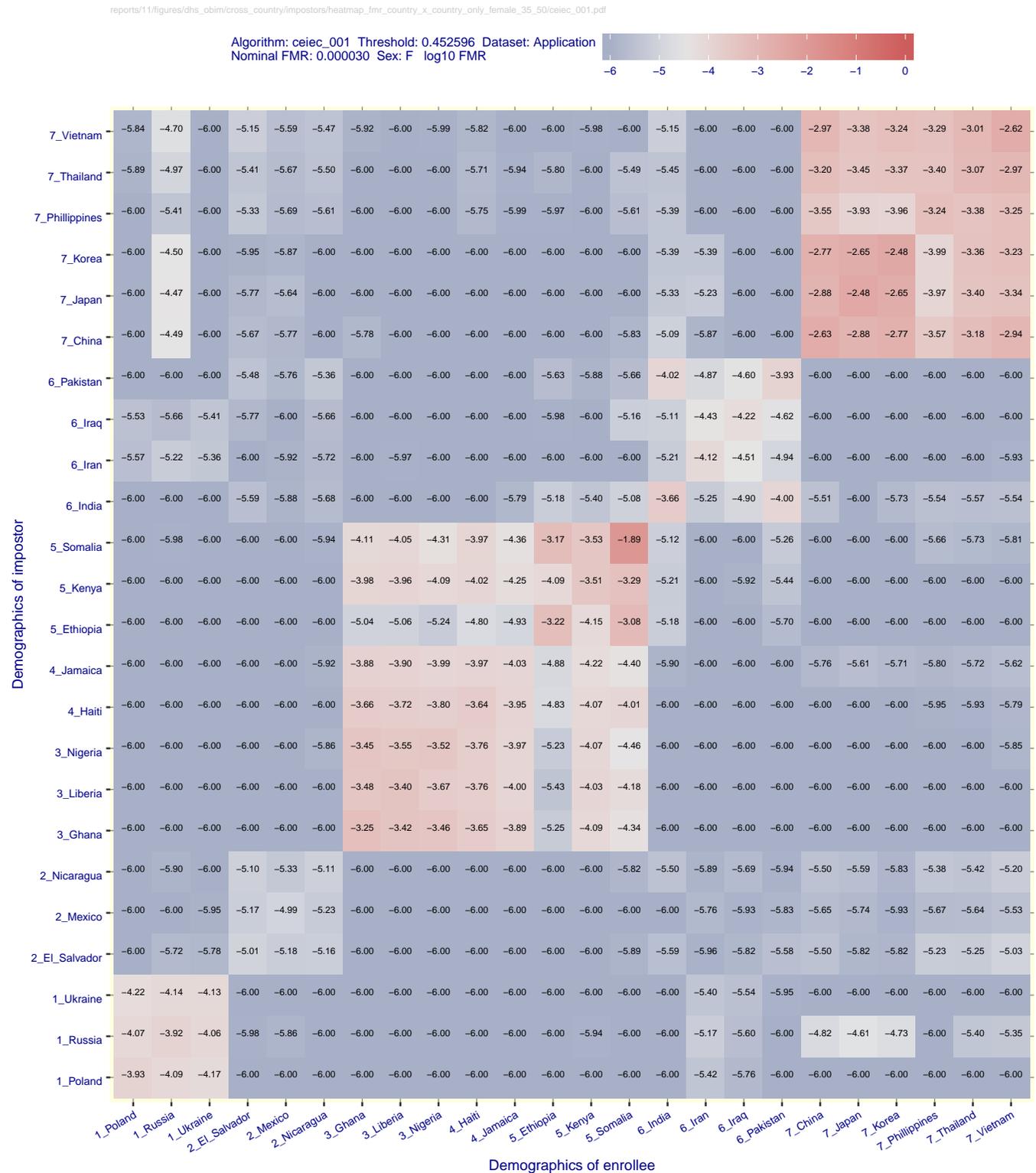


Figure 36: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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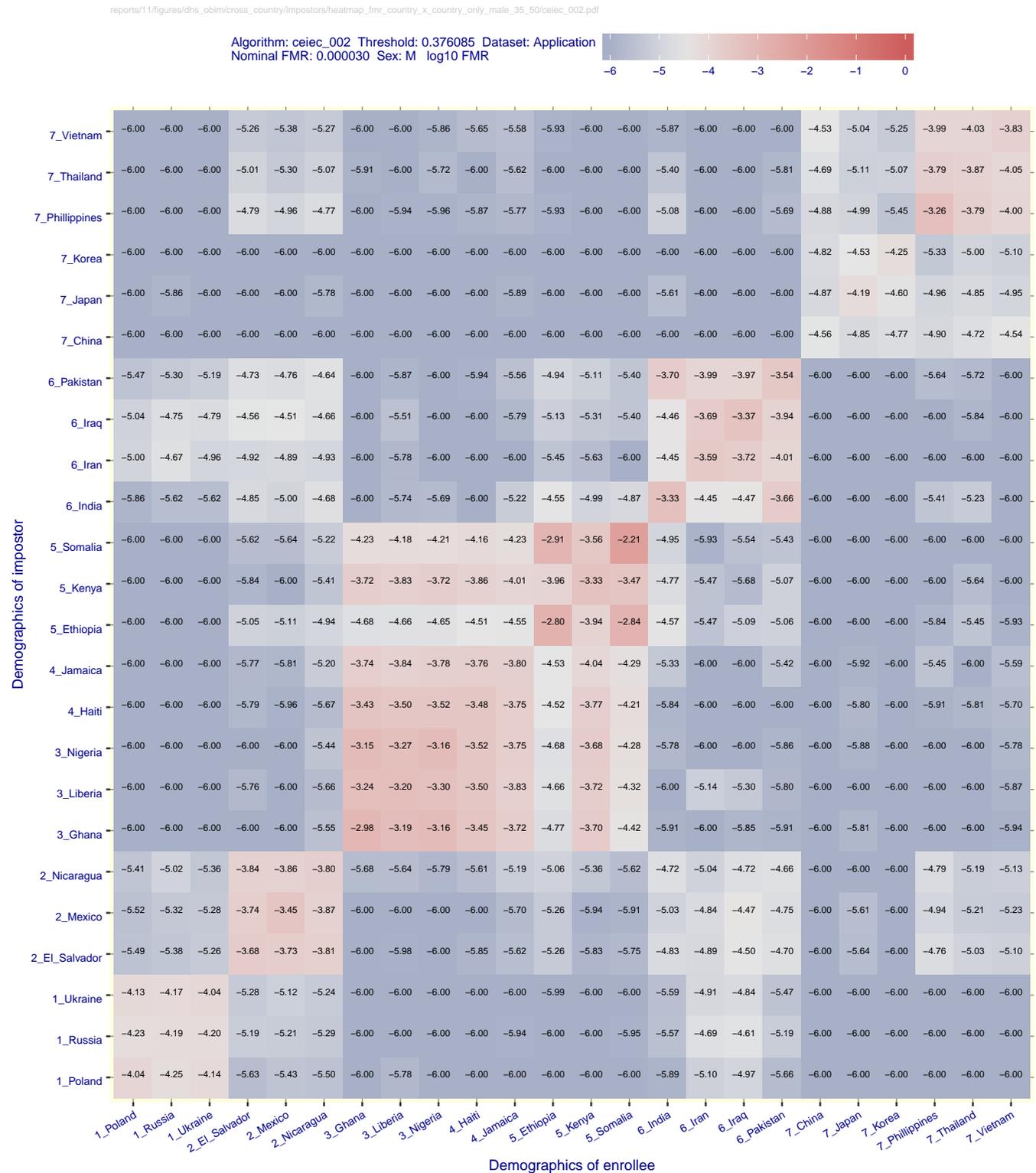


Figure 37: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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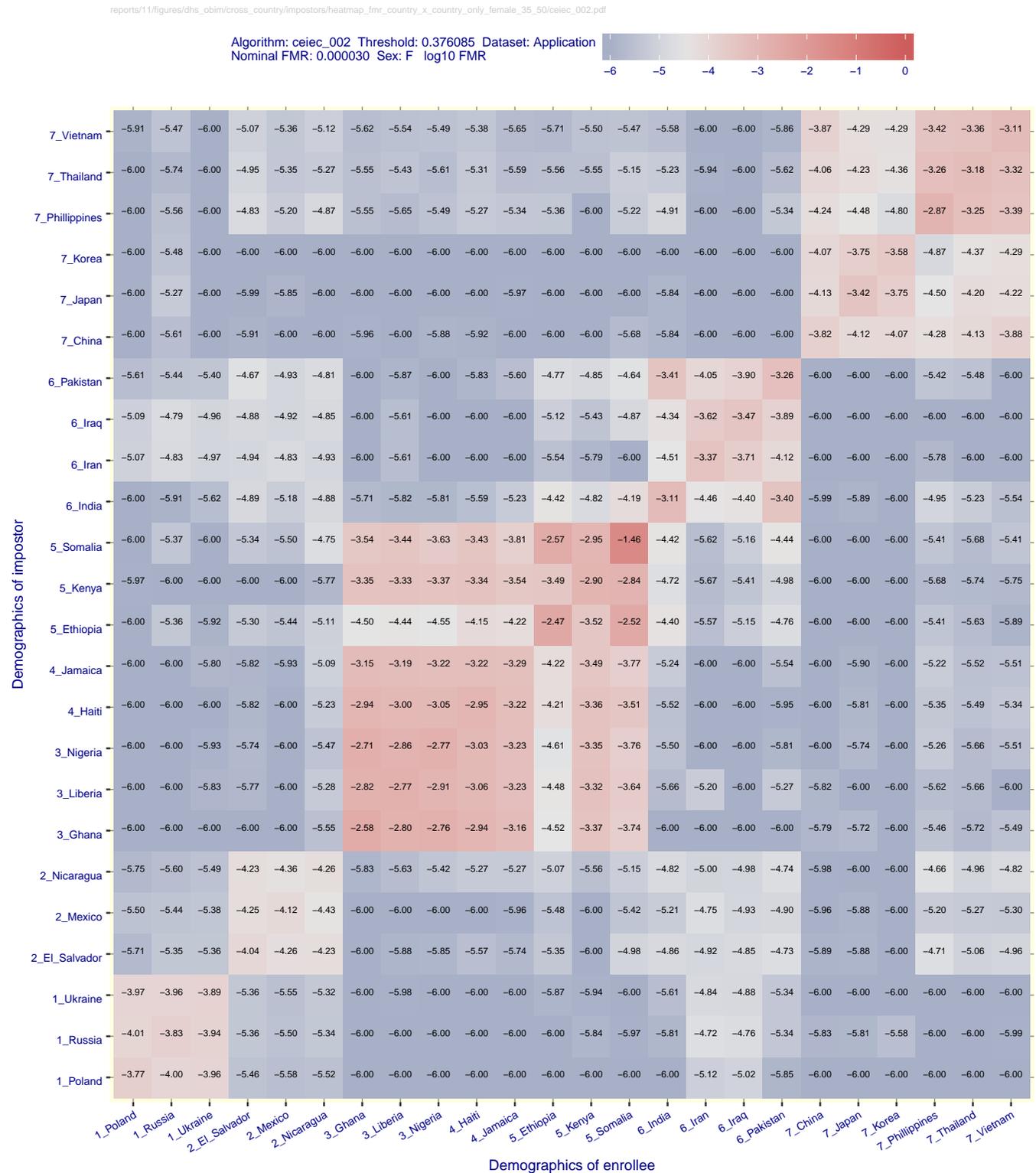


Figure 38: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/chtface\_001.pdf

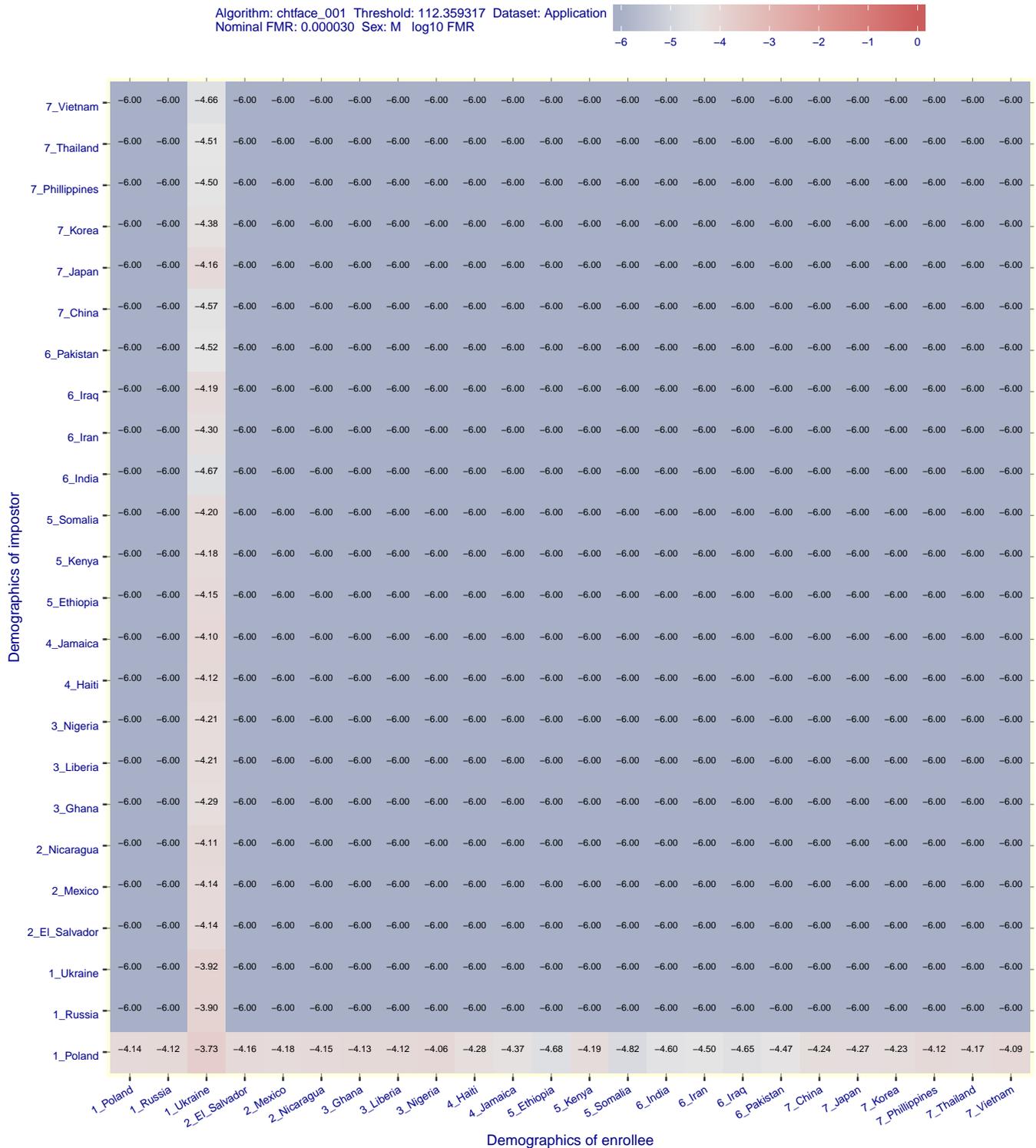


Figure 39: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects | 1:1 FMR | 1:N FPIR |  $T \gg 0$  → FMR, FPIR → 0  
 False negative: Failed association of one subject | 1:1 FNMR | 1:N FNIR | → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/chtface\_001.pdf

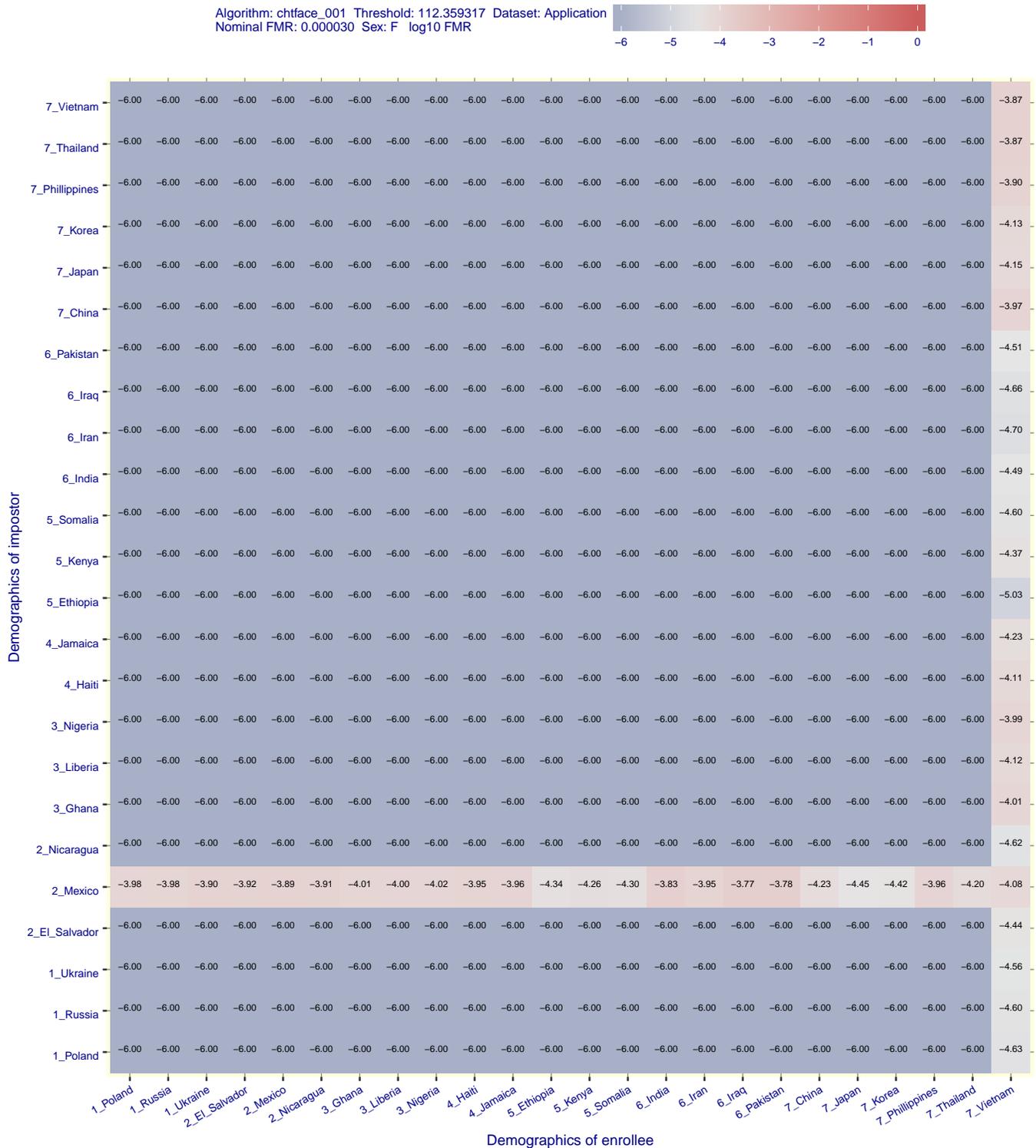


Figure 40: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/cogent\_003.pdf

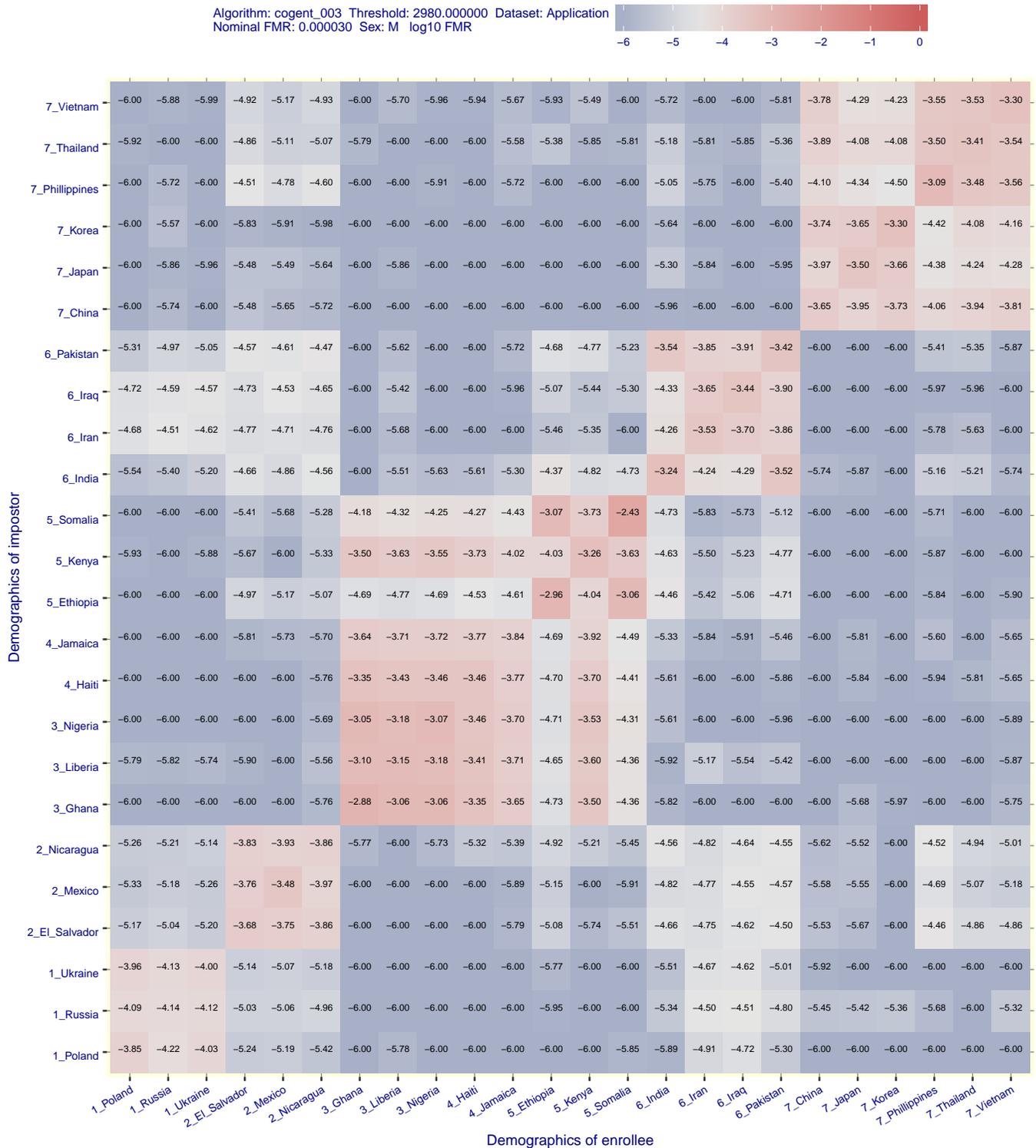


Figure 41: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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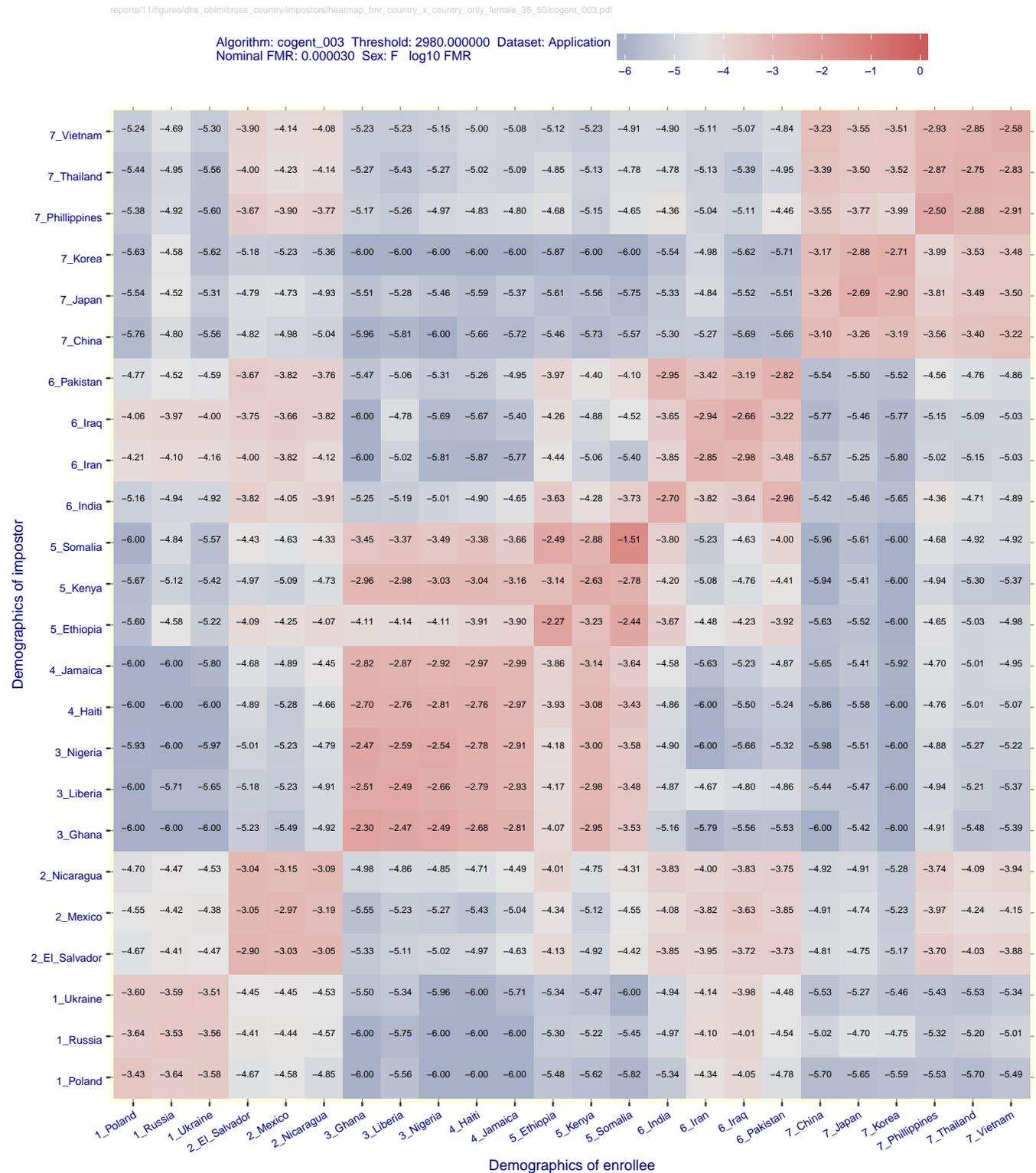


Figure 42: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/cogent\_004.pdf

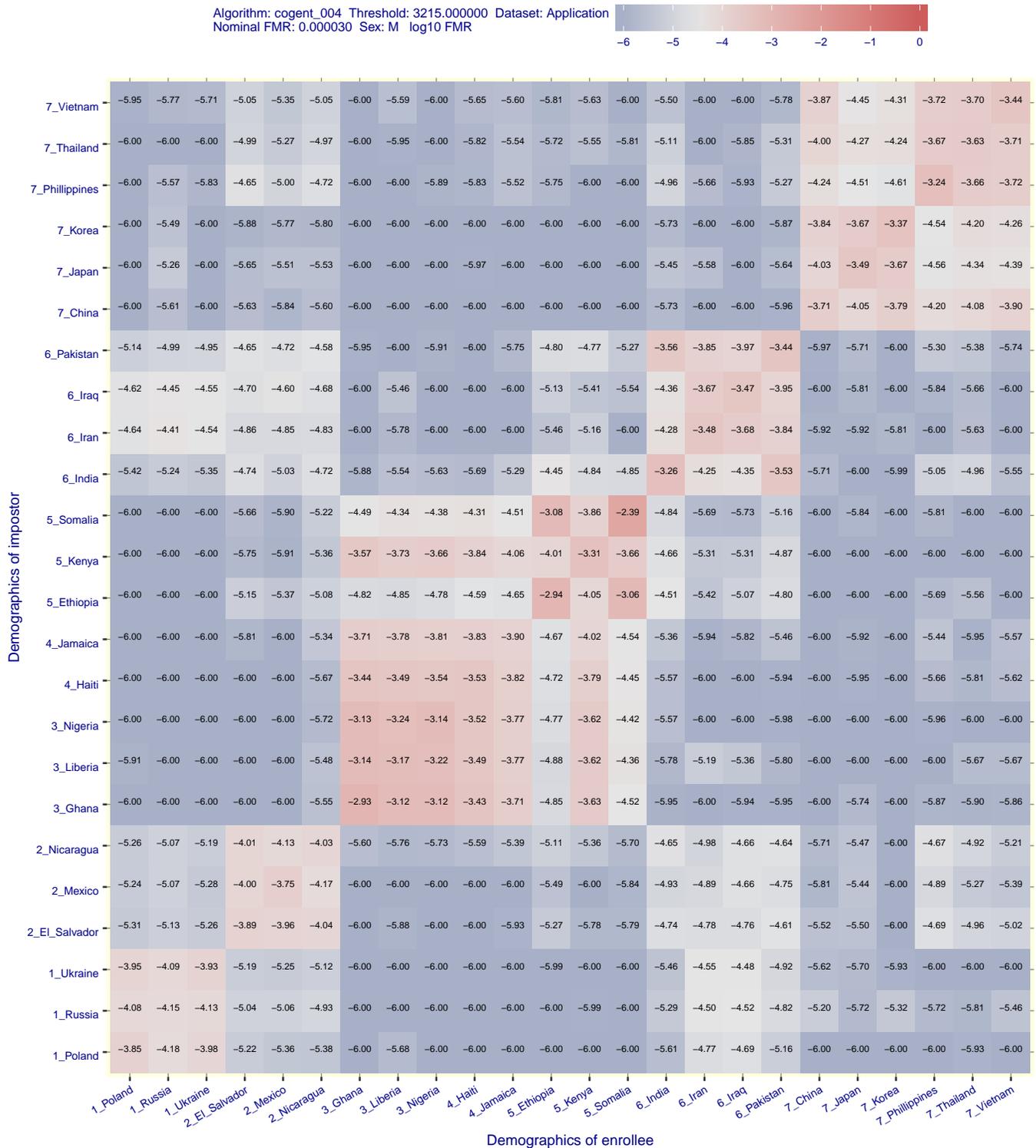


Figure 43: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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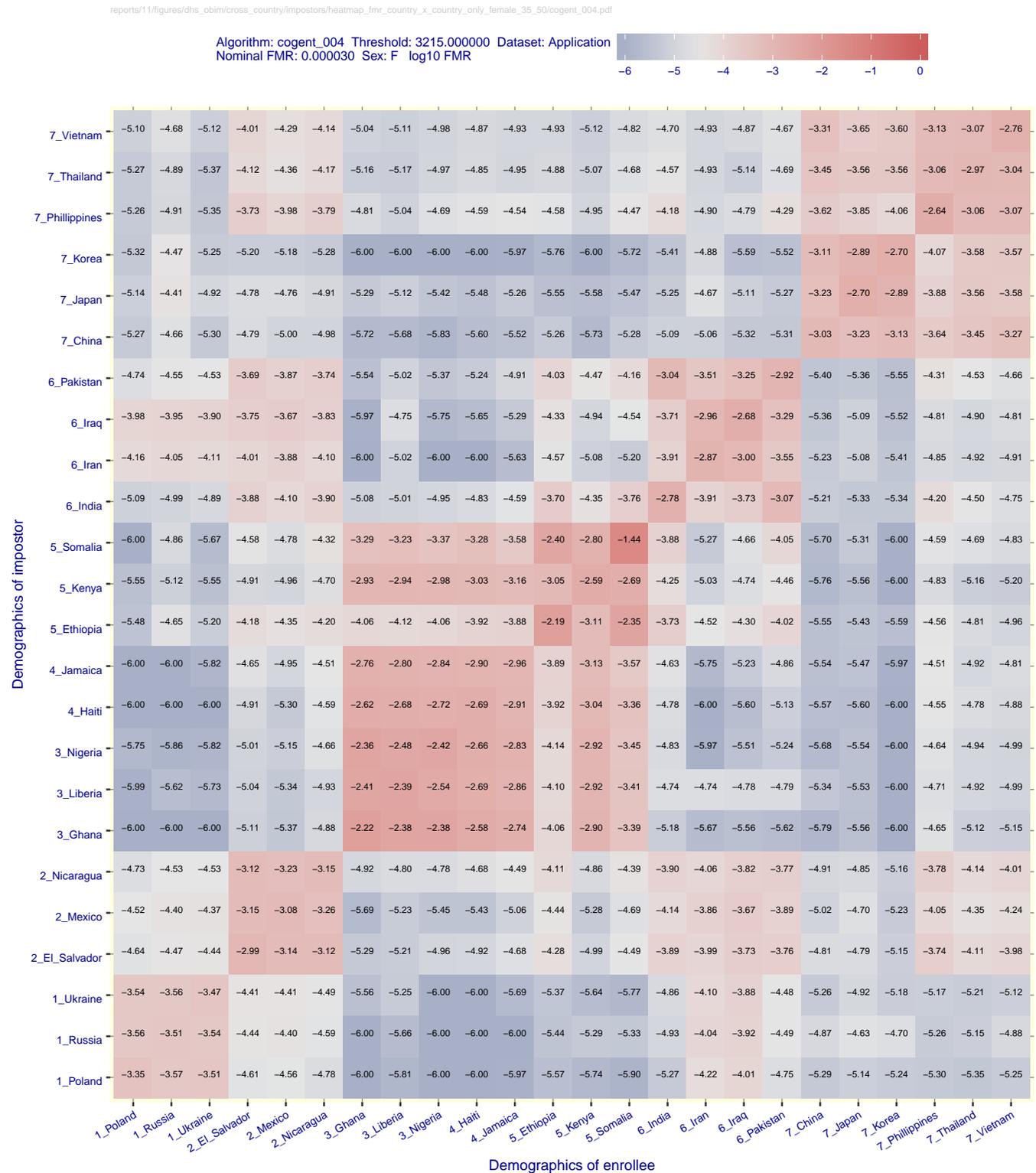


Figure 44: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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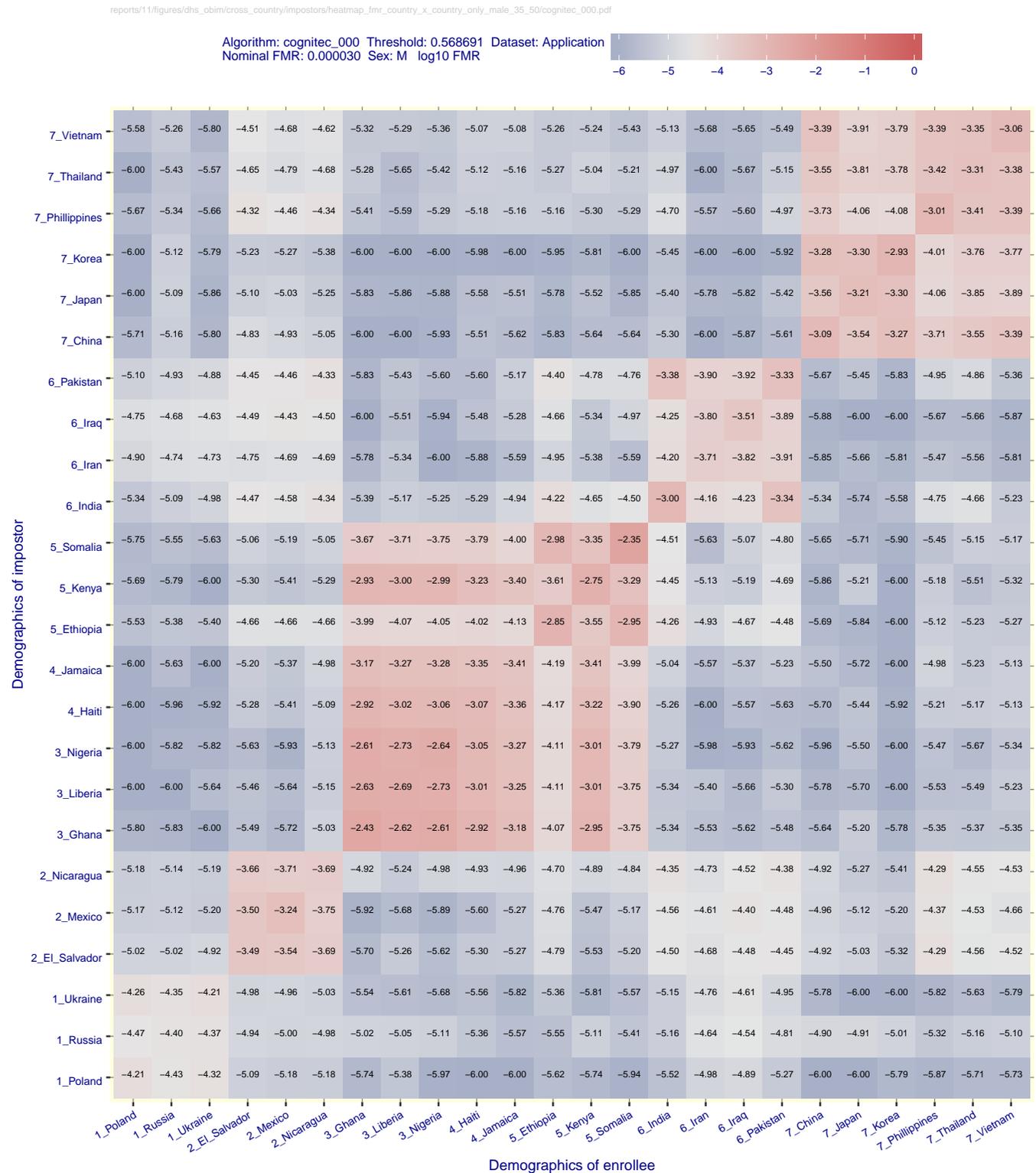


Figure 45: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/cognitec\_000.pdf

Algorithm: cognitec\_000 Threshold: 0.568691 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

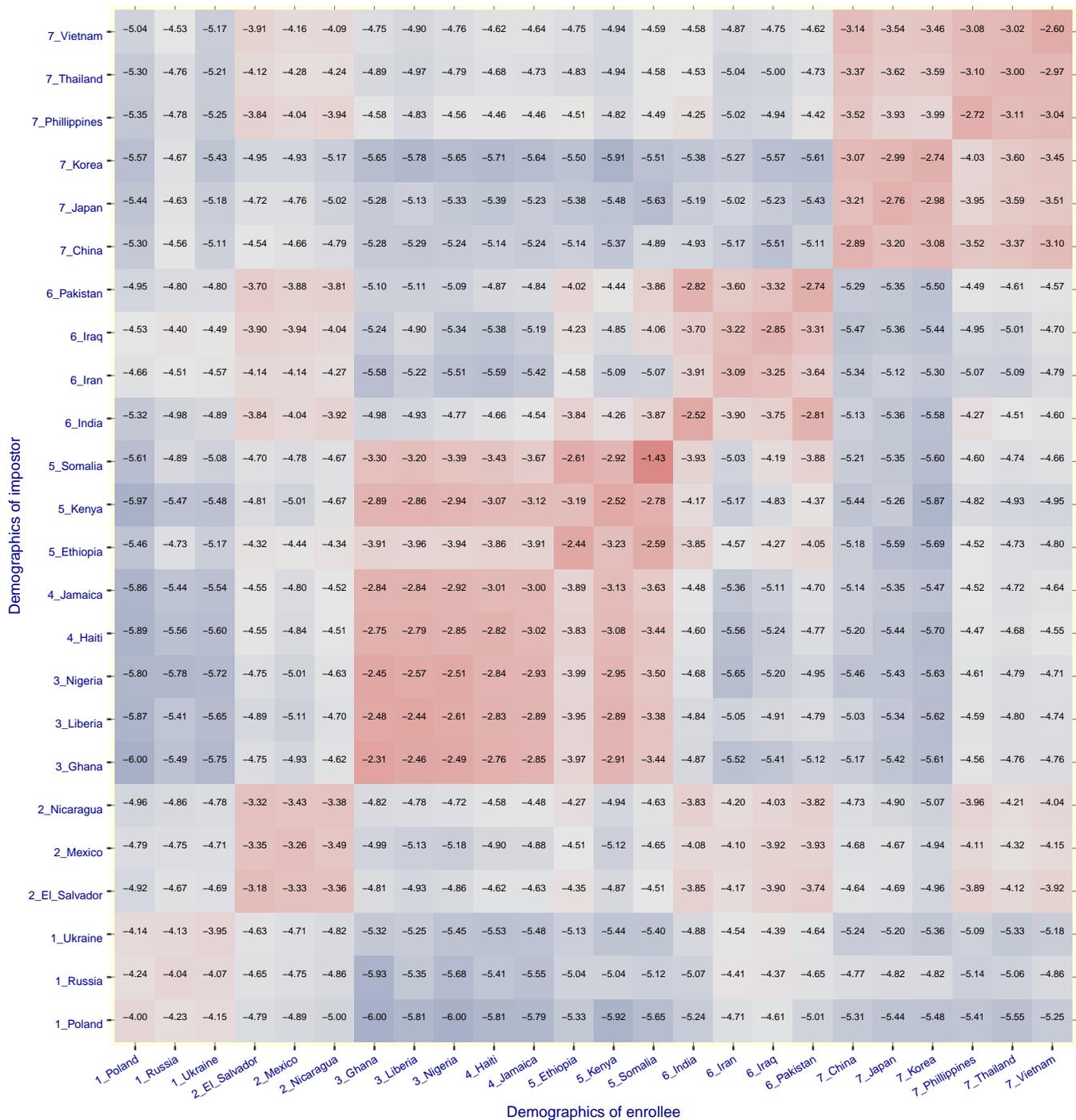


Figure 46: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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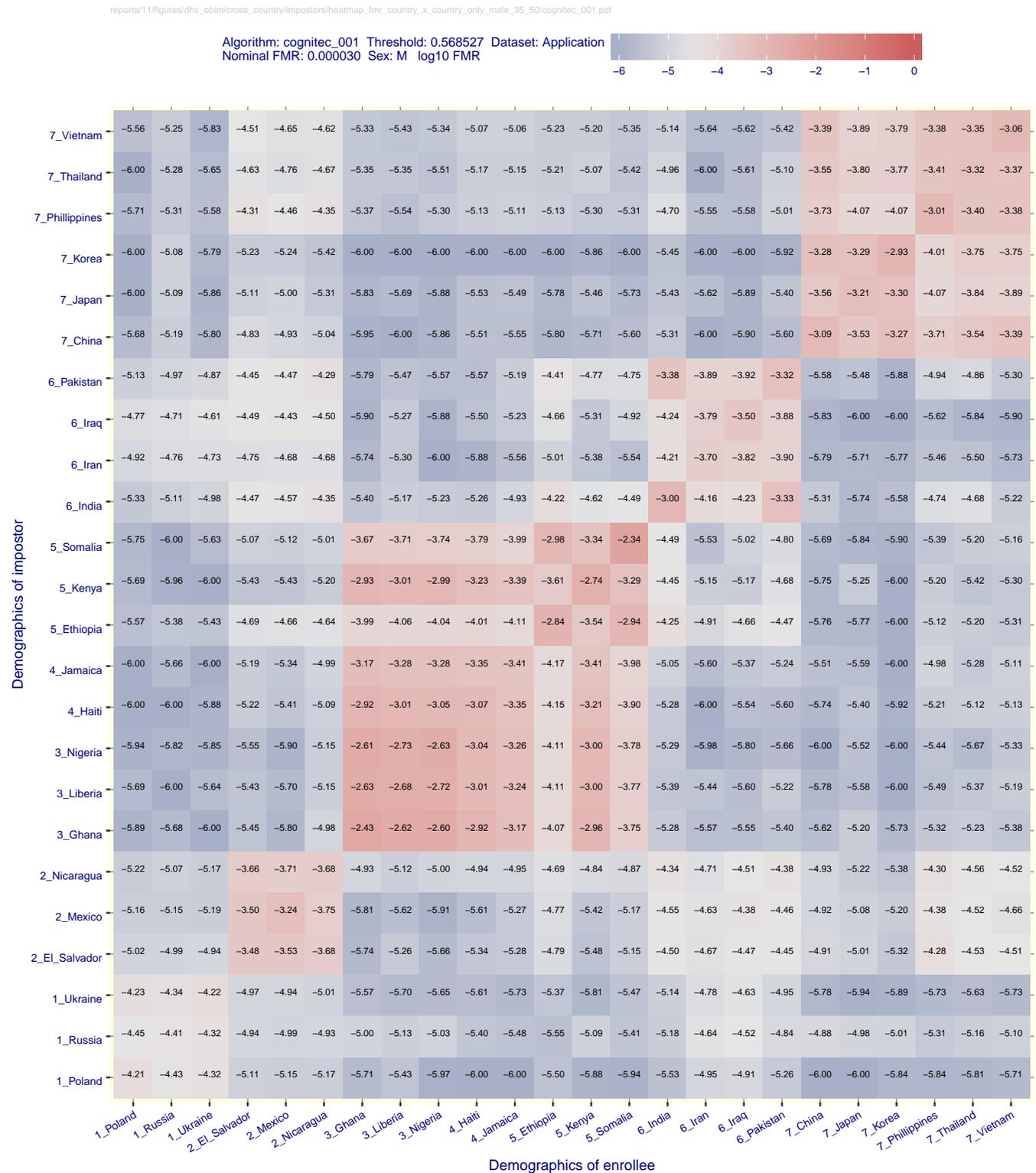


Figure 47: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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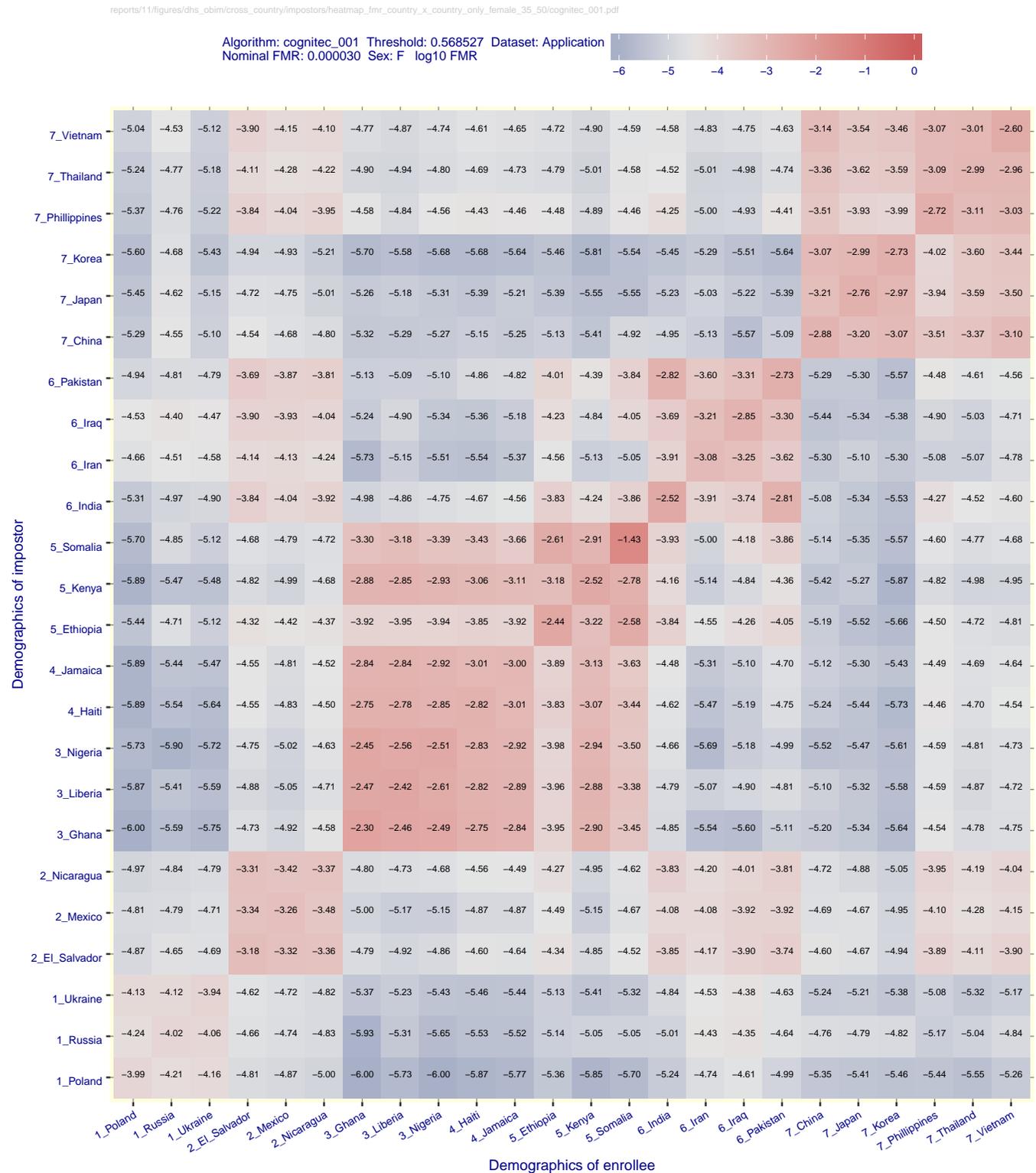


Figure 48: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/ctcbank\_000.pdf

Algorithm: ctcbank\_000 Threshold: 3.751842 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

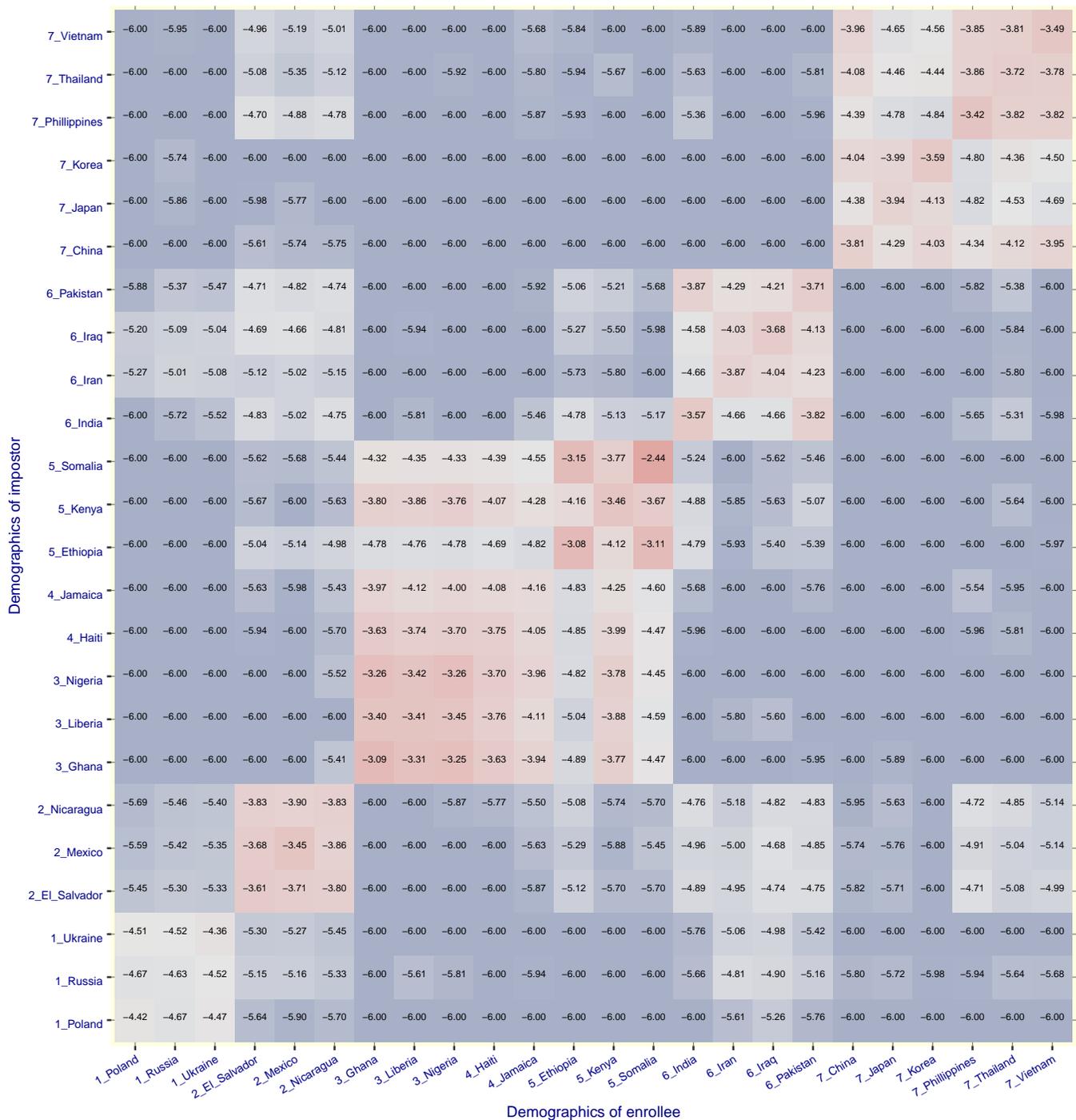


Figure 49: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR | T ≥ 0 → FMR, FPIR → 0  
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR | → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/ctcbank\_000.pdf

Algorithm: ctcbank\_000 Threshold: 3.751842 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

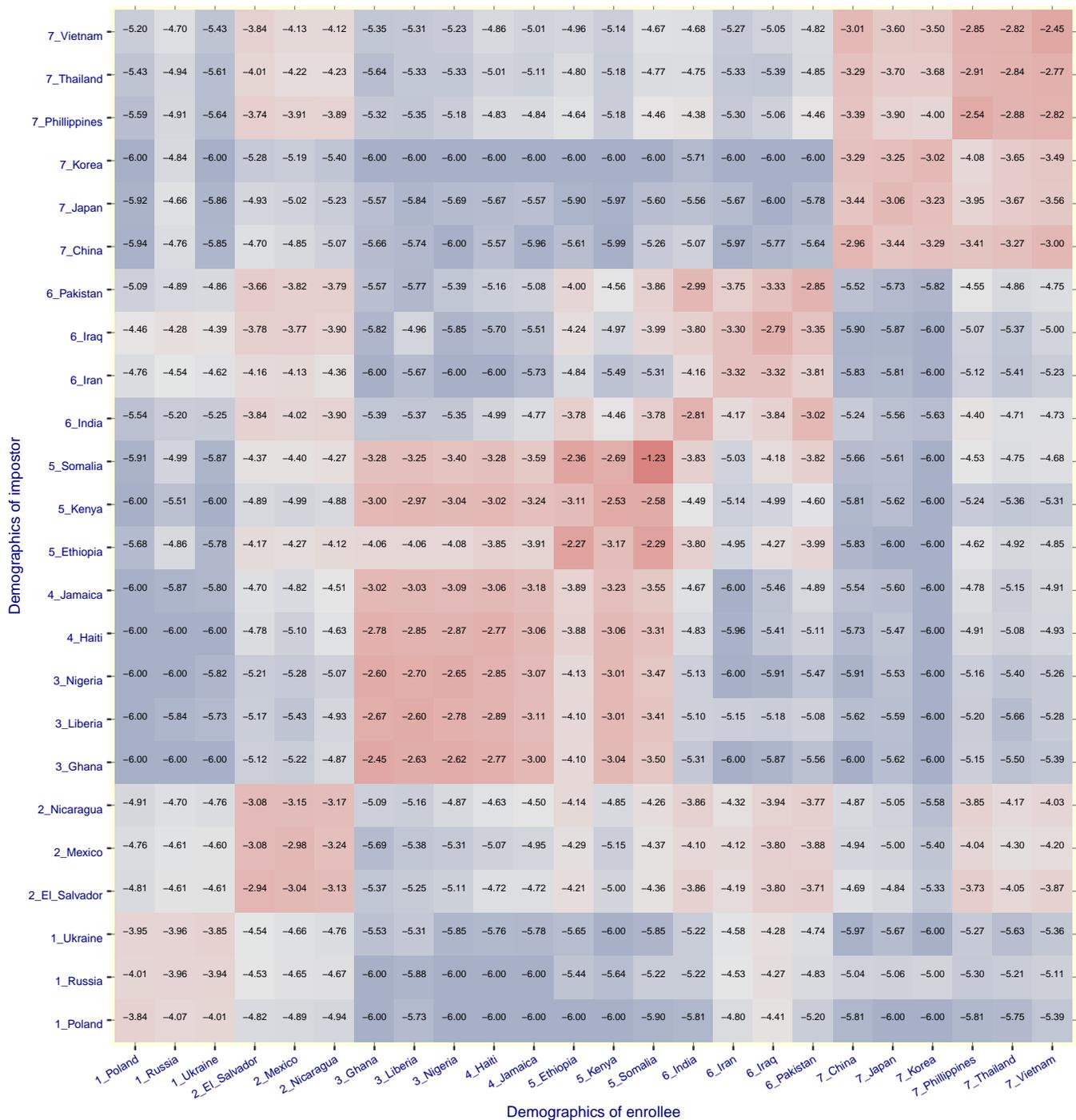


Figure 50: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/cyberextruder\_002.pdf

Algorithm: cyberextruder\_002 Threshold: 0.509514 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

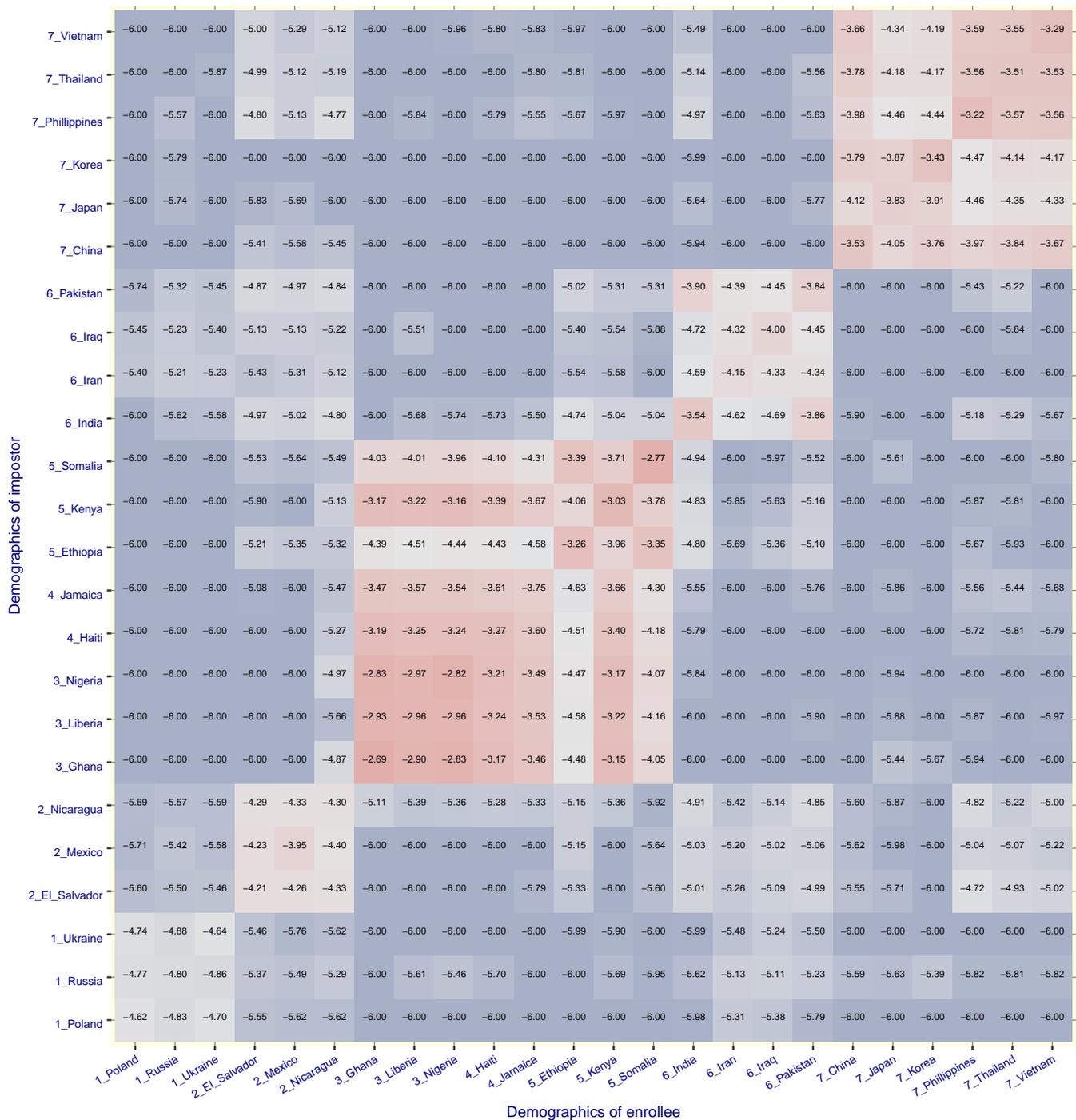


Figure 51: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR | 1:N FPIR | T >> 0  
 1:1 FNMR | 1:N FNIR

→ FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/cyberextruder\_002.pdf

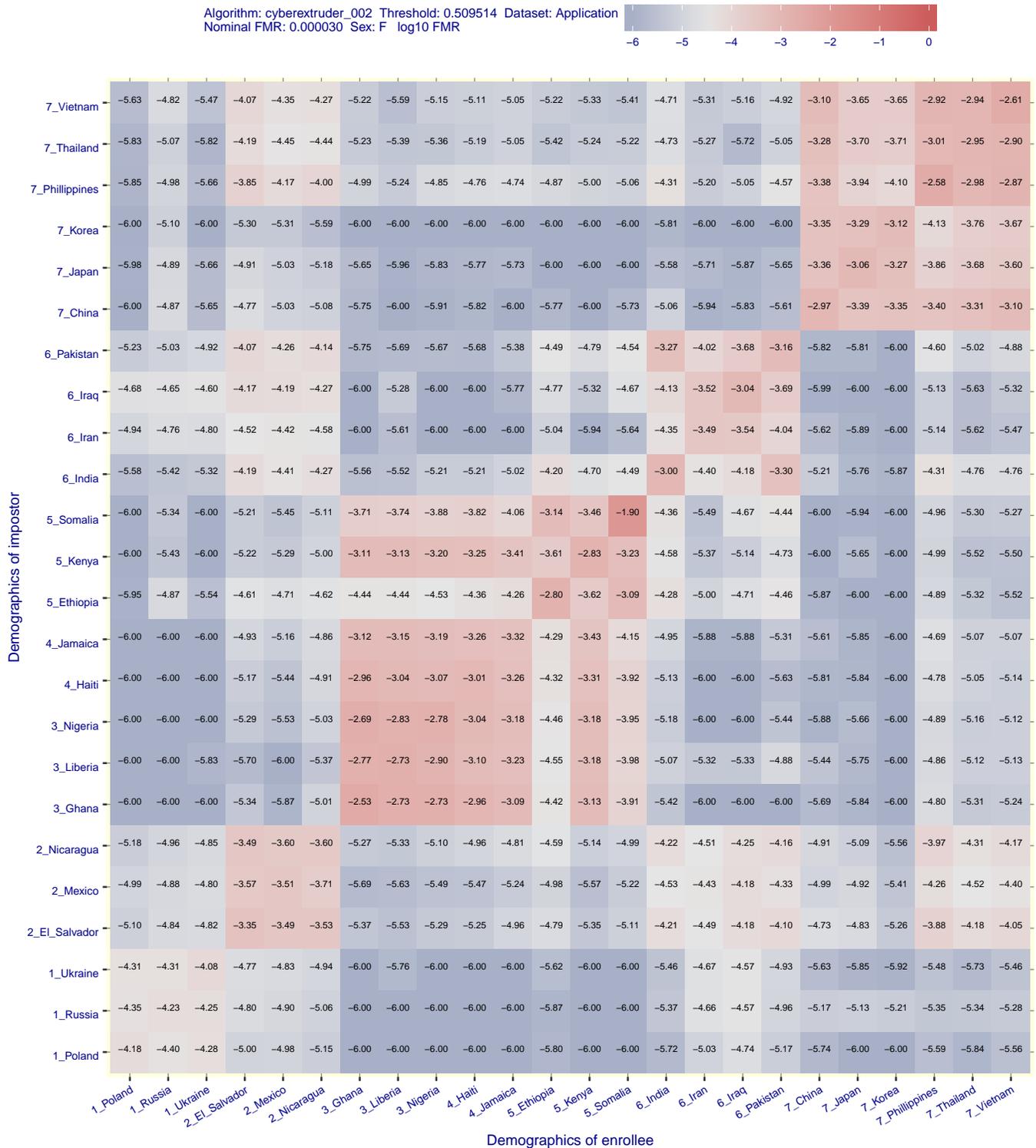


Figure 52: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/cyberlink\_002.pdf

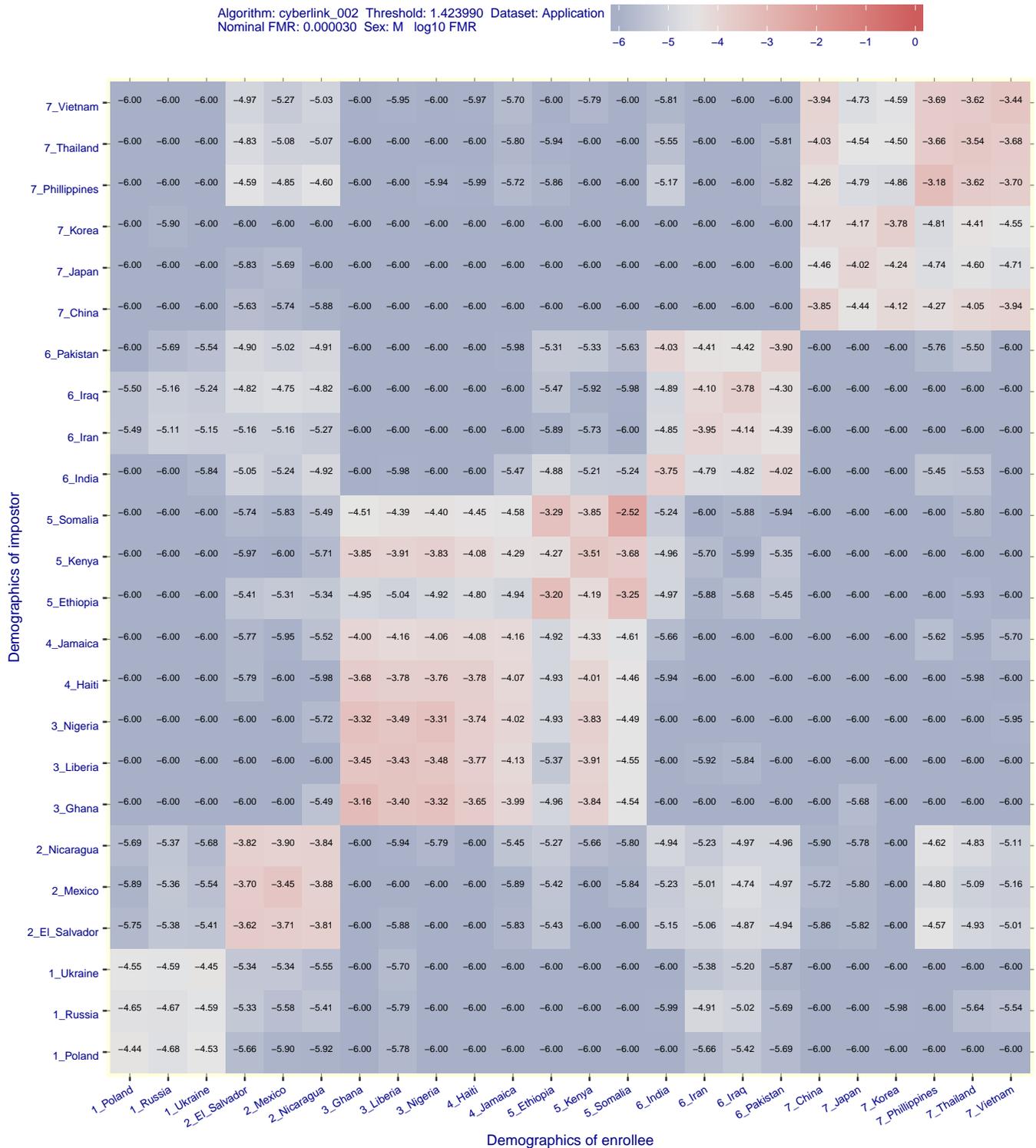


Figure 53: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/cyberlink\_002.pdf

Algorithm: cyberlink\_002 Threshold: 1.423990 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

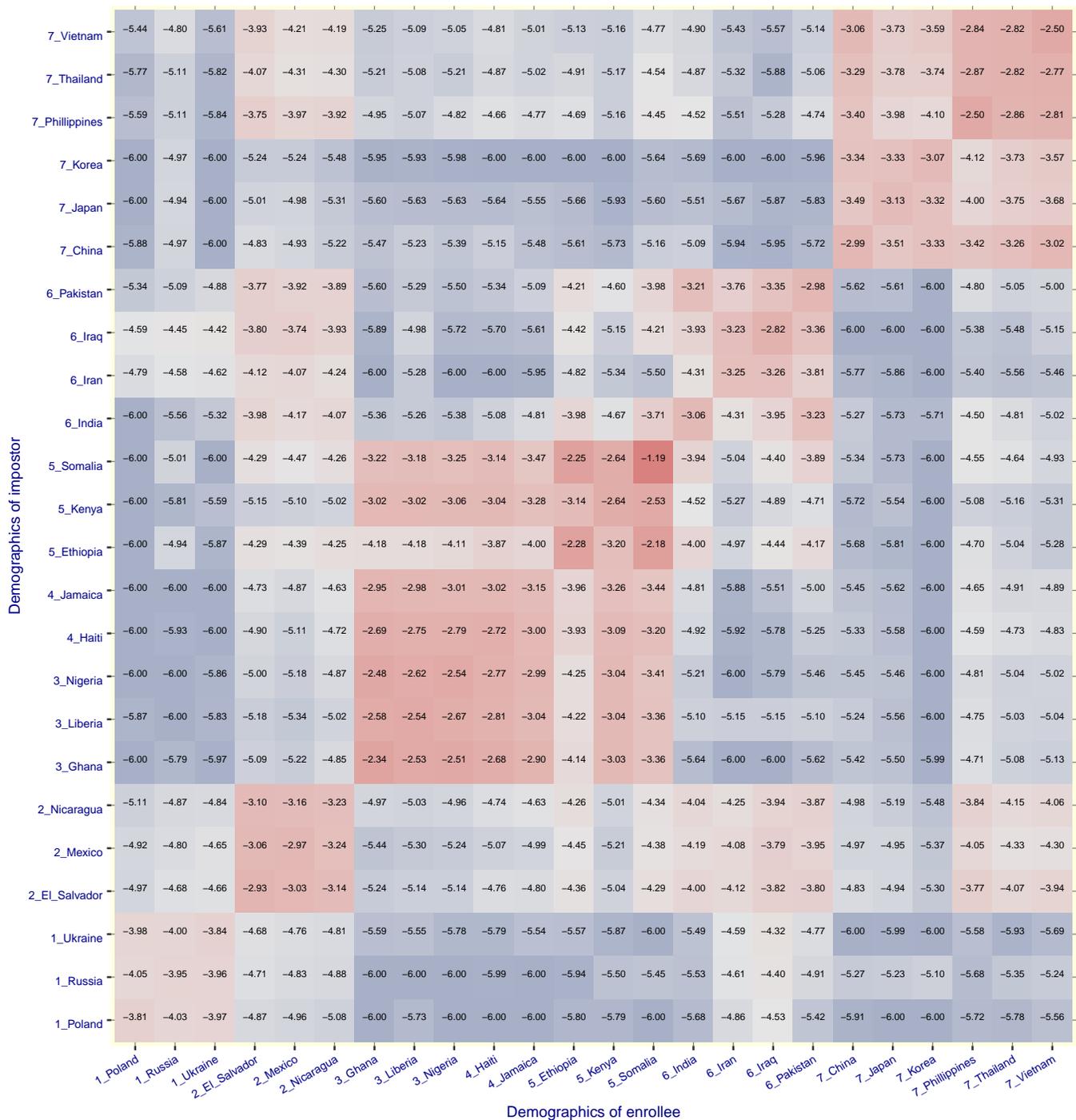


Figure 54: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/dahua\_002.pdf

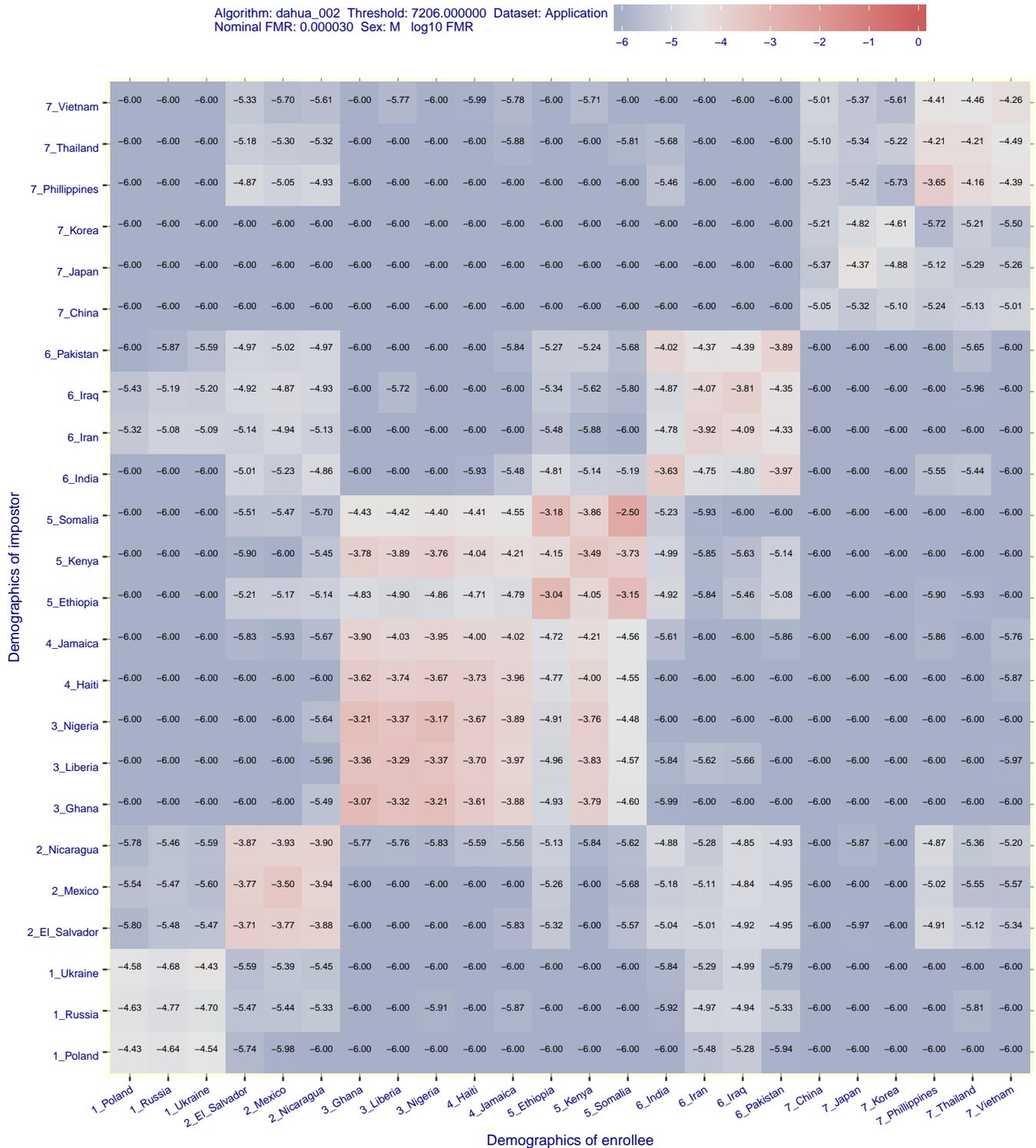


Figure 55: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/dahua\_002.pdf

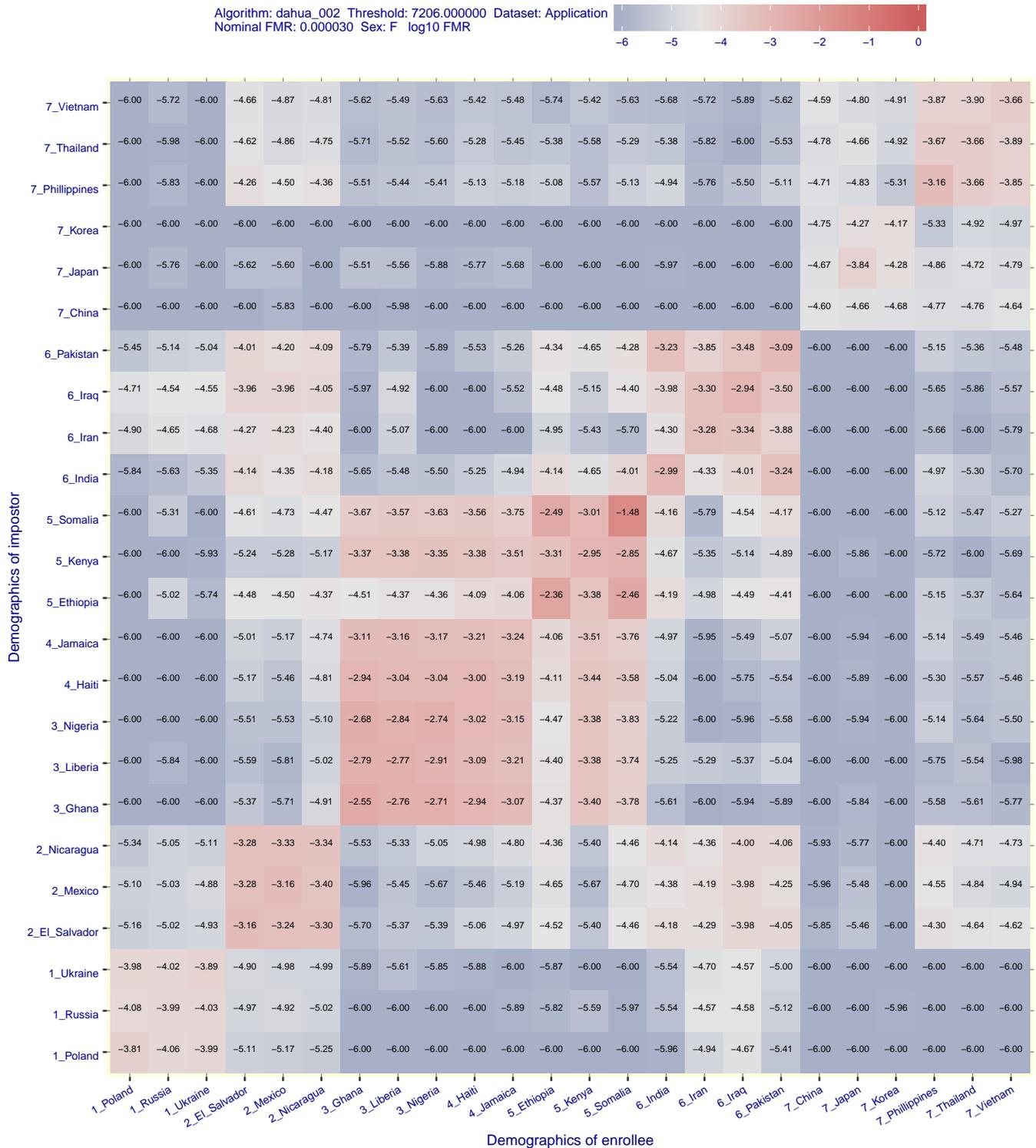


Figure 56: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/dahua\_003.pdf

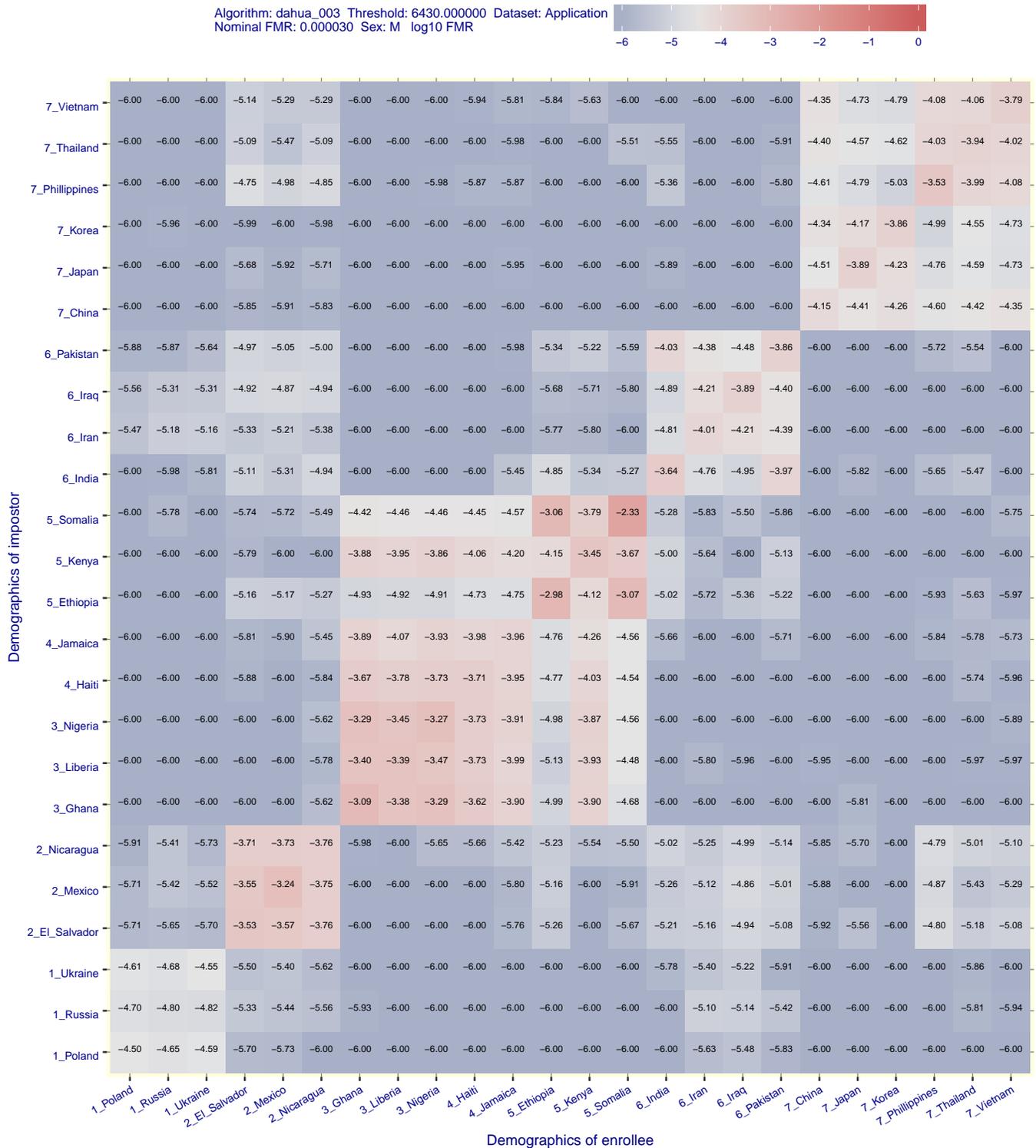


Figure 57: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/dahua\_003.pdf

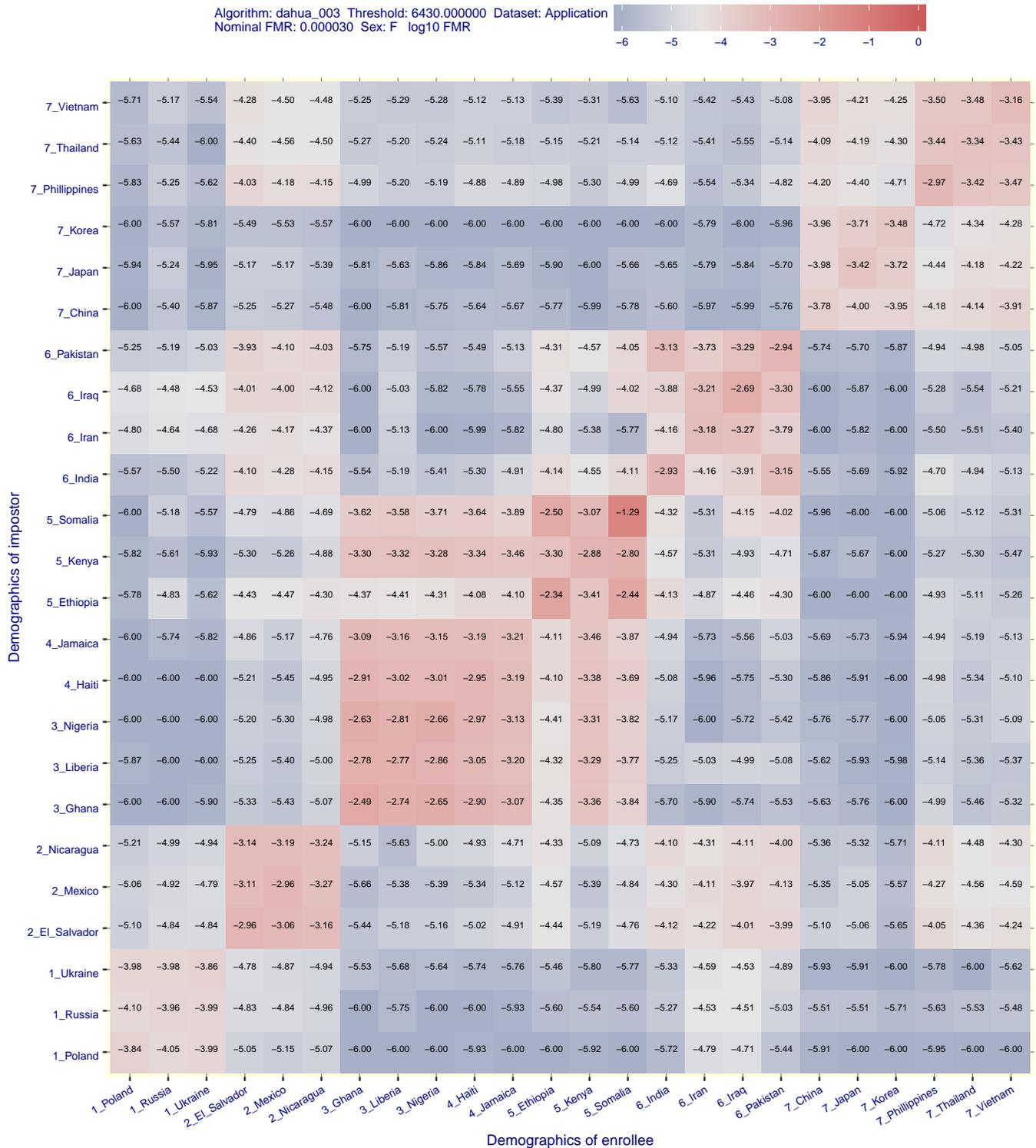


Figure 58: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0$

$\rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/deepglint\_001.pdf

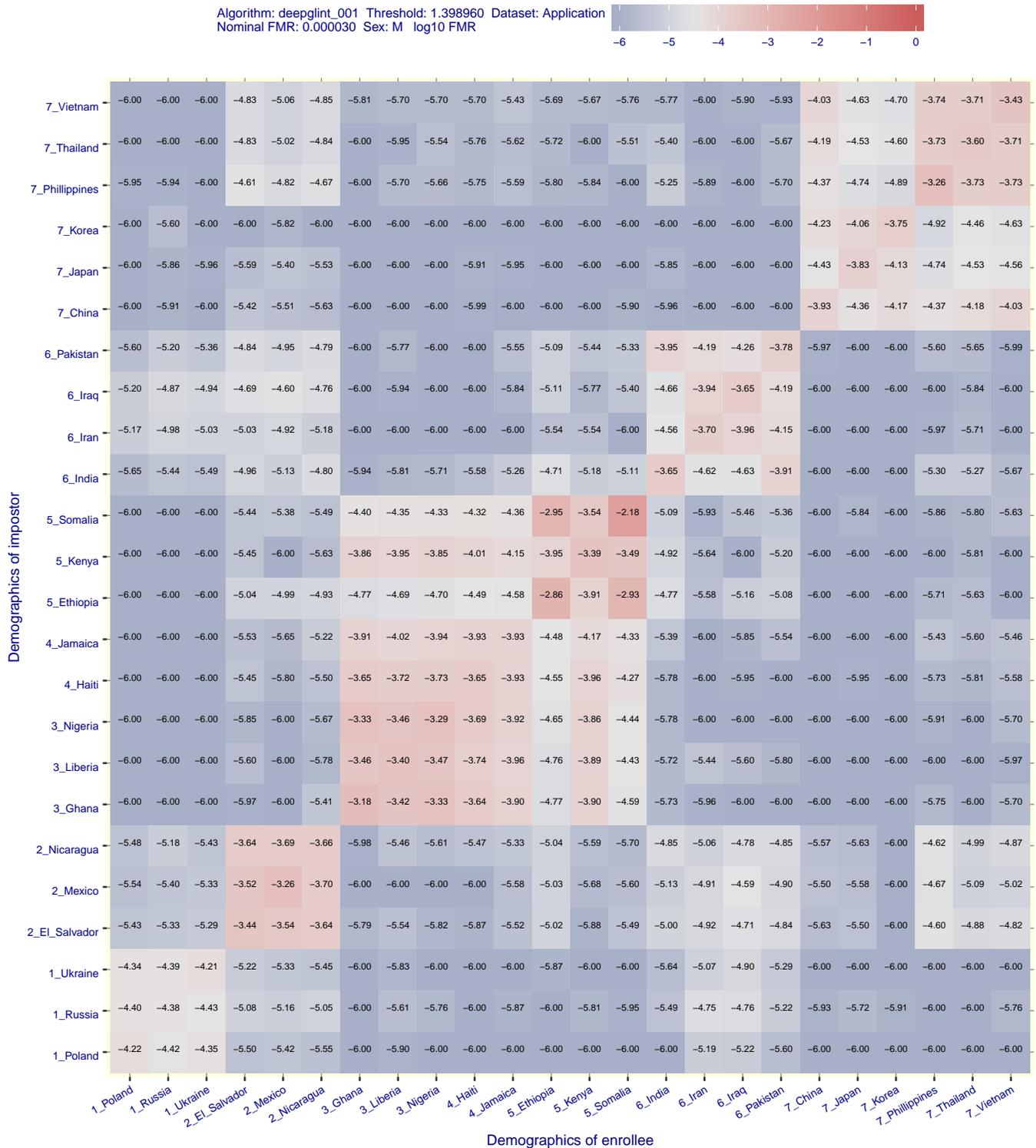


Figure 59: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/deepglint\_001.pdf

Algorithm: deepglint\_001 Threshold: 1.398960 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

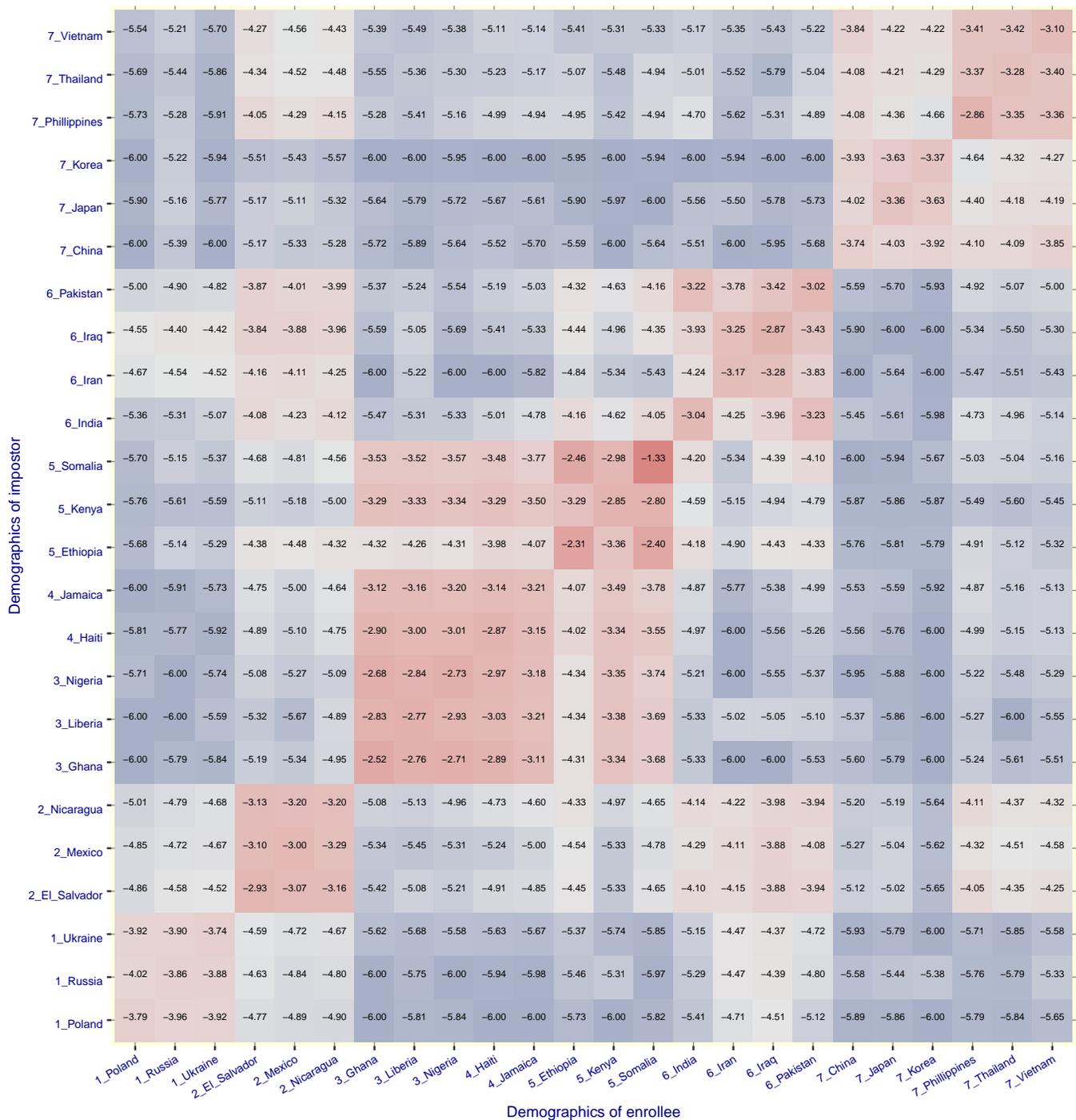


Figure 60: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/deepsea\_001.pdf

Algorithm: deepsea\_001 Threshold: 1.400730 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

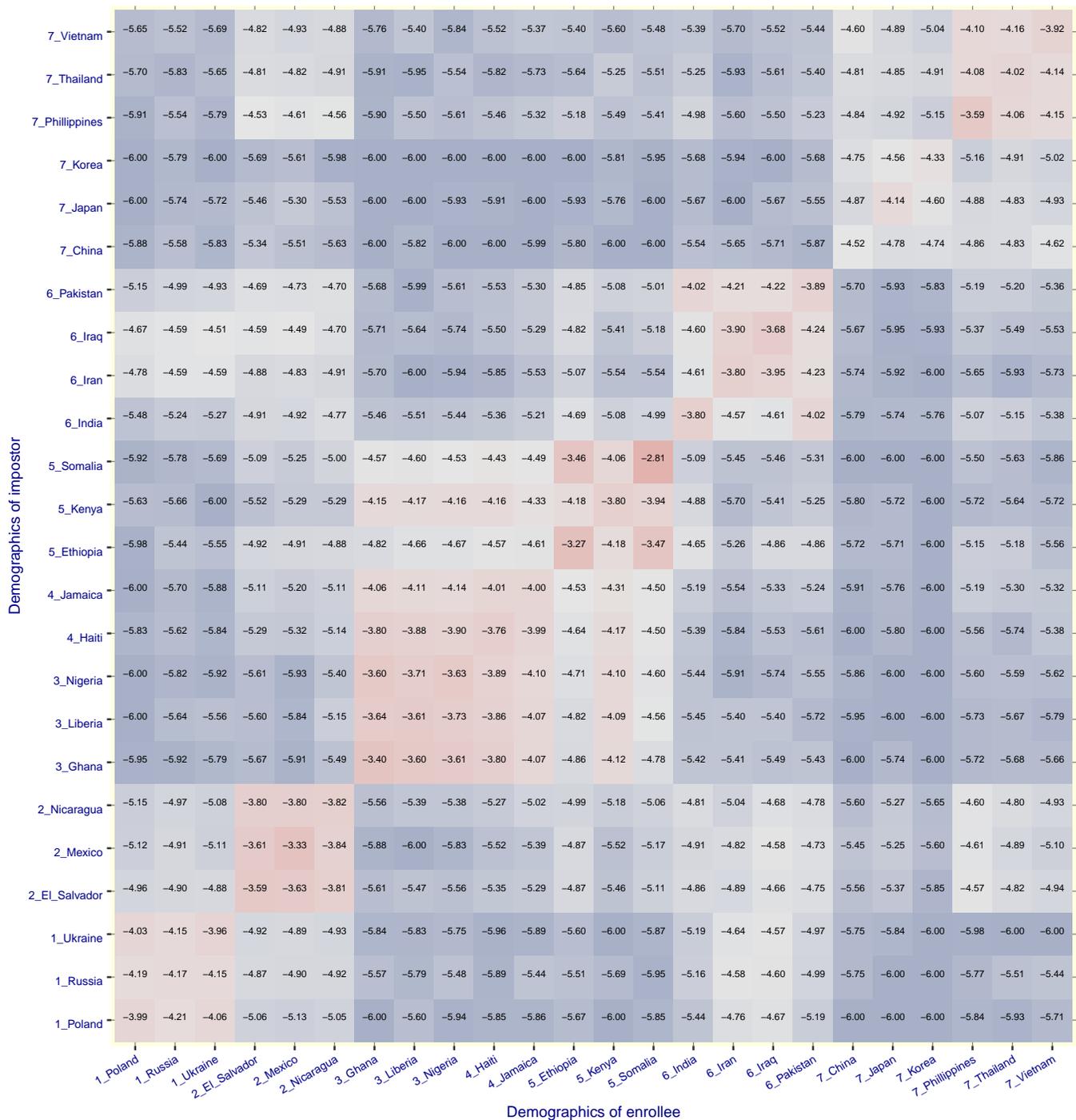


Figure 61: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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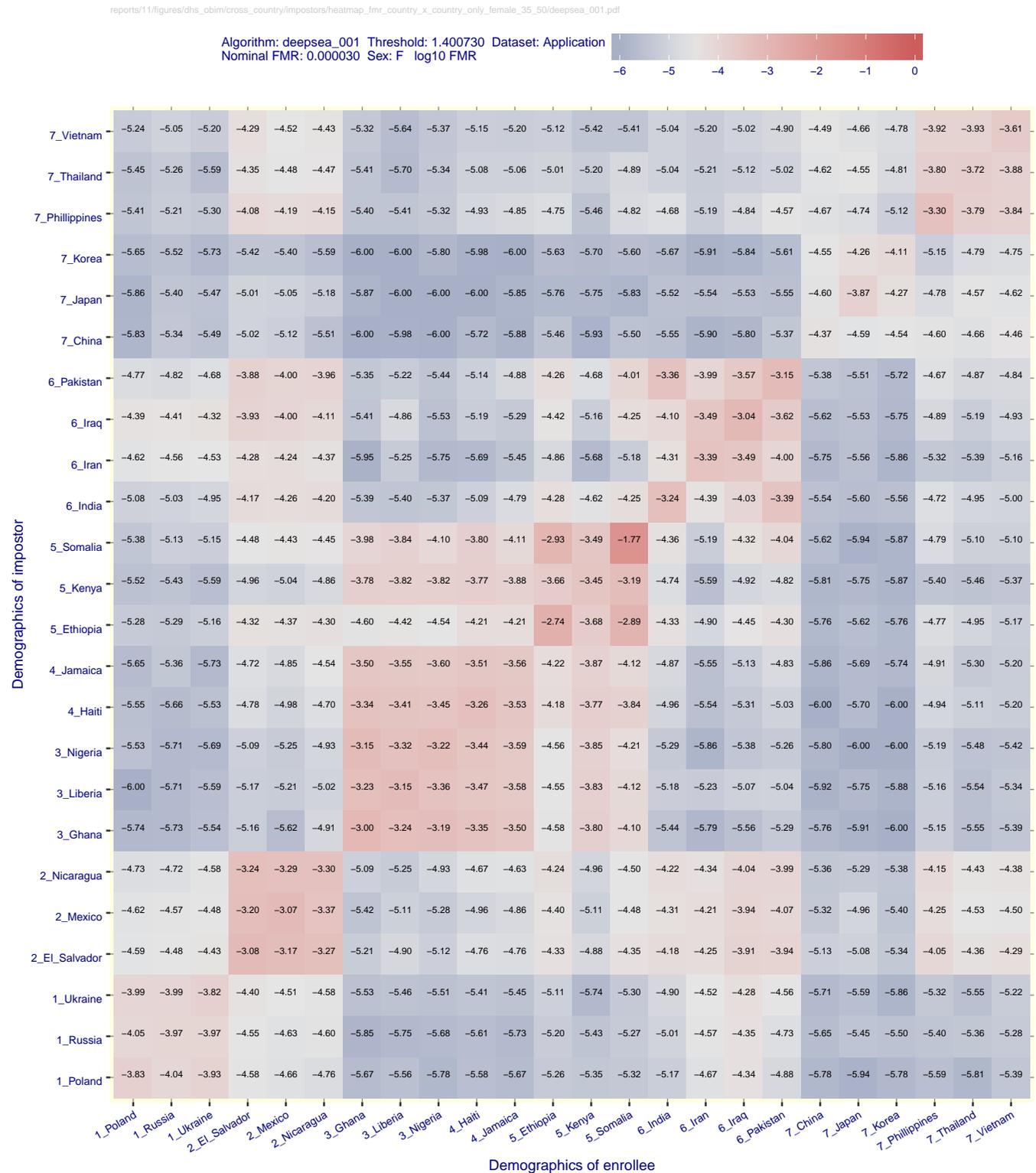


Figure 62: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/dermalog\_005.pdf

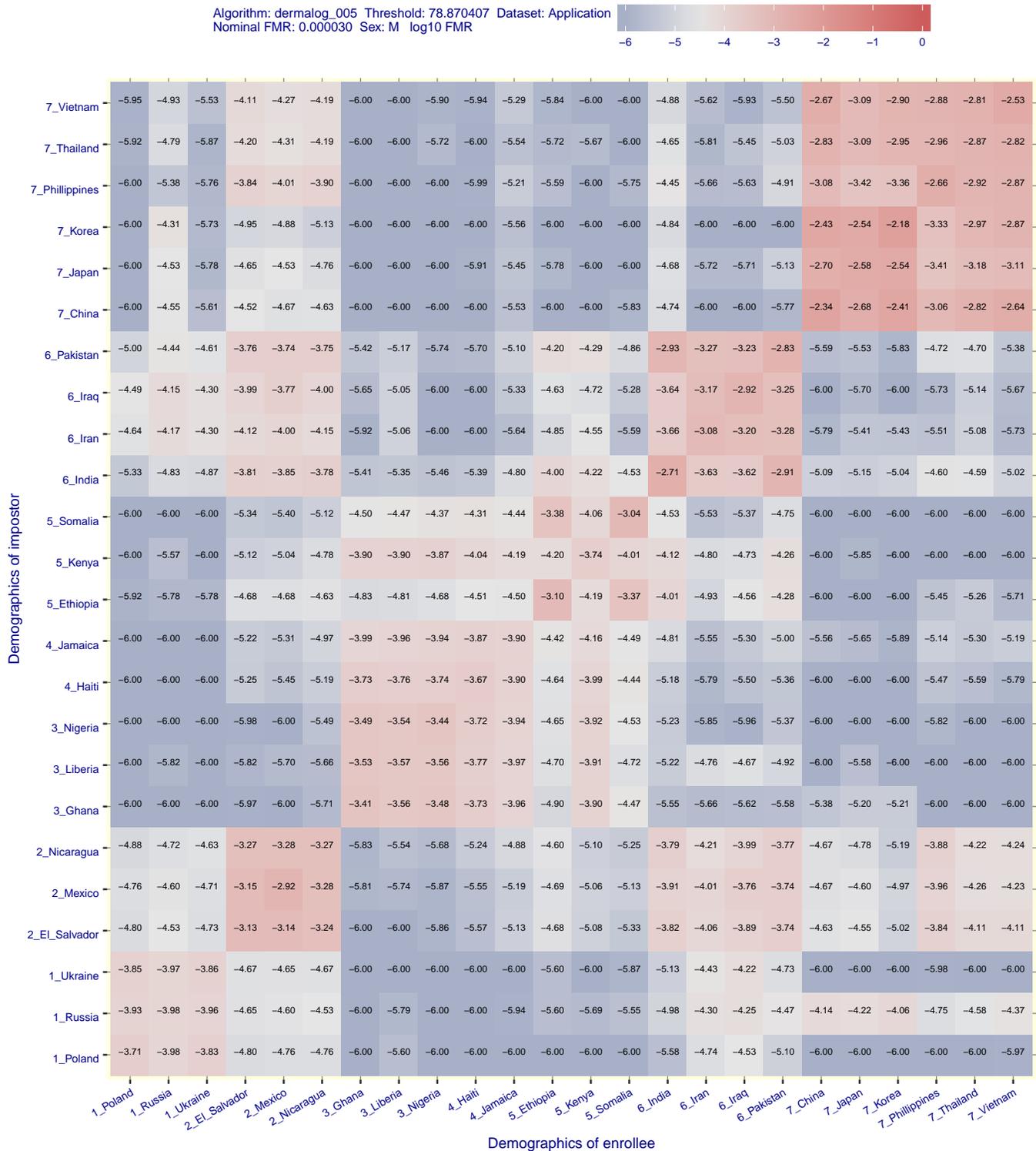


Figure 63: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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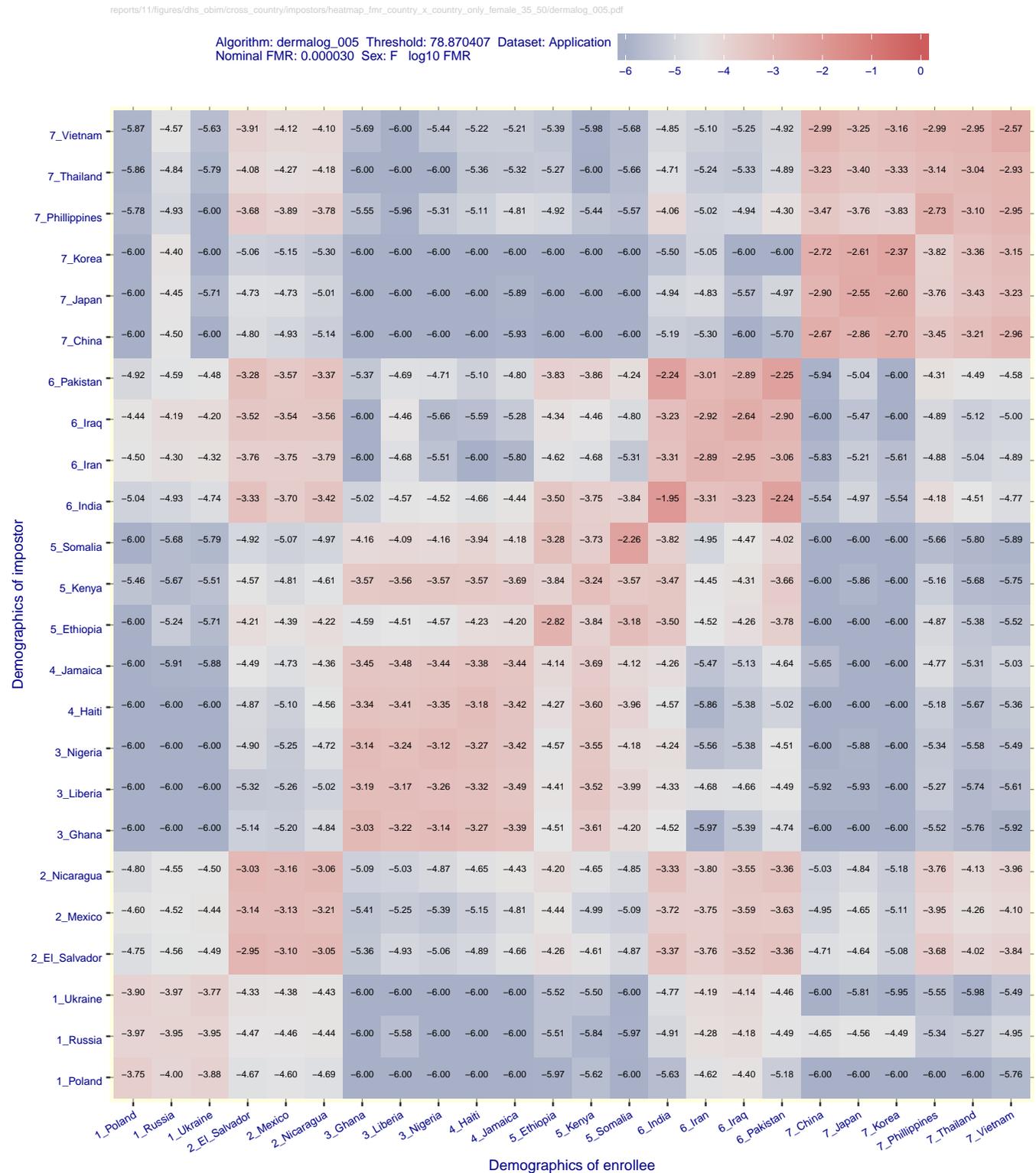


Figure 64: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/dermalog\_006.pdf

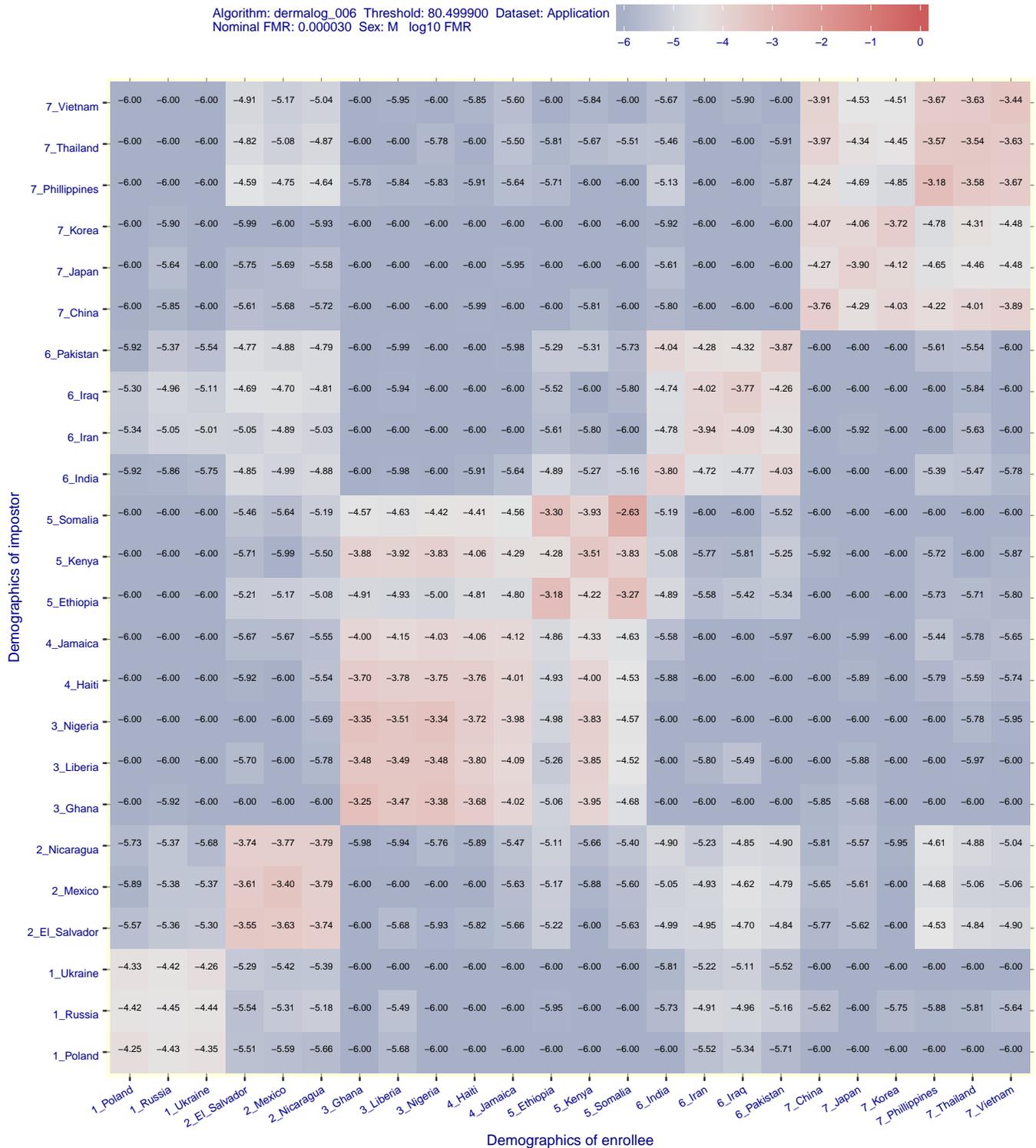


Figure 65: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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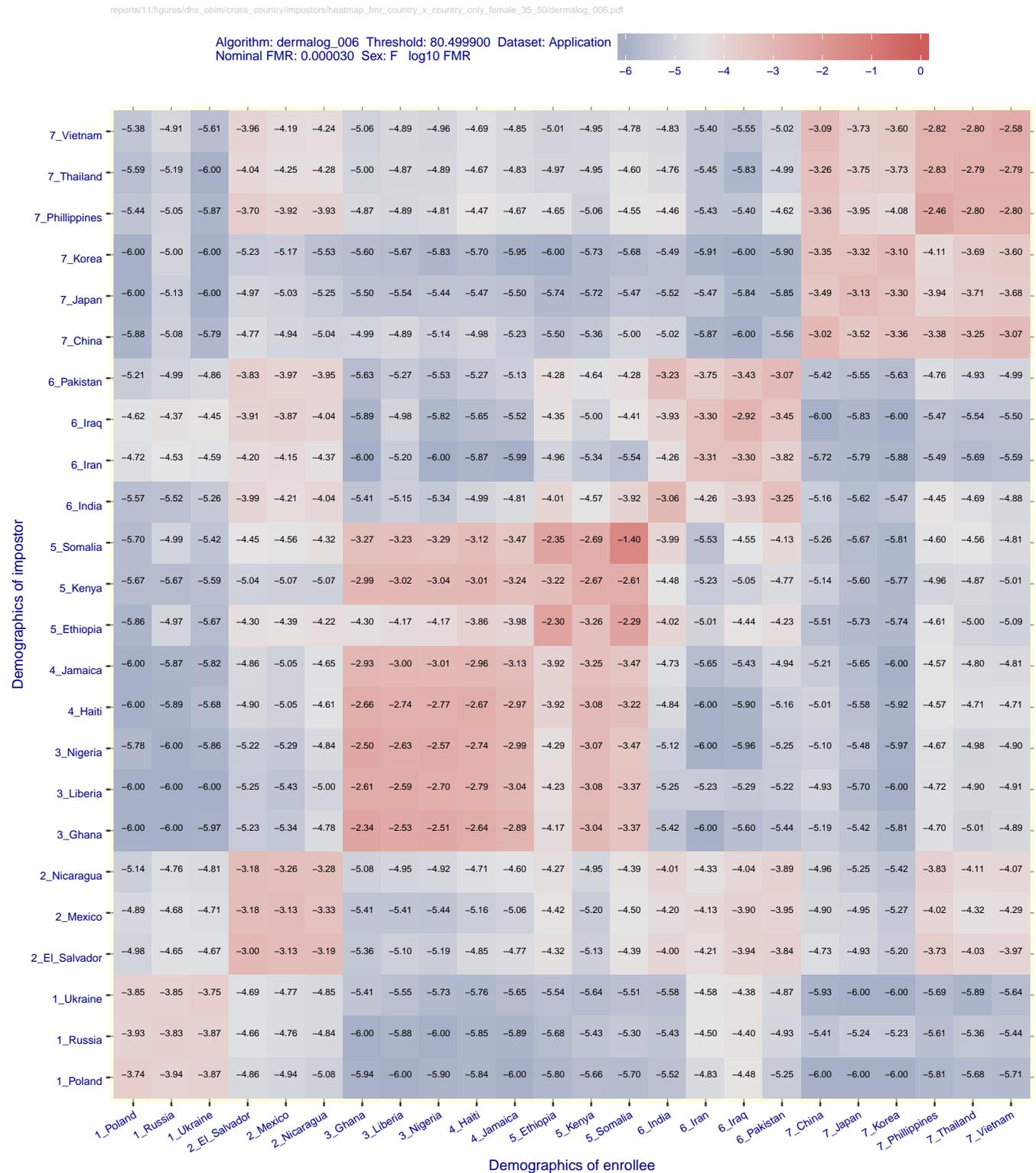


Figure 66: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/didiglobalface\_001.pdf

Algorithm: didiglobalface\_001 Threshold: 0.360225 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

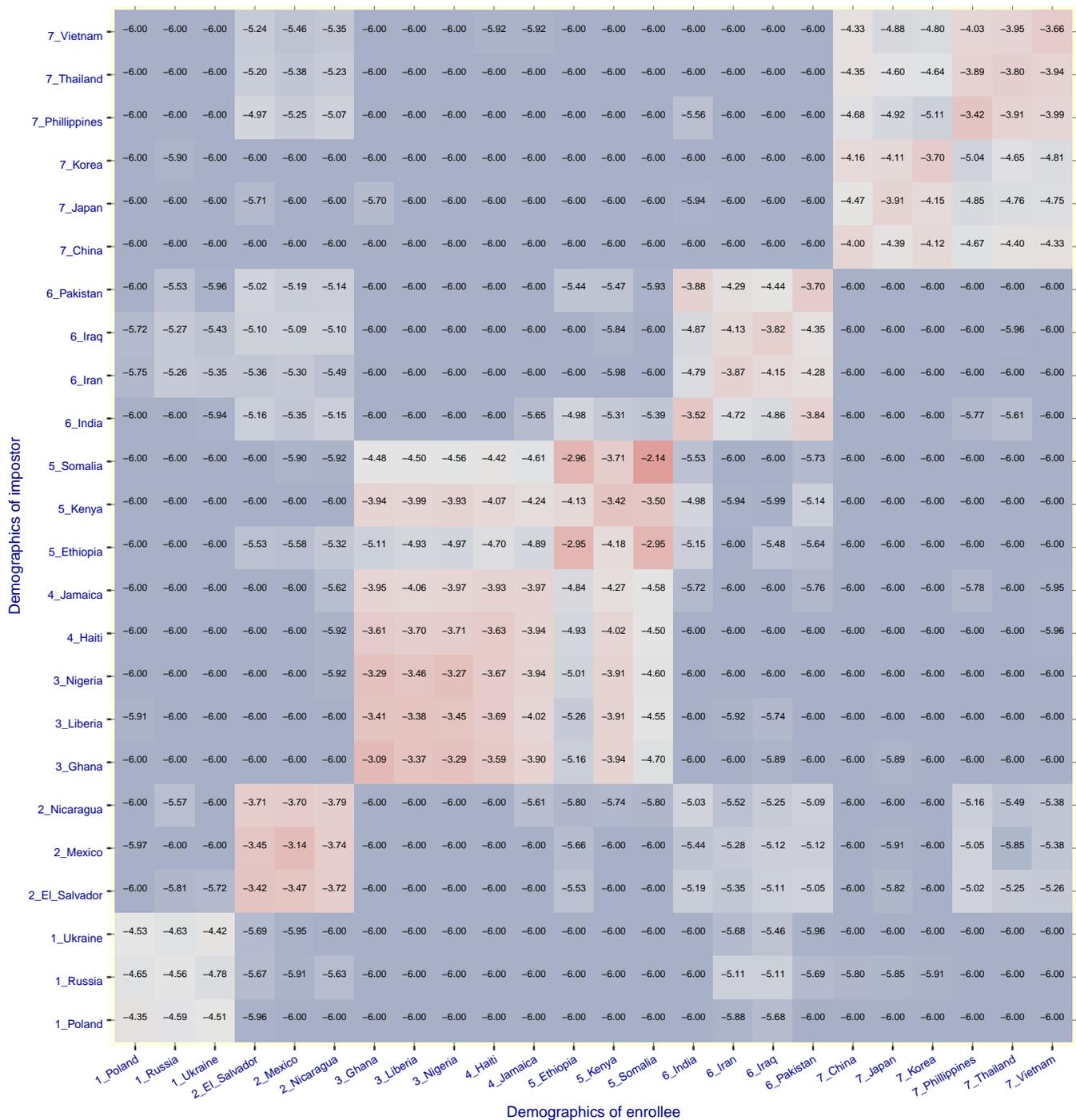
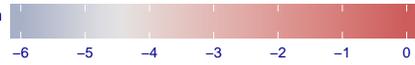


Figure 67: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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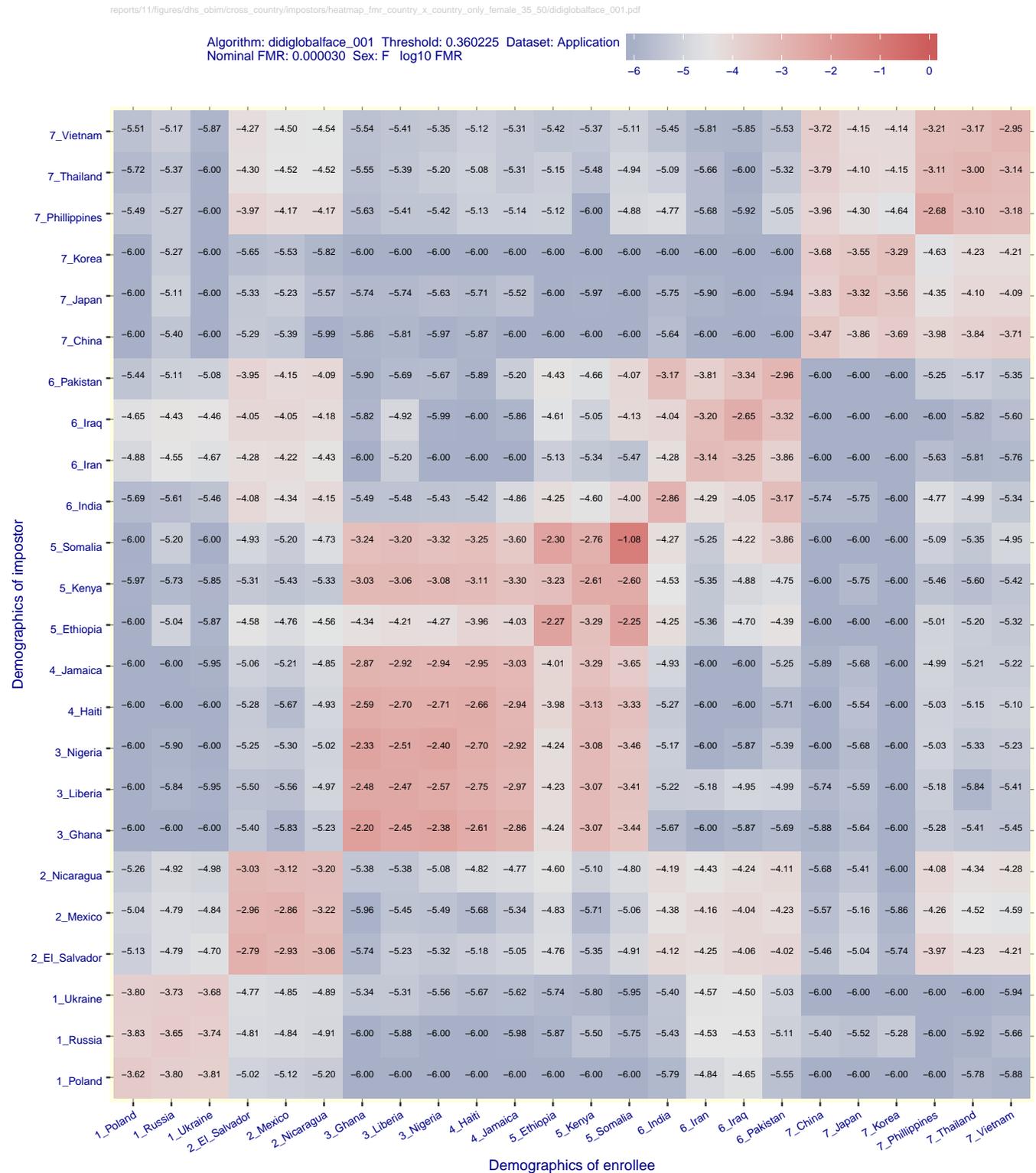


Figure 68: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/digitalbarriers\_002.pdf

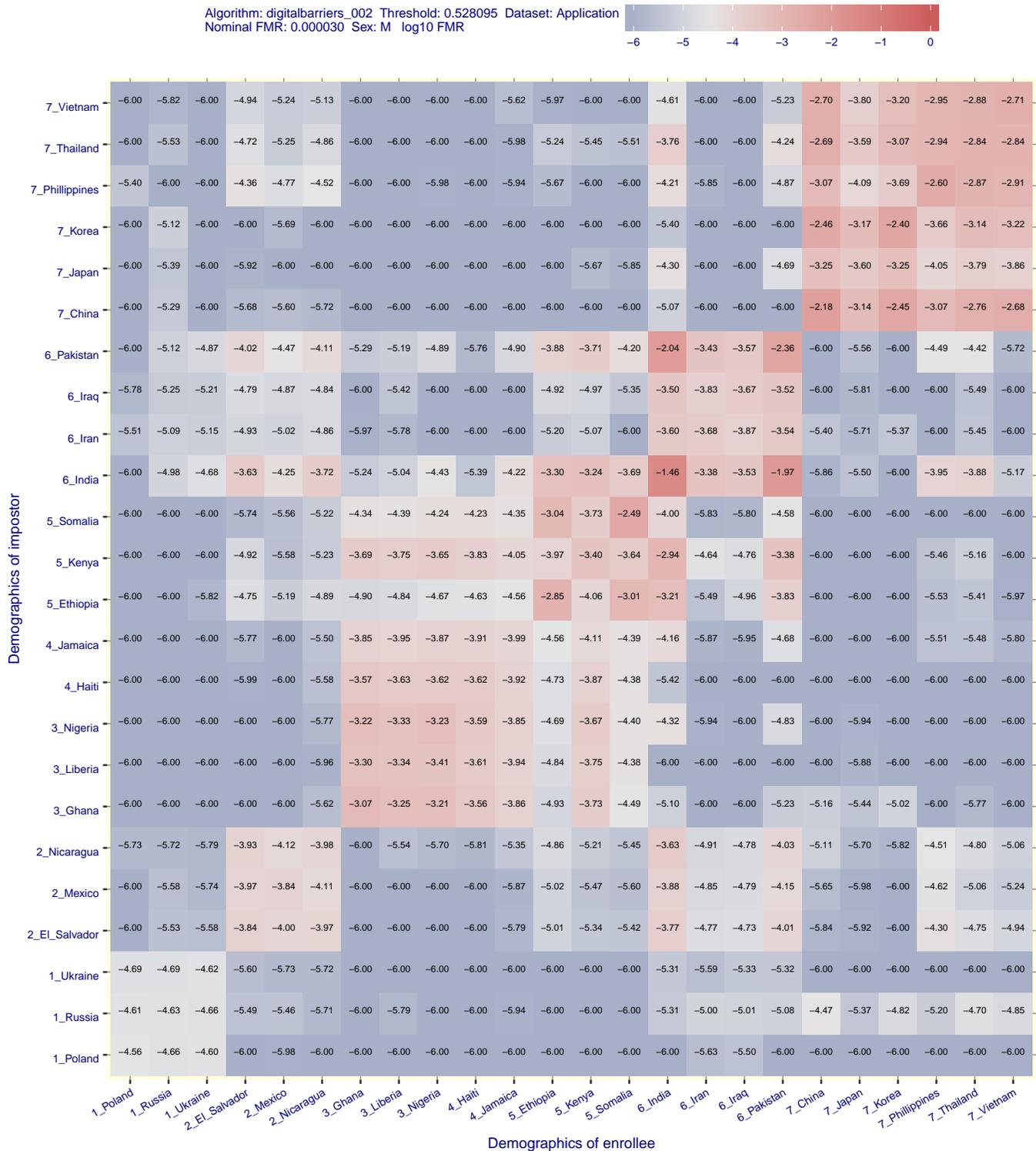


Figure 69: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≥ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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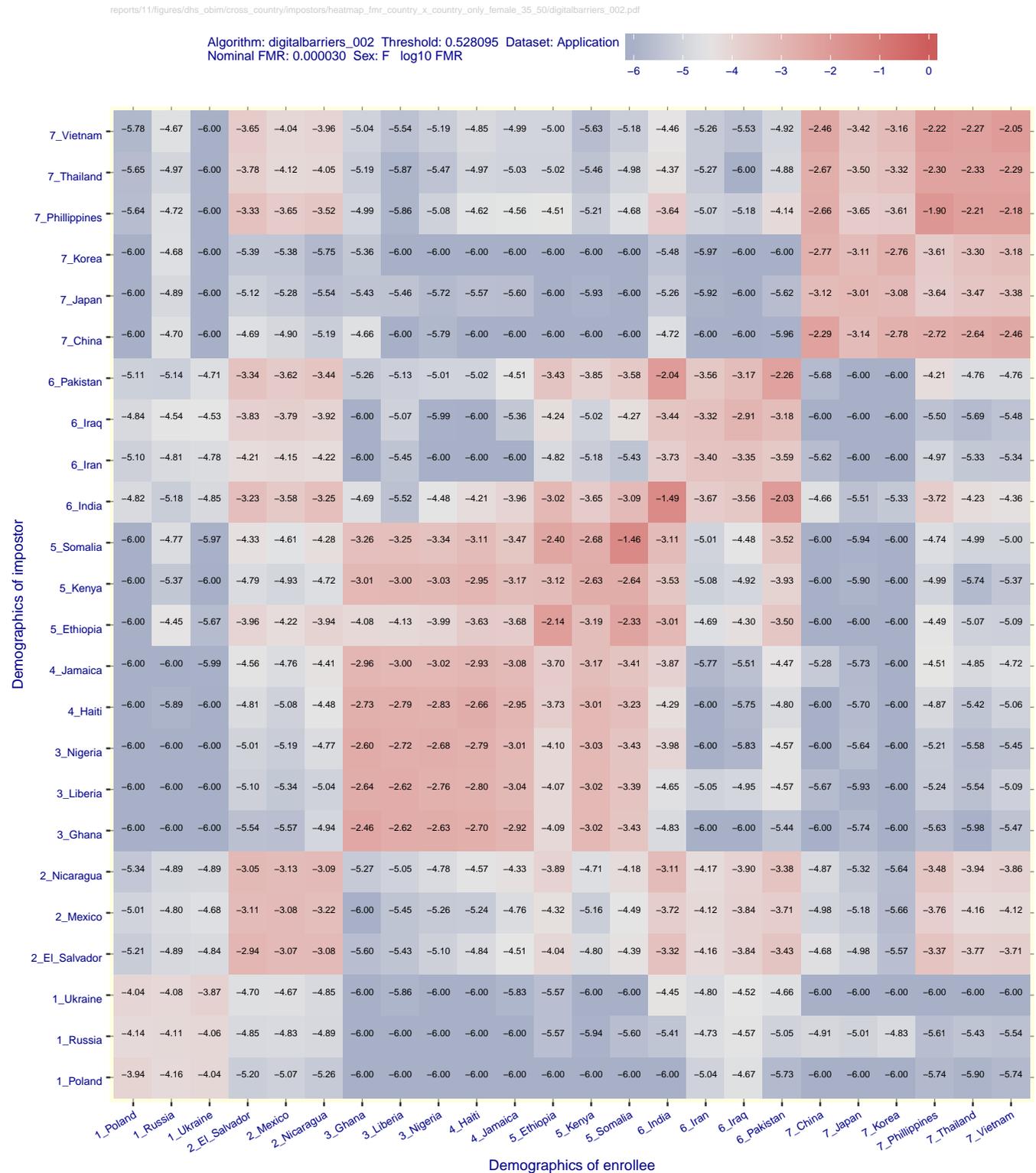


Figure 70: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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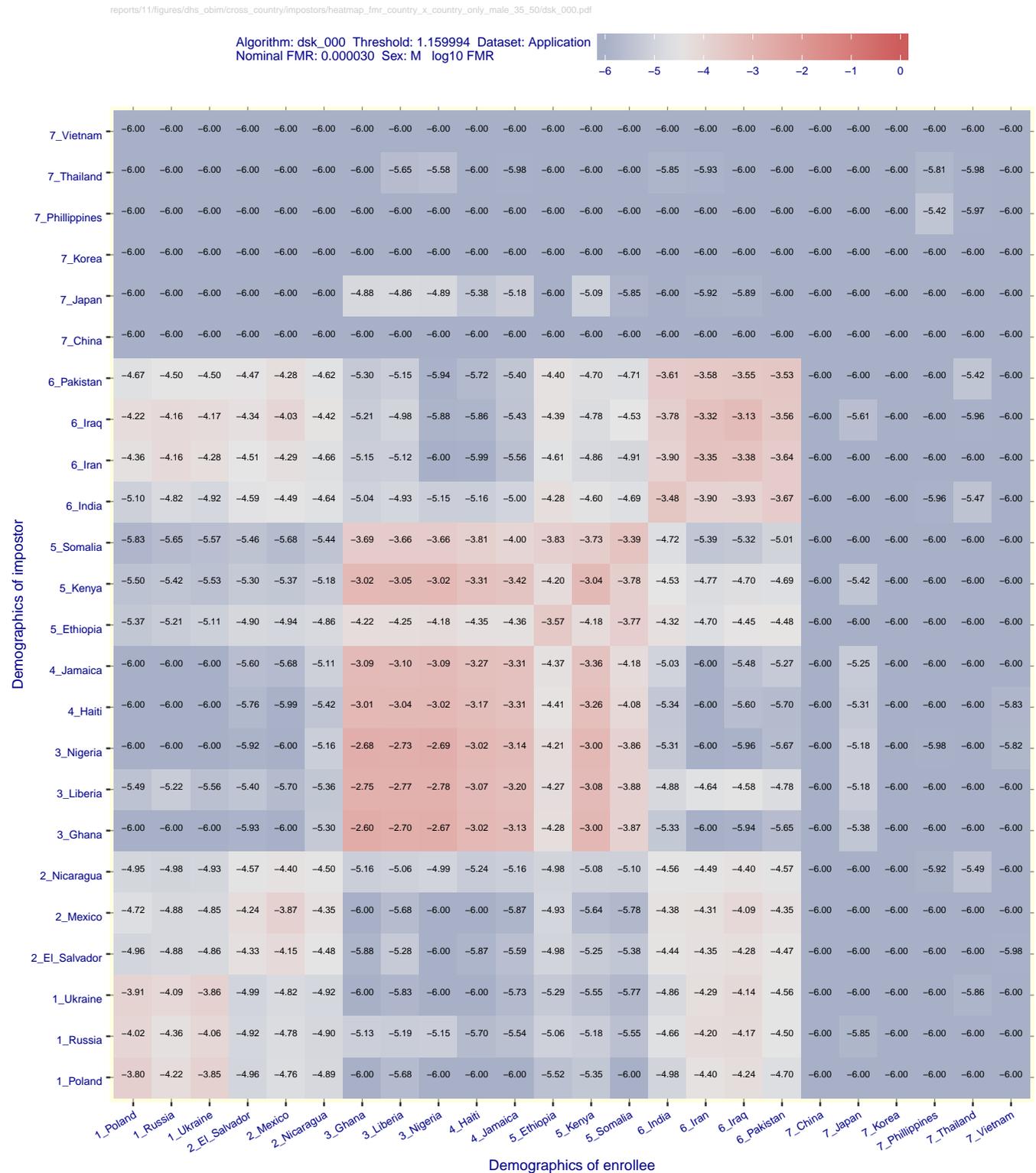


Figure 71: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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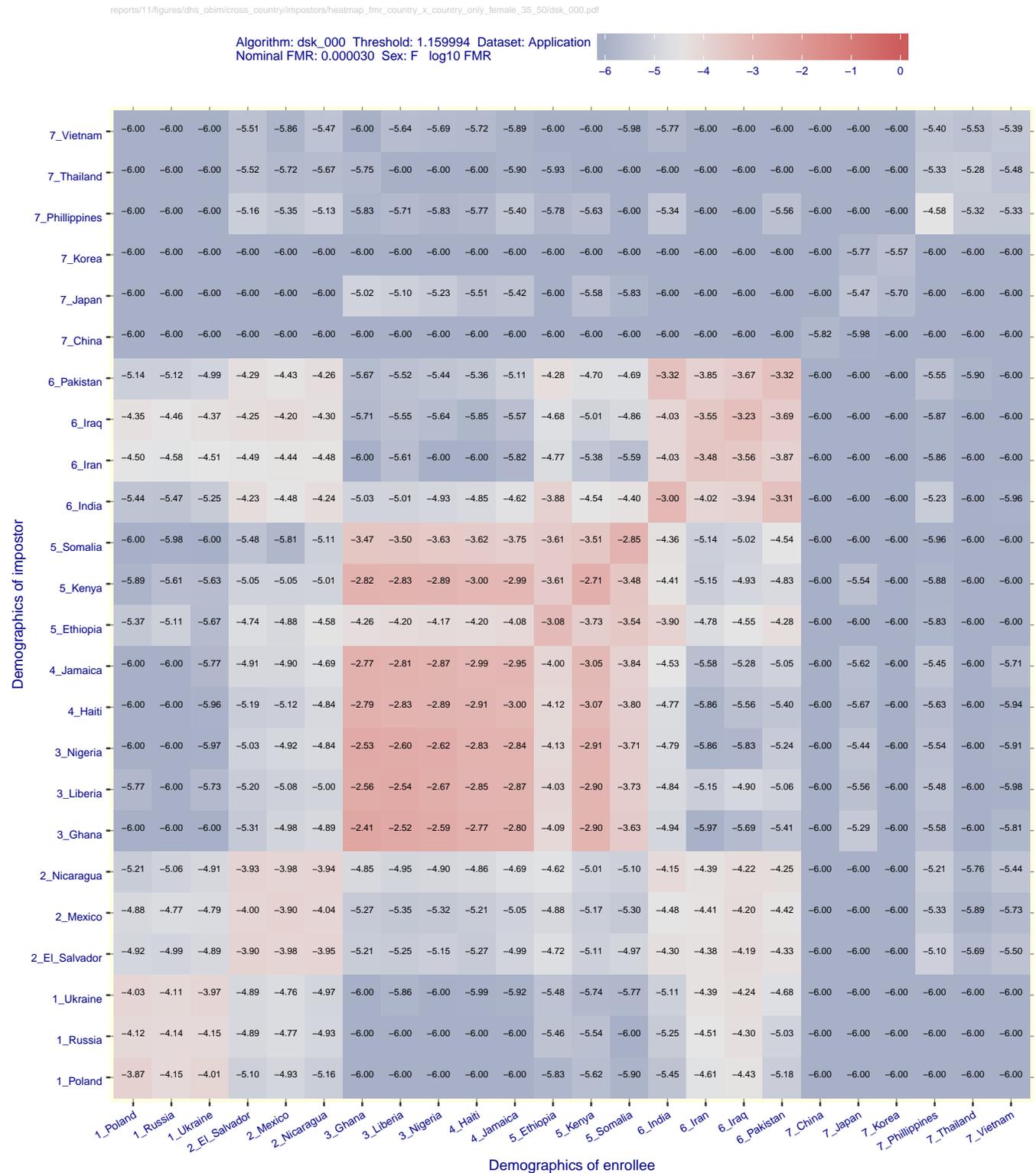


Figure 72: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/einetworks\_000.pdf

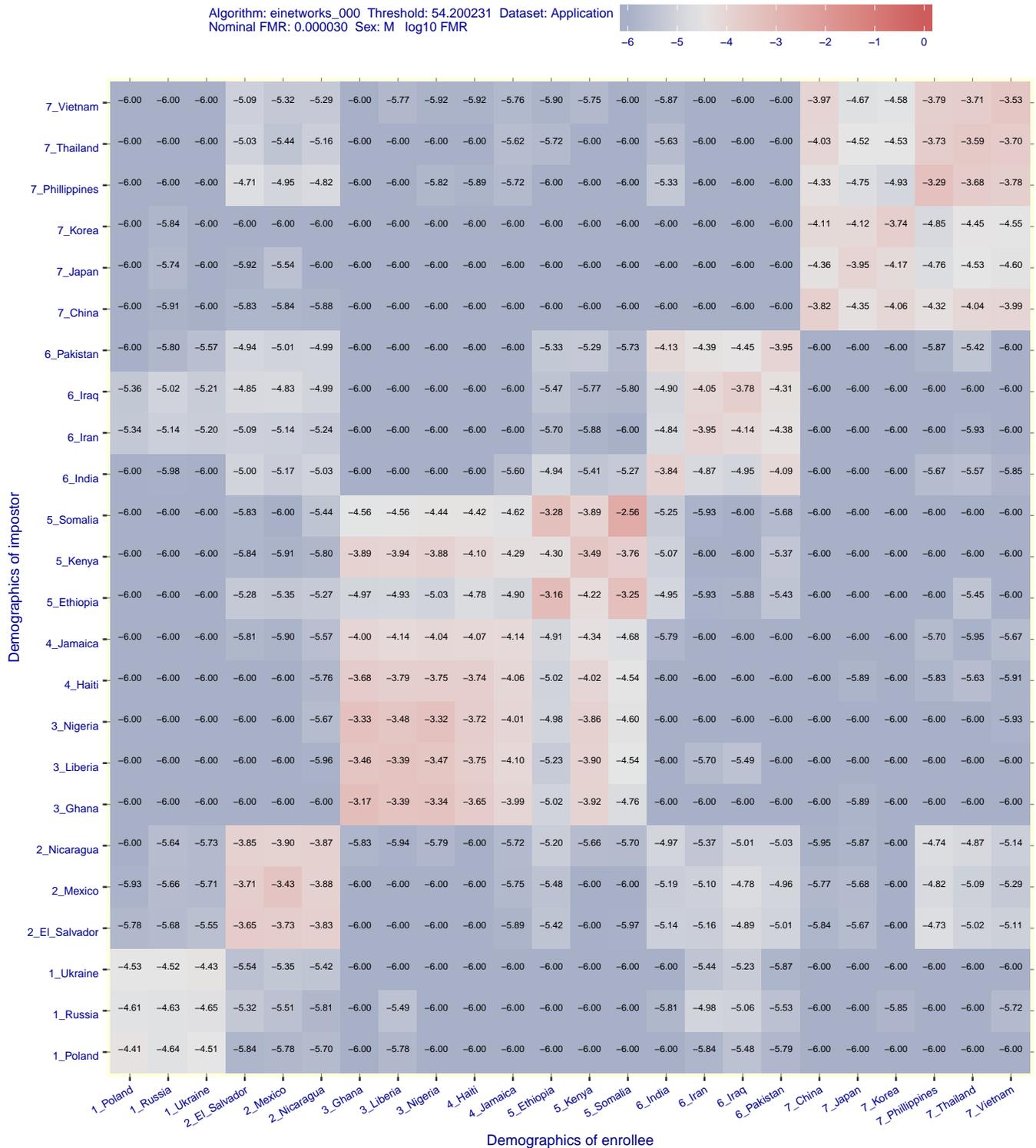


Figure 73: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/einetworks\_000.pdf

Algorithm: einetworks\_000 Threshold: 54.200231 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

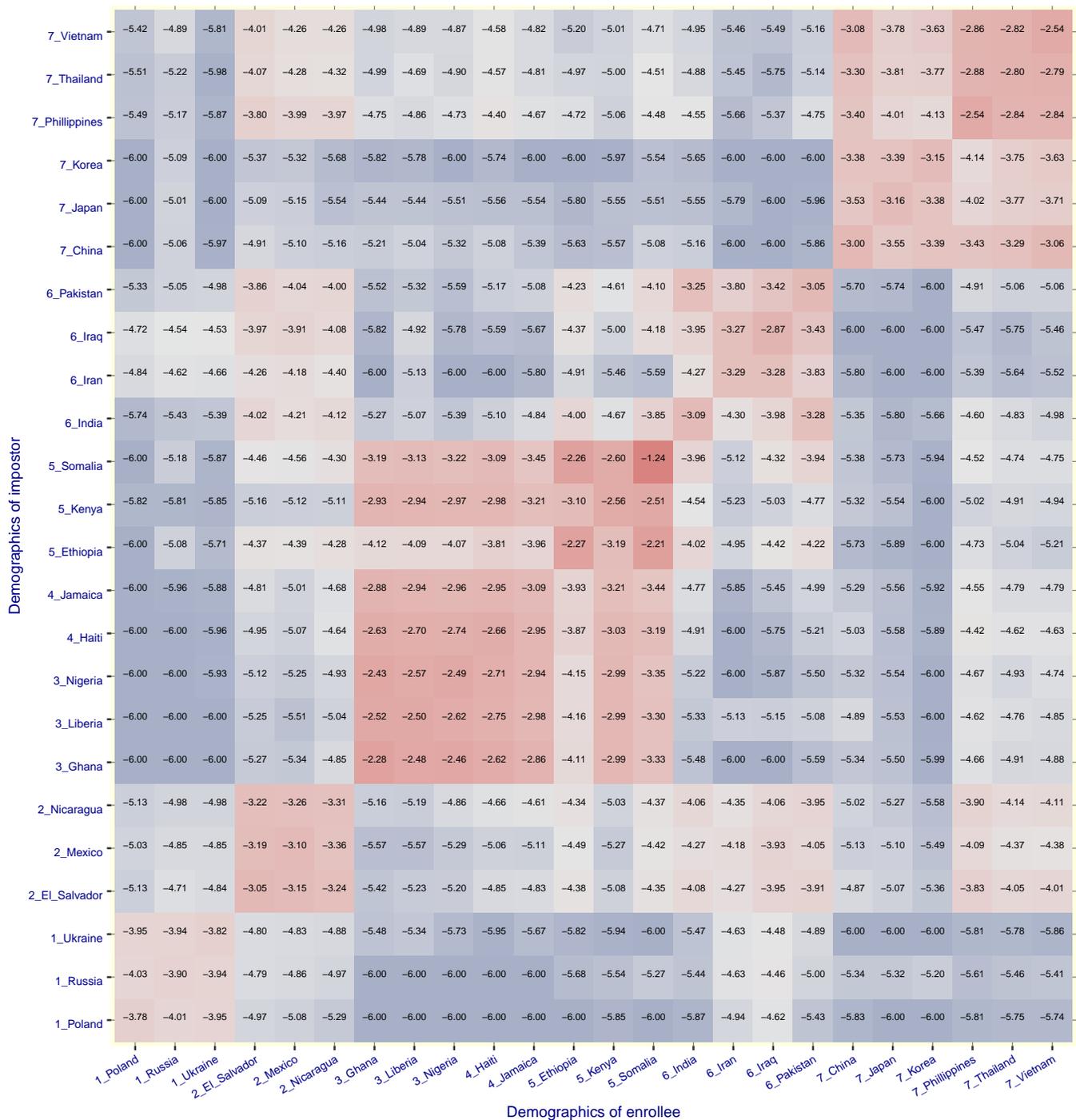


Figure 74: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/everai\_002.pdf

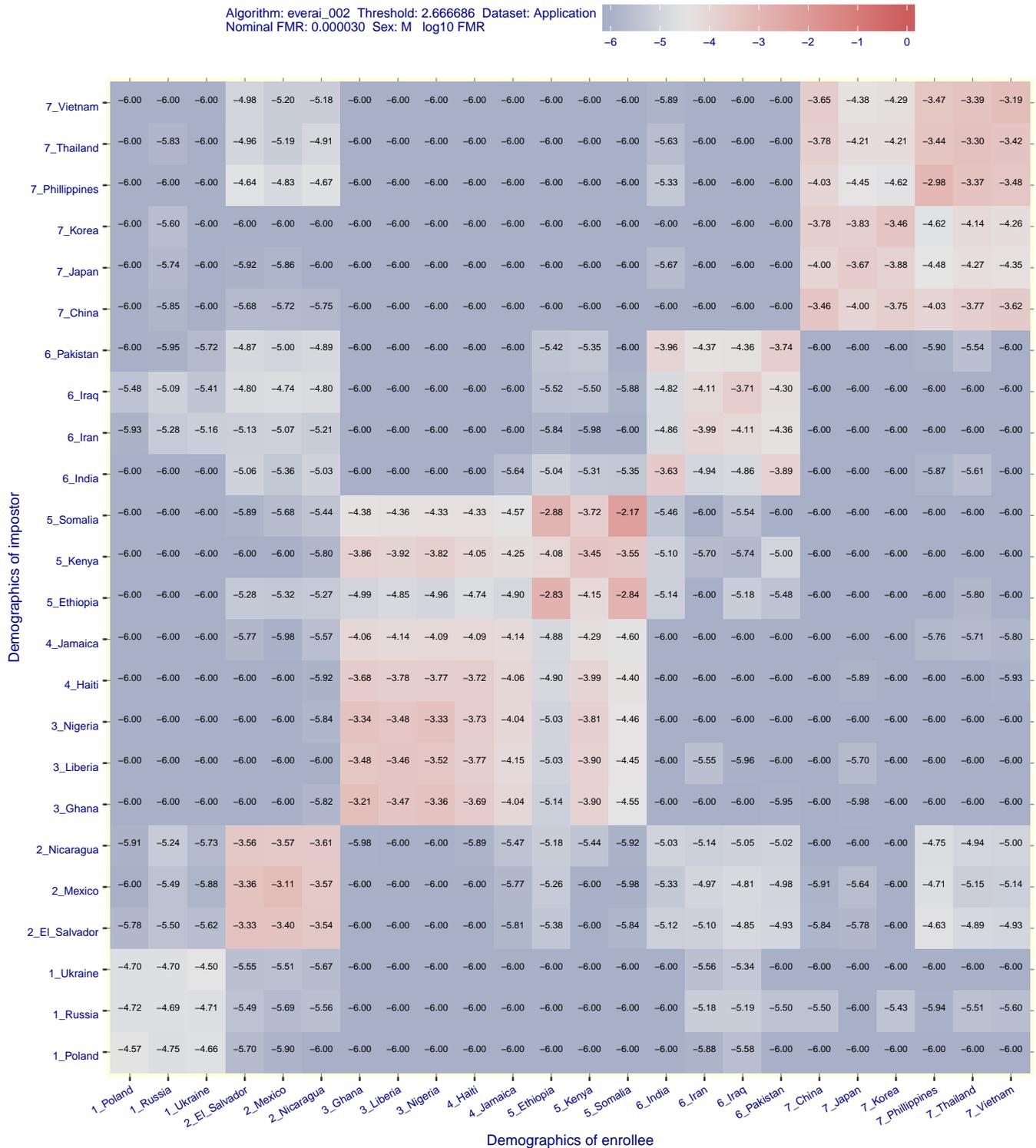


Figure 75: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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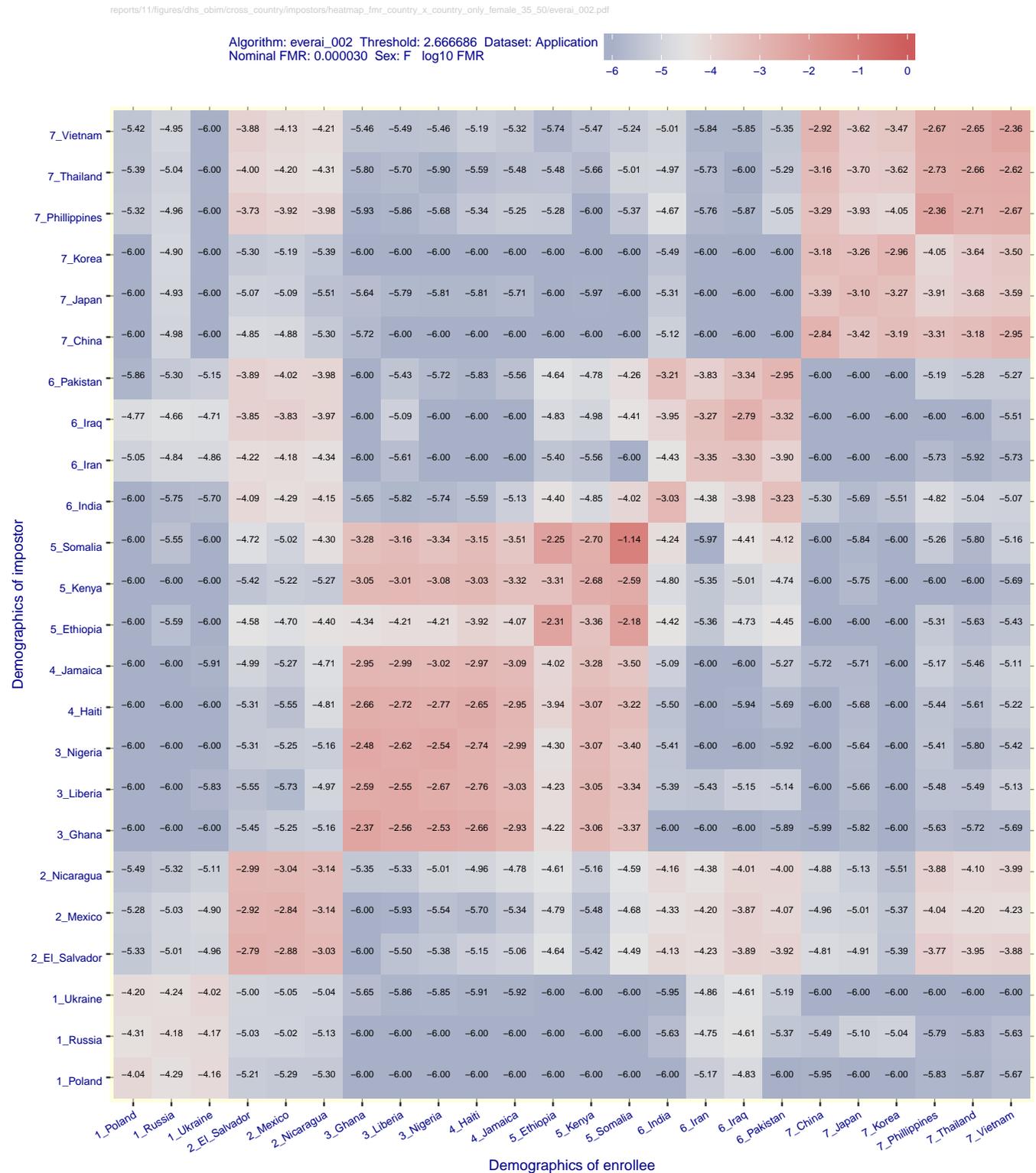


Figure 76: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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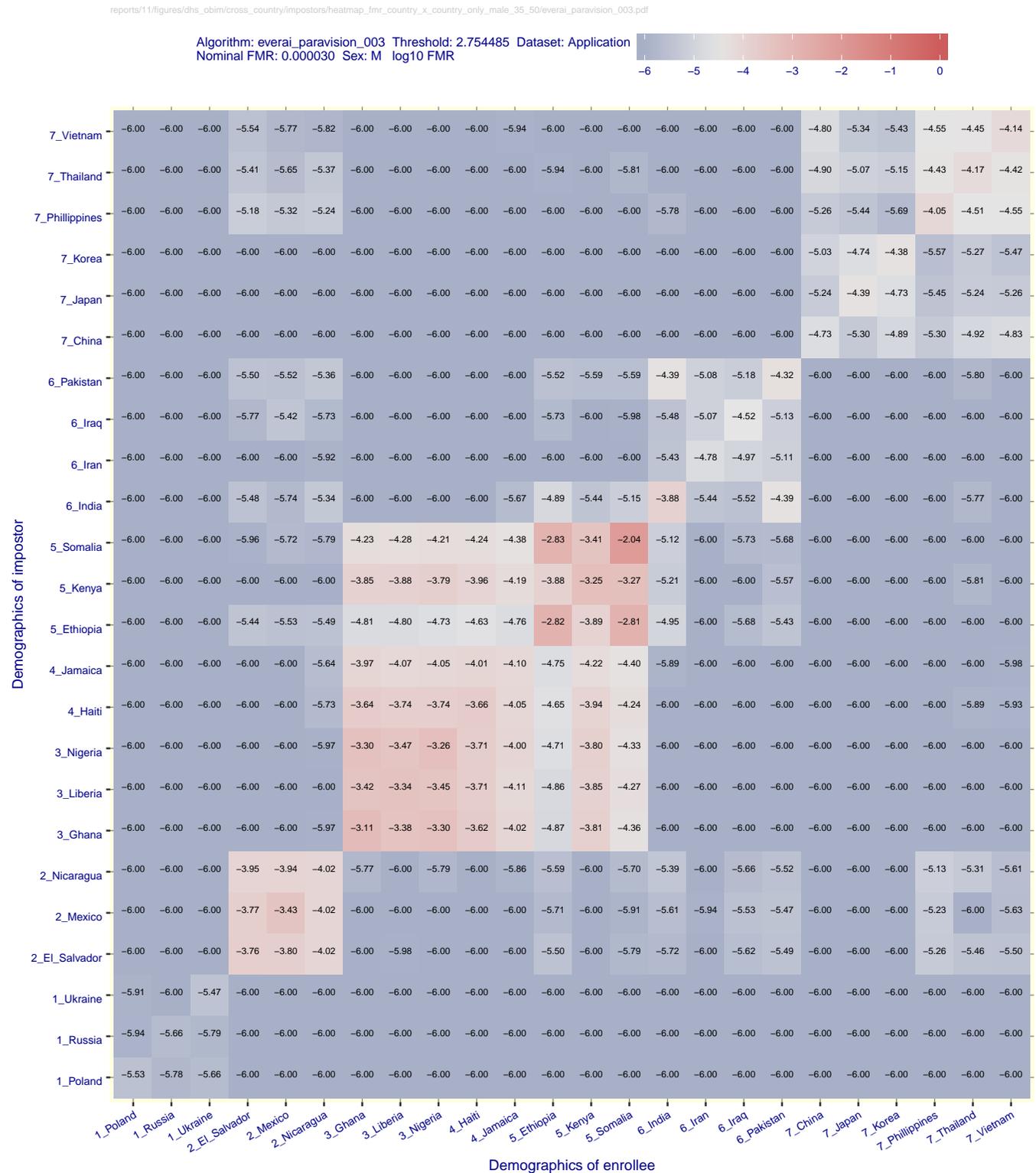


Figure 77: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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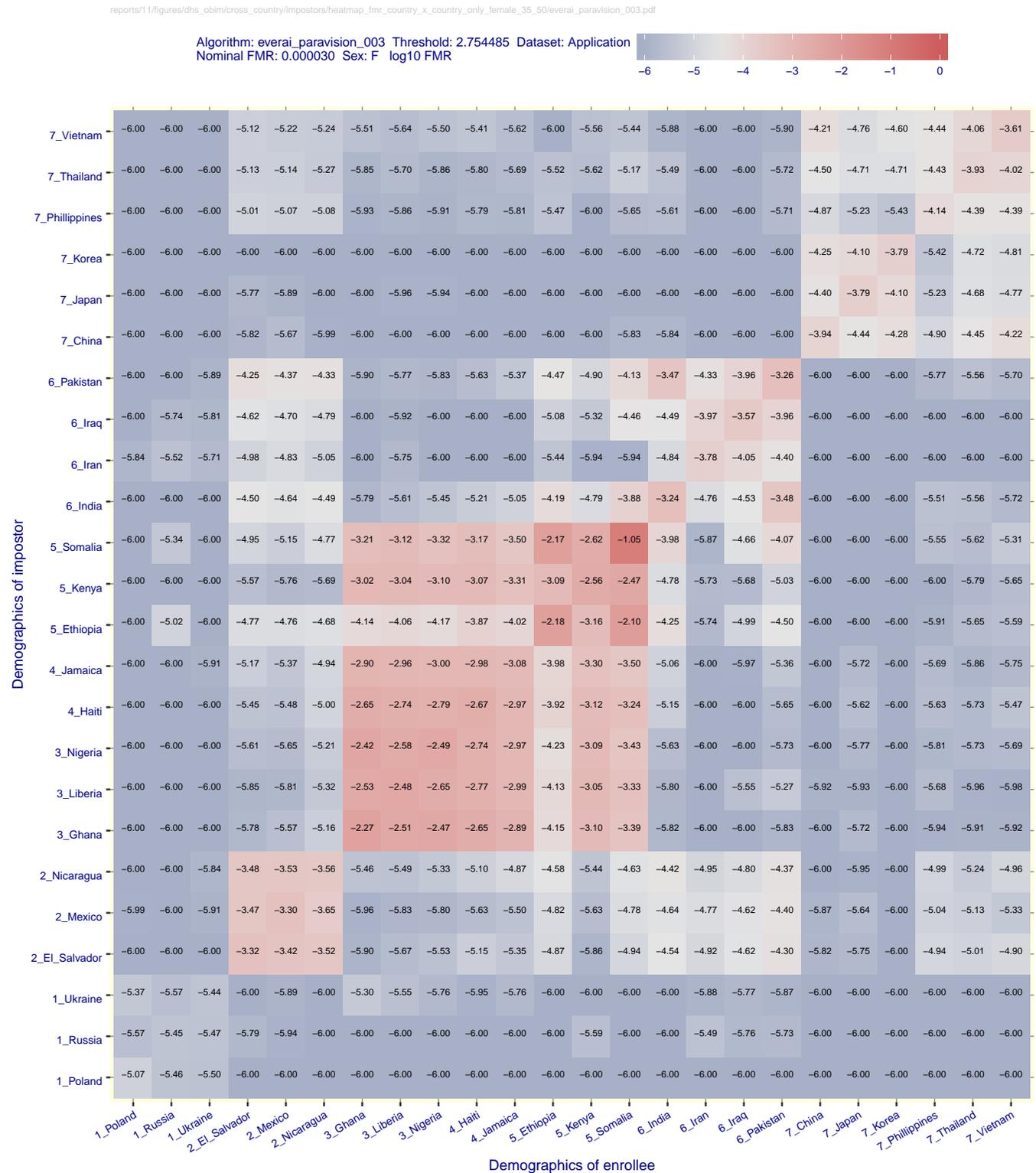


Figure 78: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/18\_001.pdf

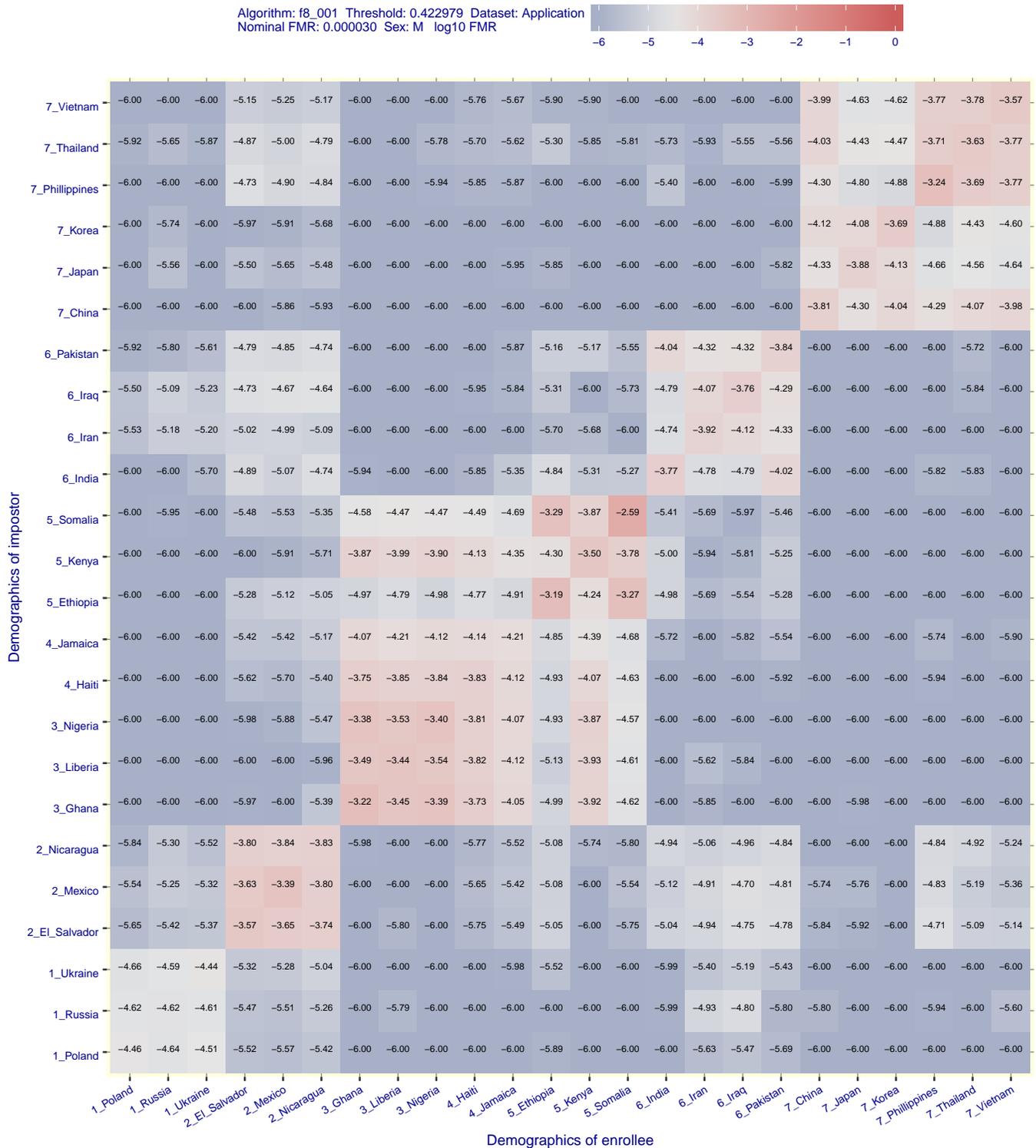


Figure 79: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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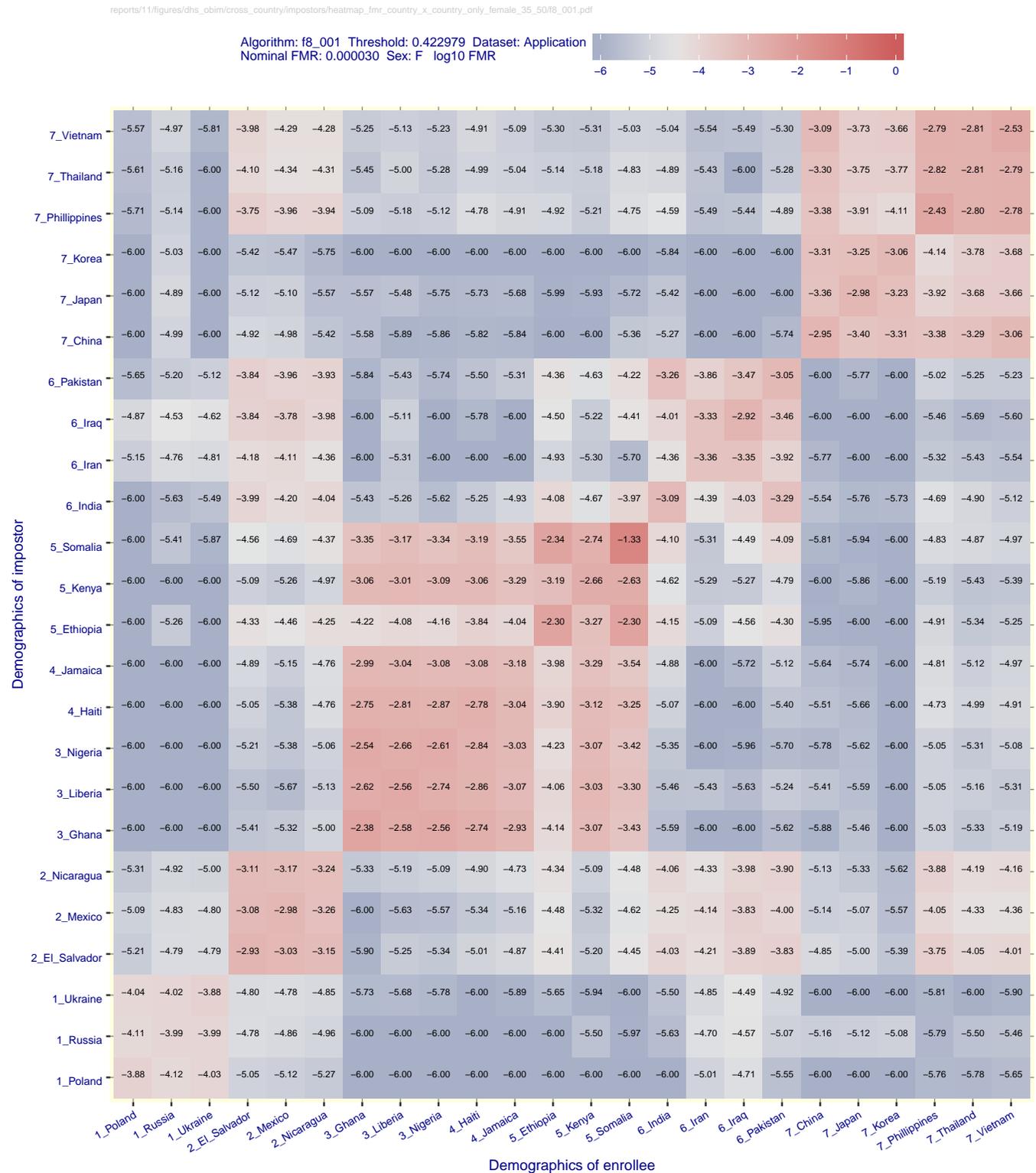


Figure 80: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/facesoft\_000.pdf

Algorithm: facesoft\_000 Threshold: 1.389900 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

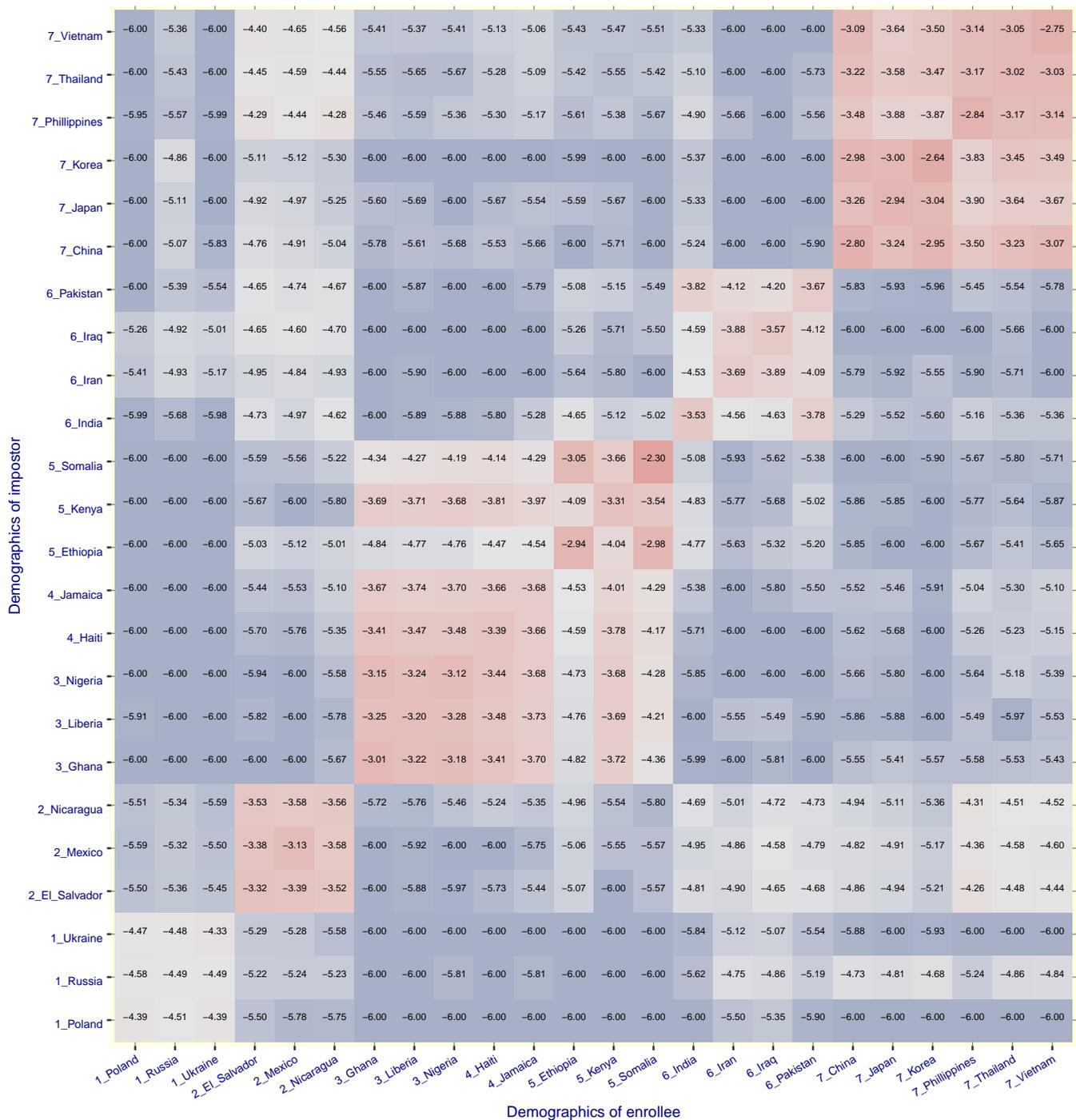
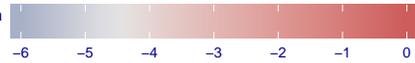


Figure 81: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR | 1:1 FNMR | 1:N FPIR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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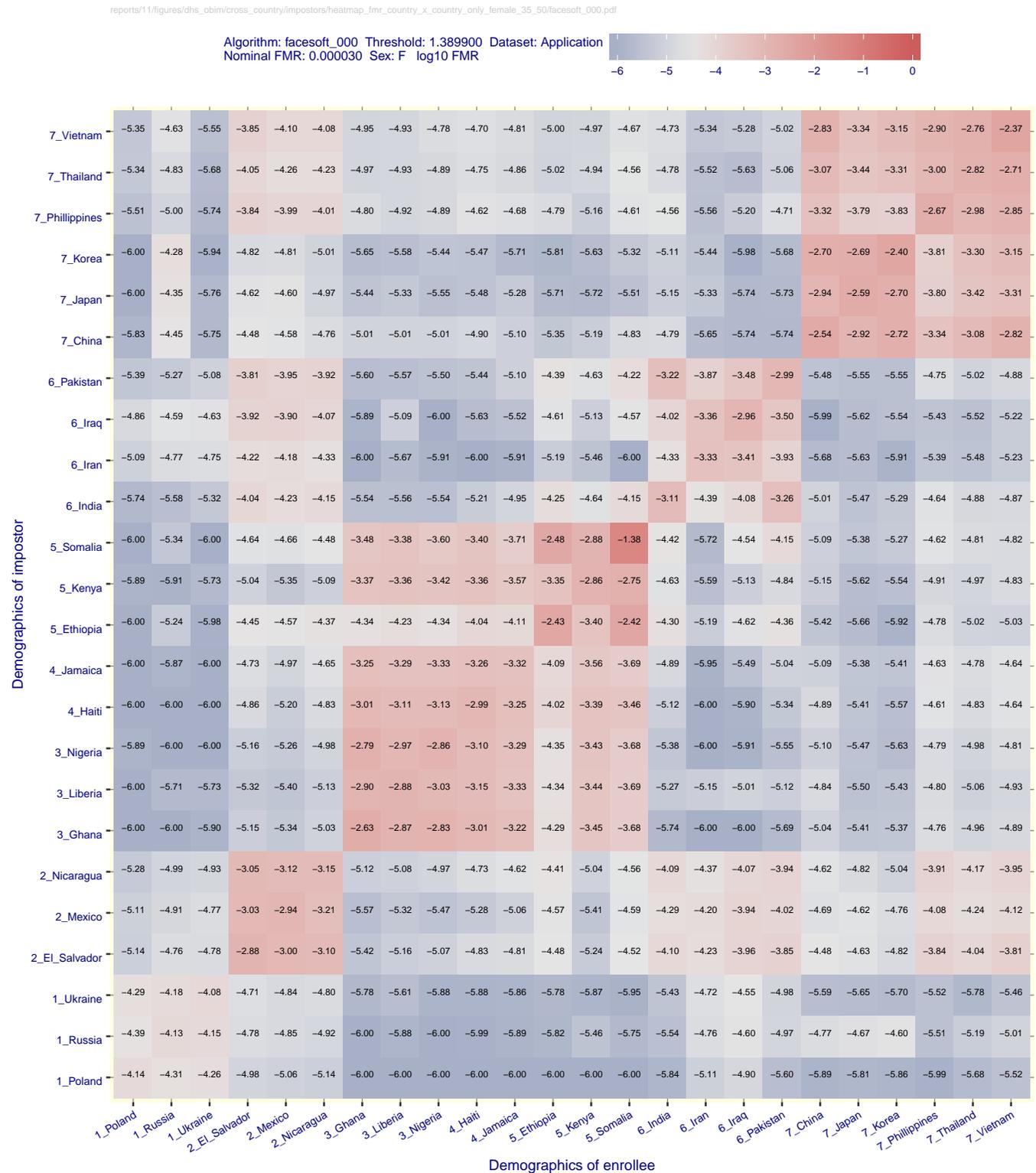


Figure 82: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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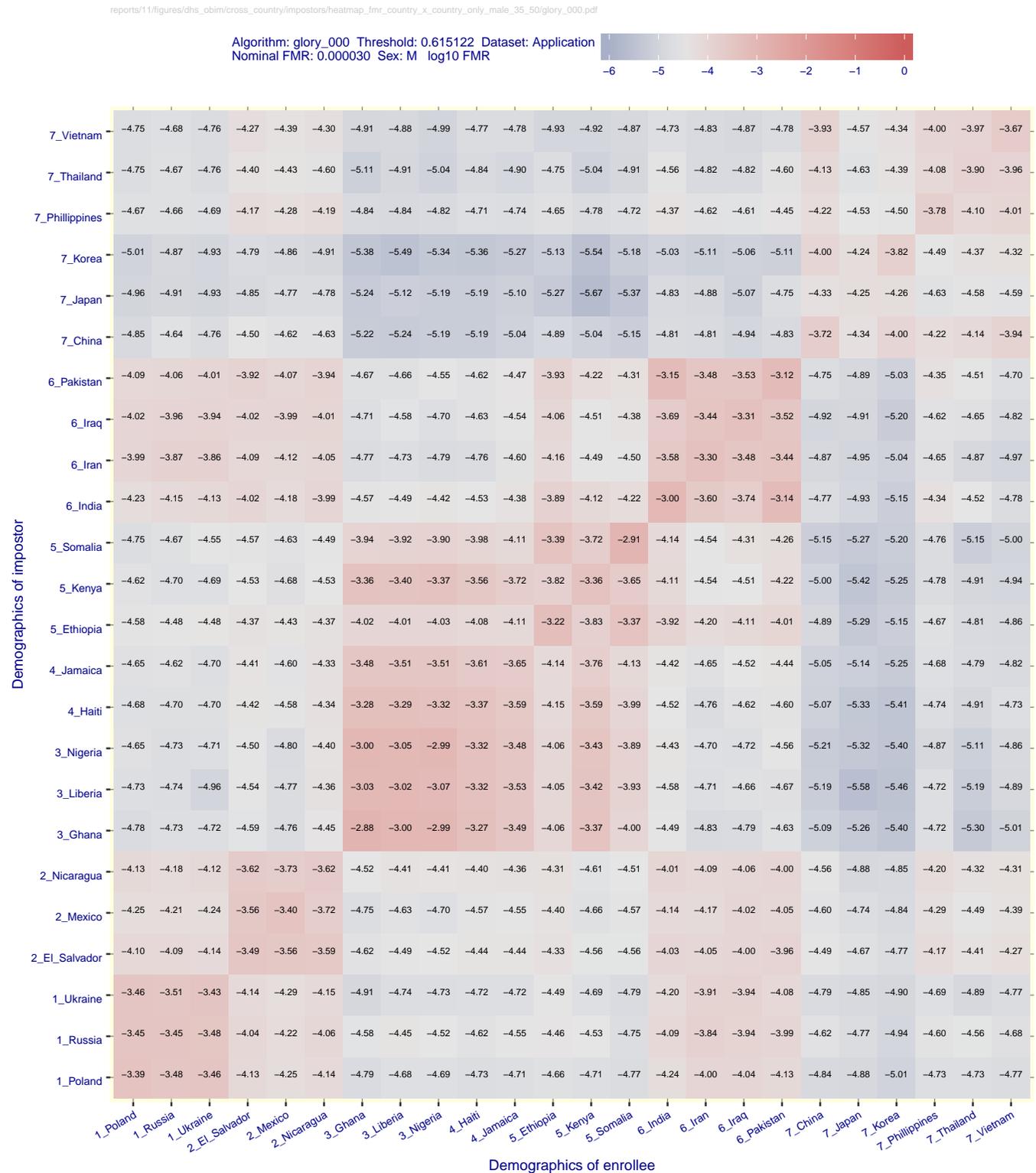


Figure 83: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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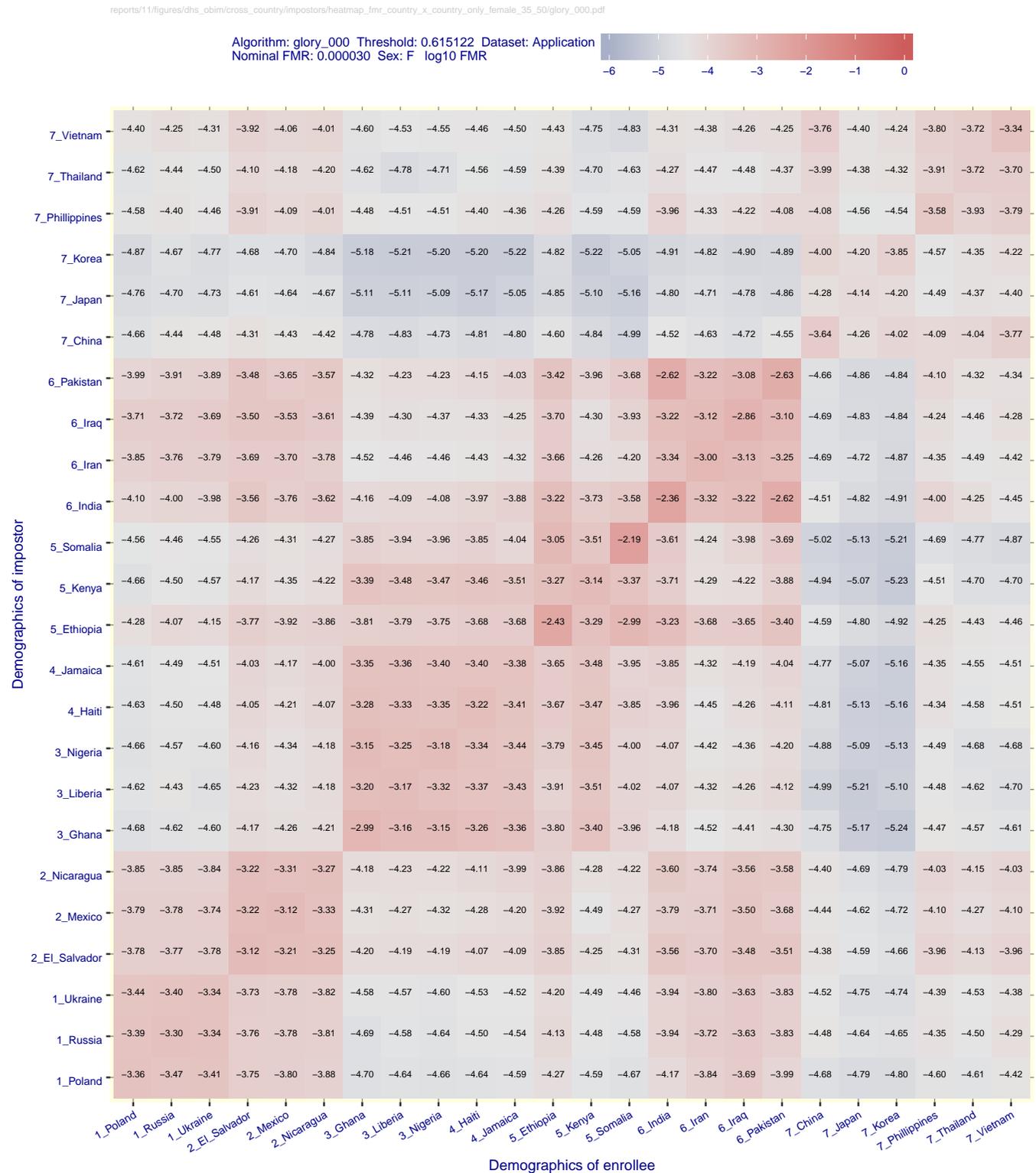


Figure 84: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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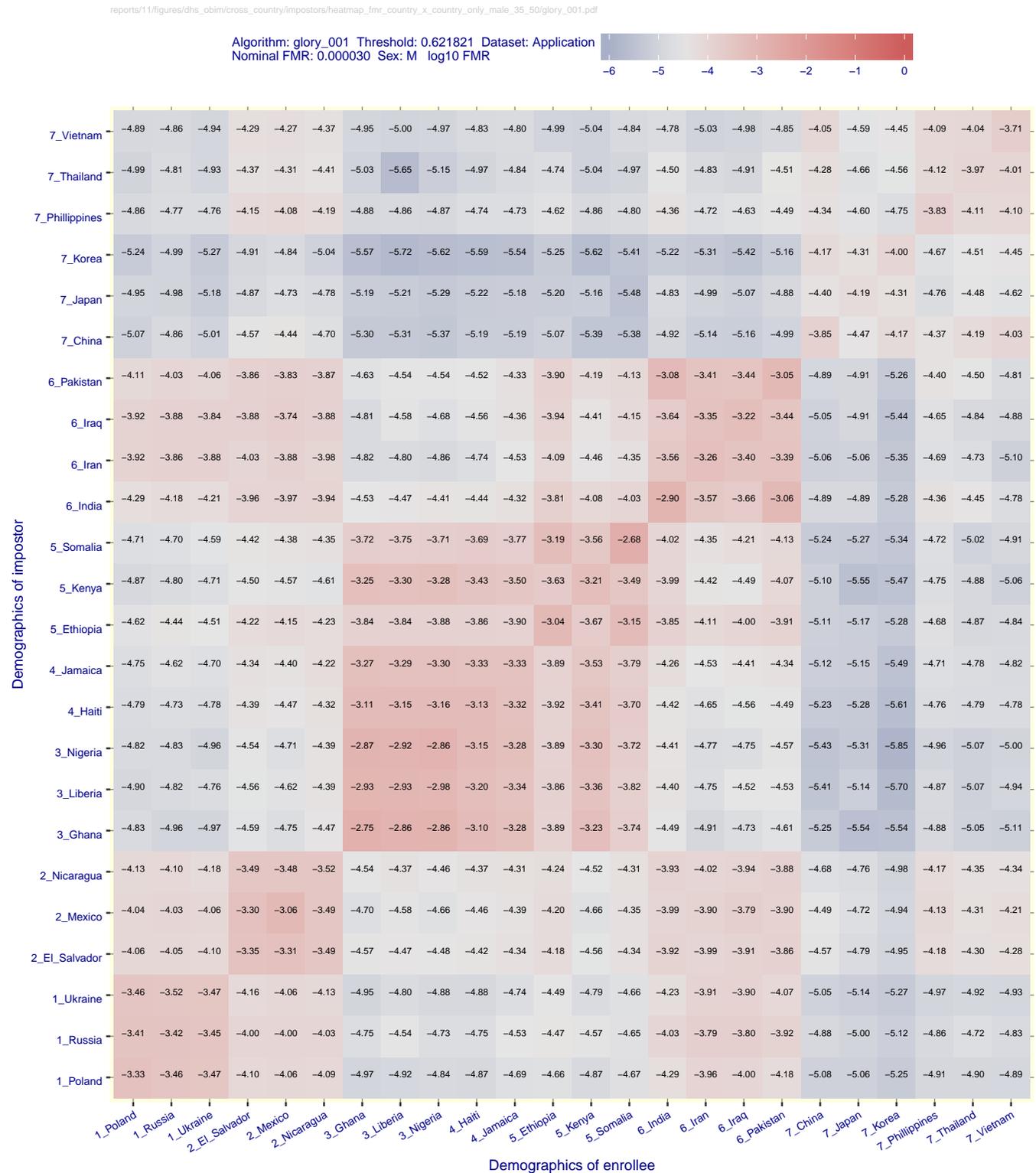


Figure 85: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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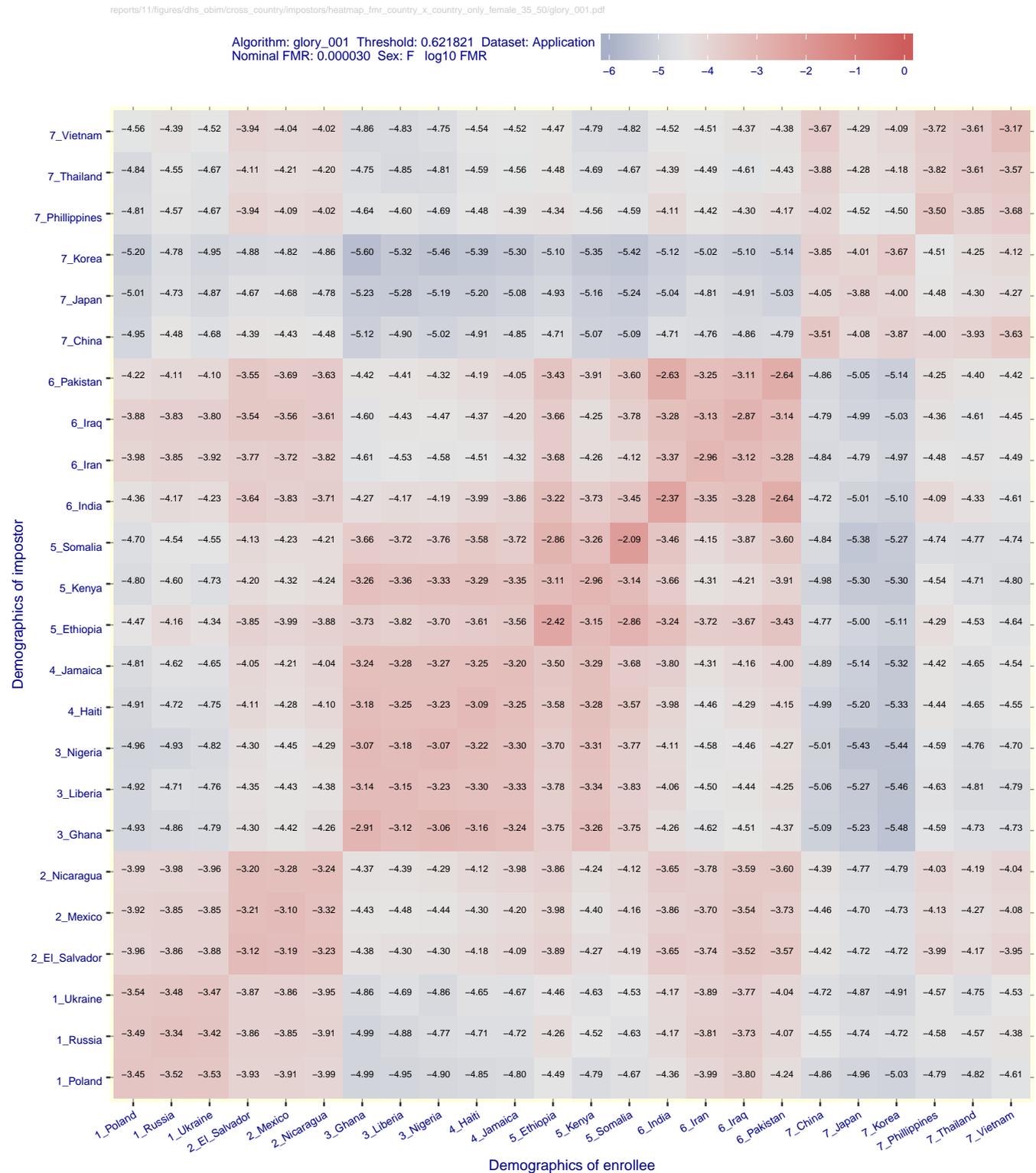


Figure 86: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/gorilla\_002.pdf

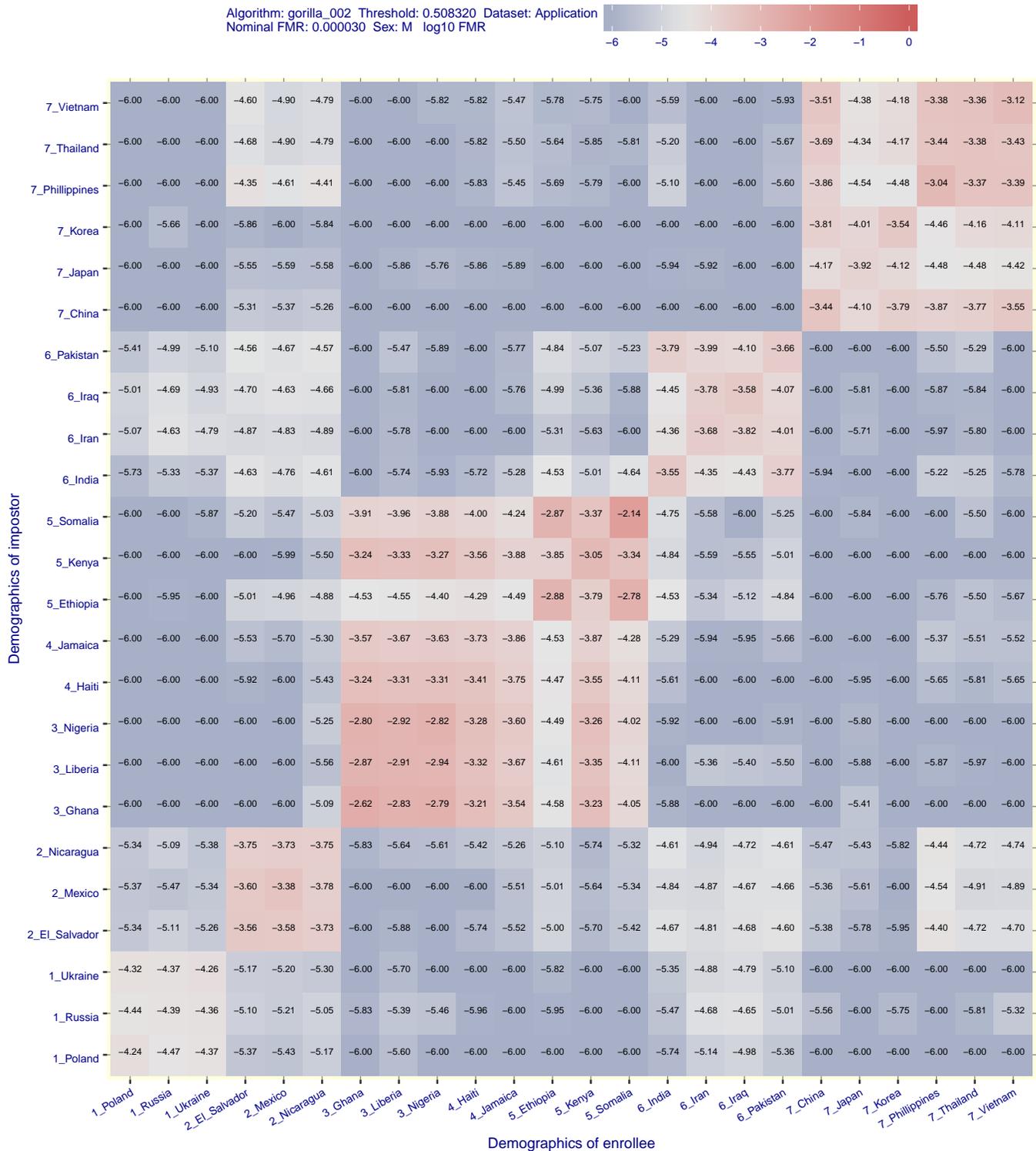


Figure 87: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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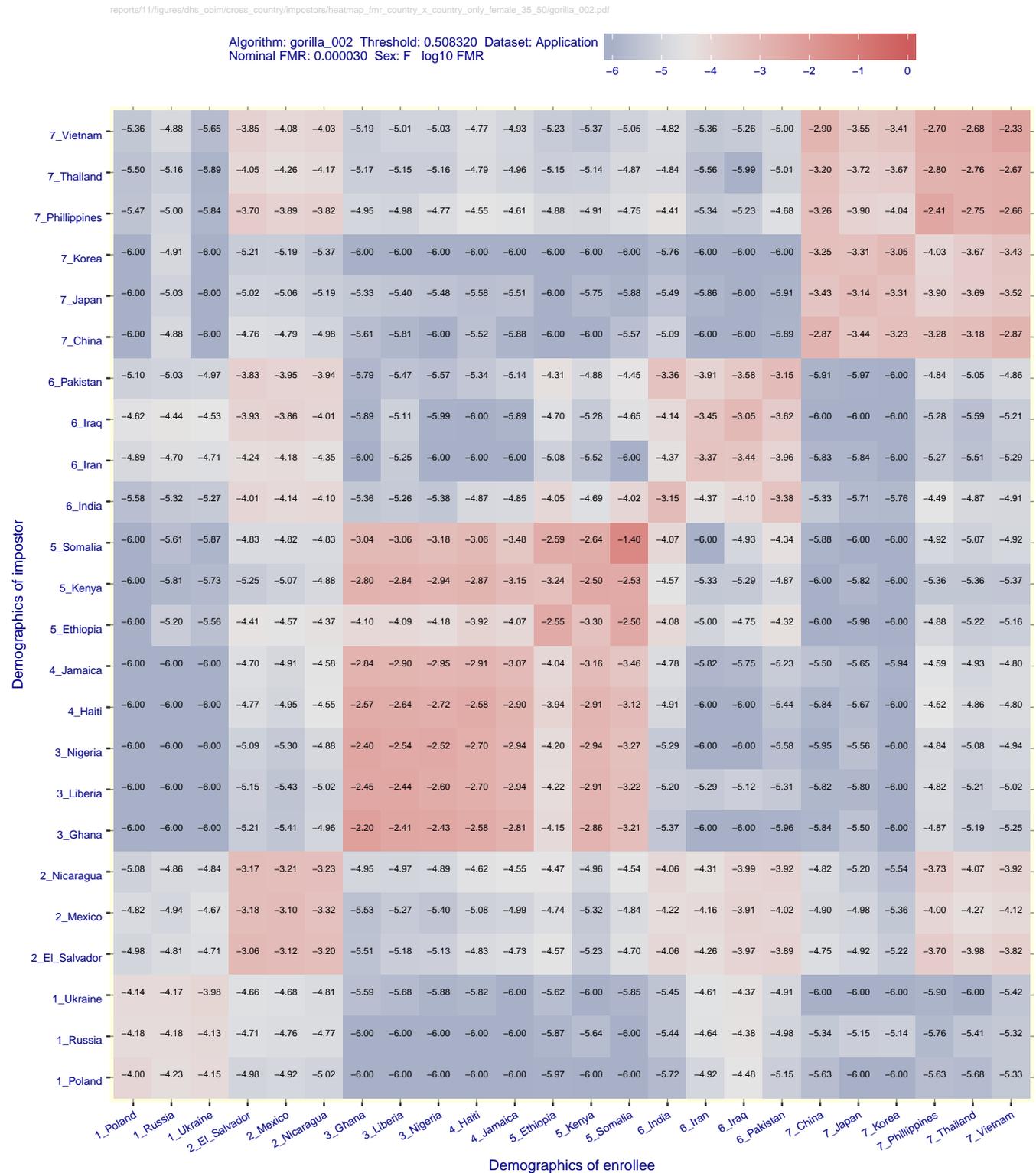


Figure 88: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/gorilla\_003.pdf

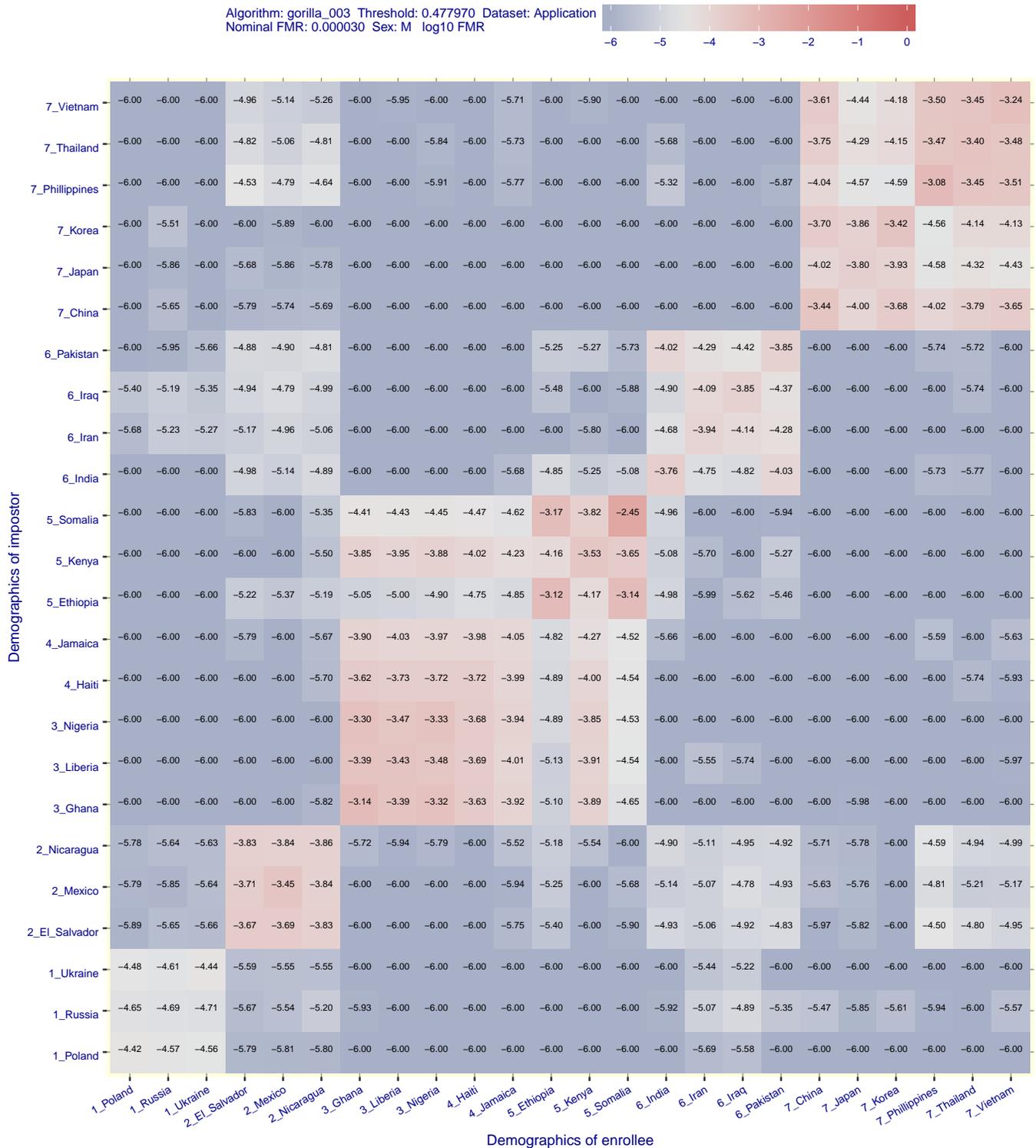


Figure 89: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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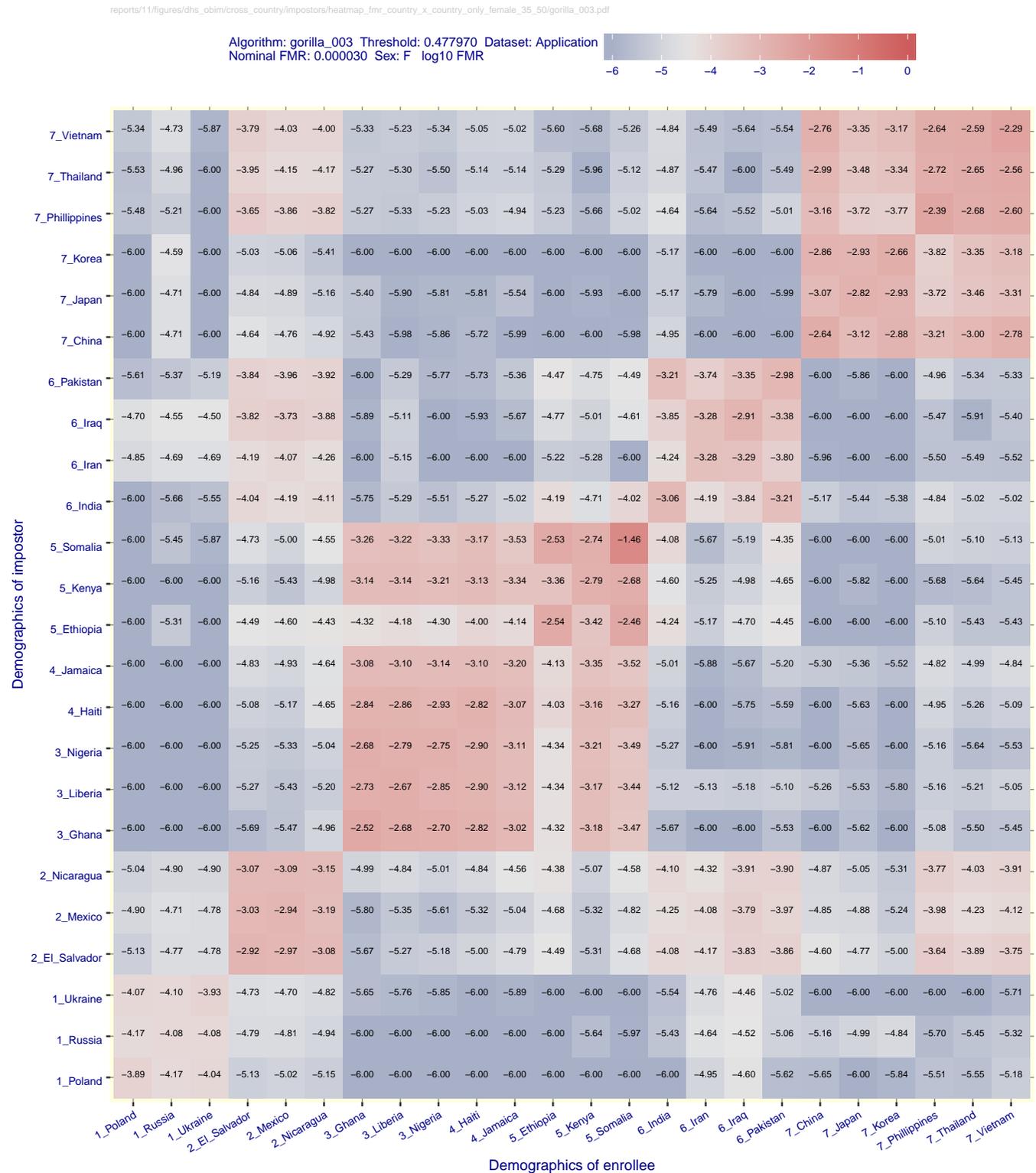


Figure 90: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/hik\_001.pdf

Algorithm: hik\_001 Threshold: 67.854788 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

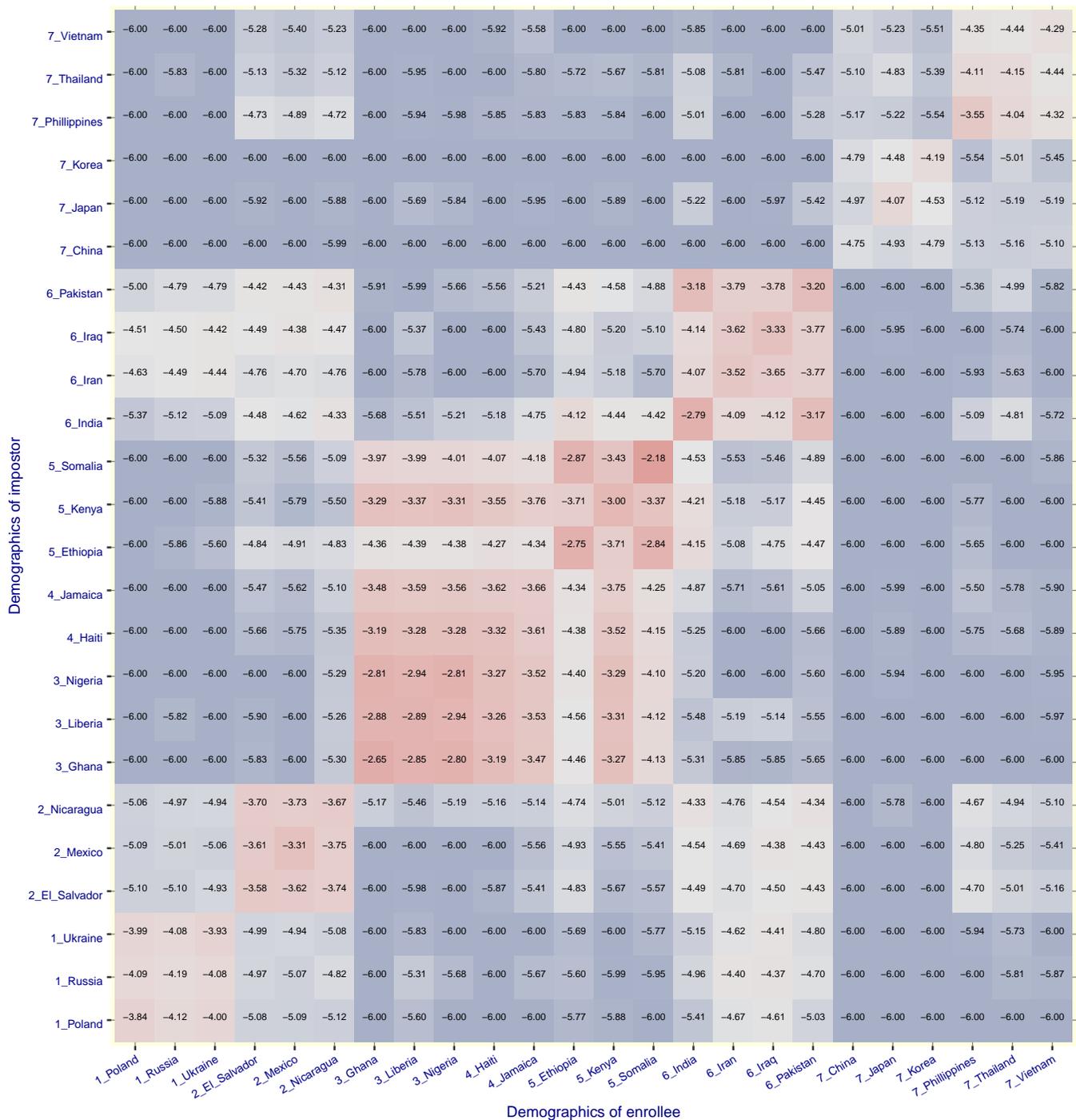


Figure 91: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≫ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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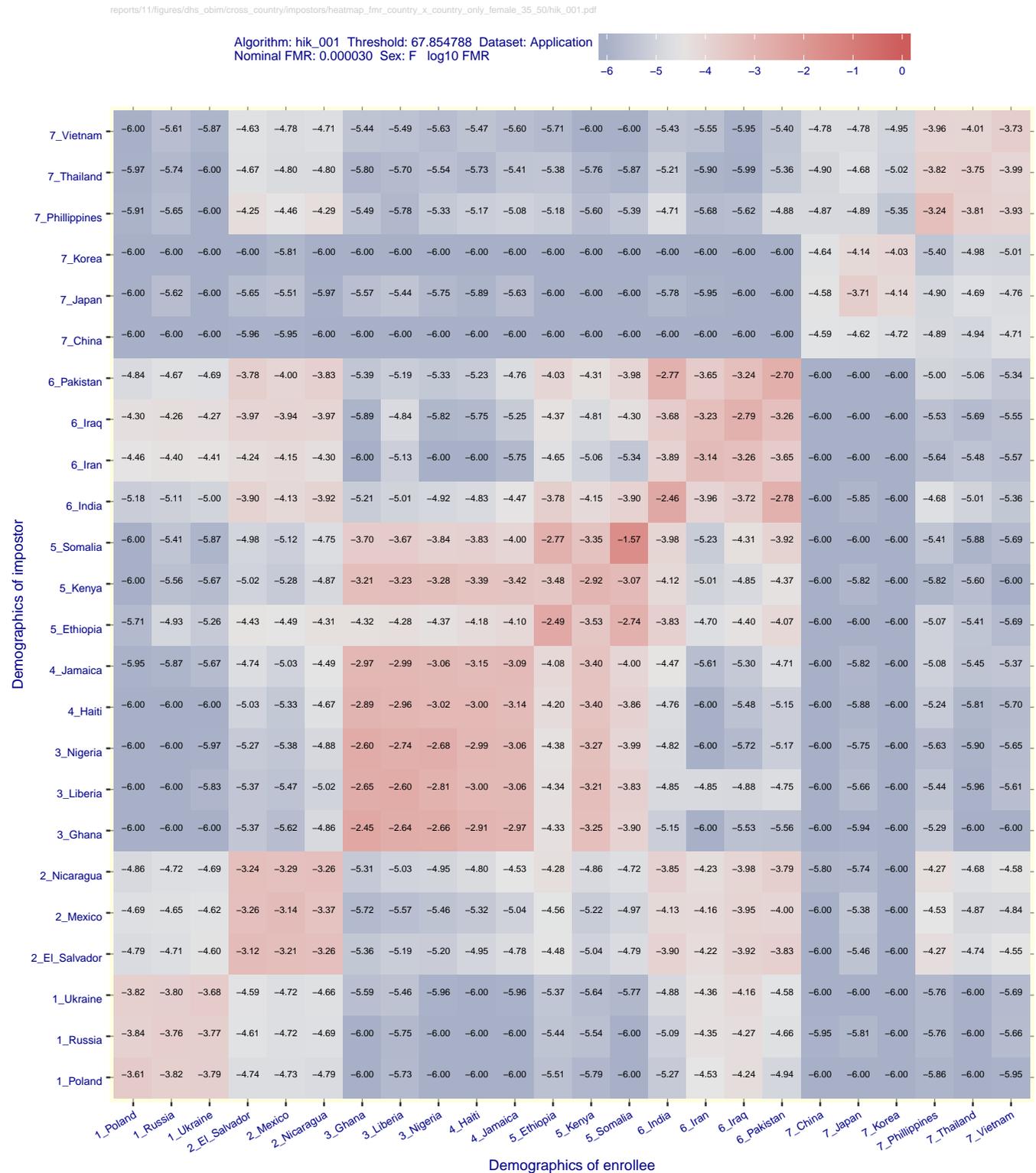


Figure 92: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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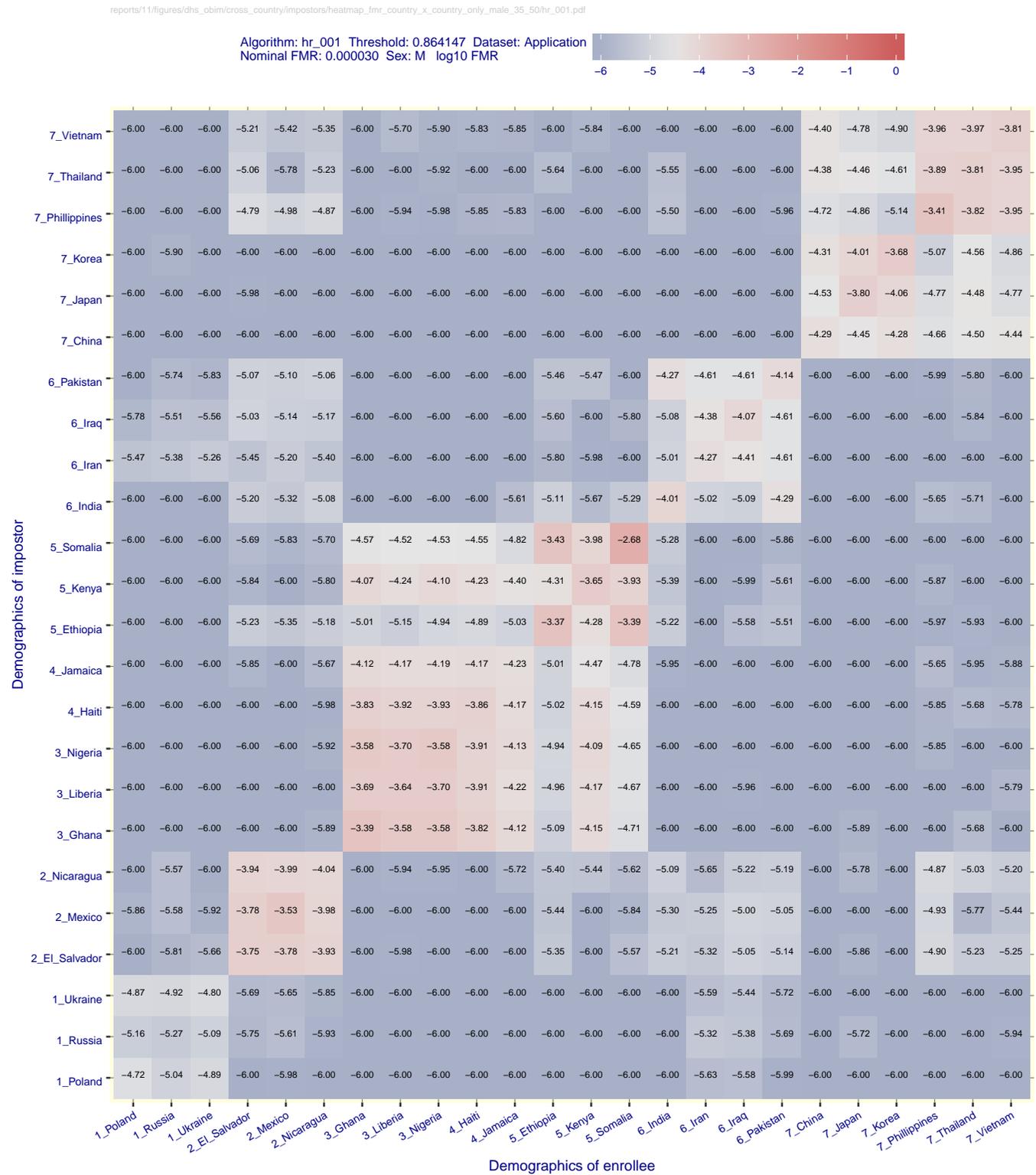


Figure 93: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50hr\_001.pdf

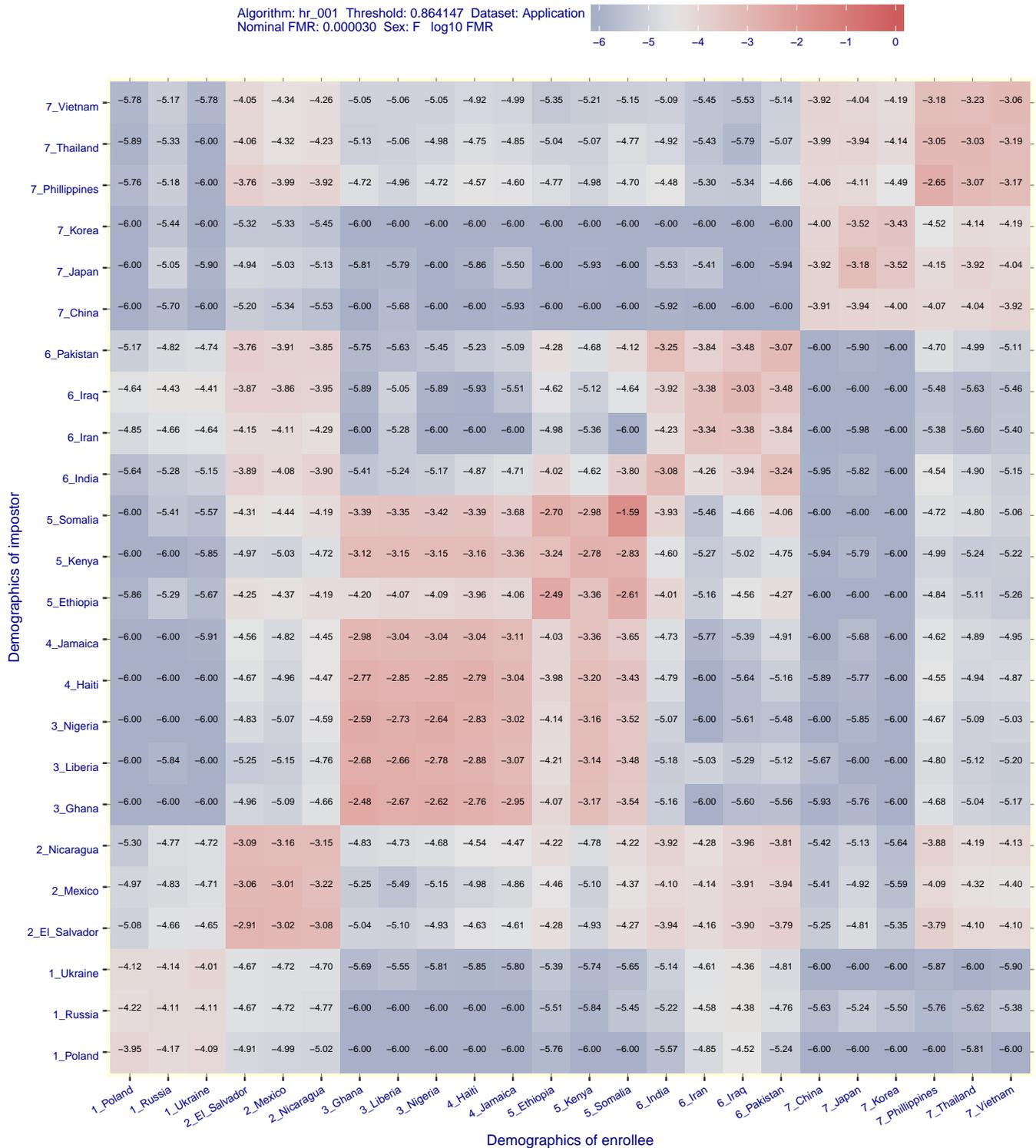


Figure 94: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/hr\_002.pdf

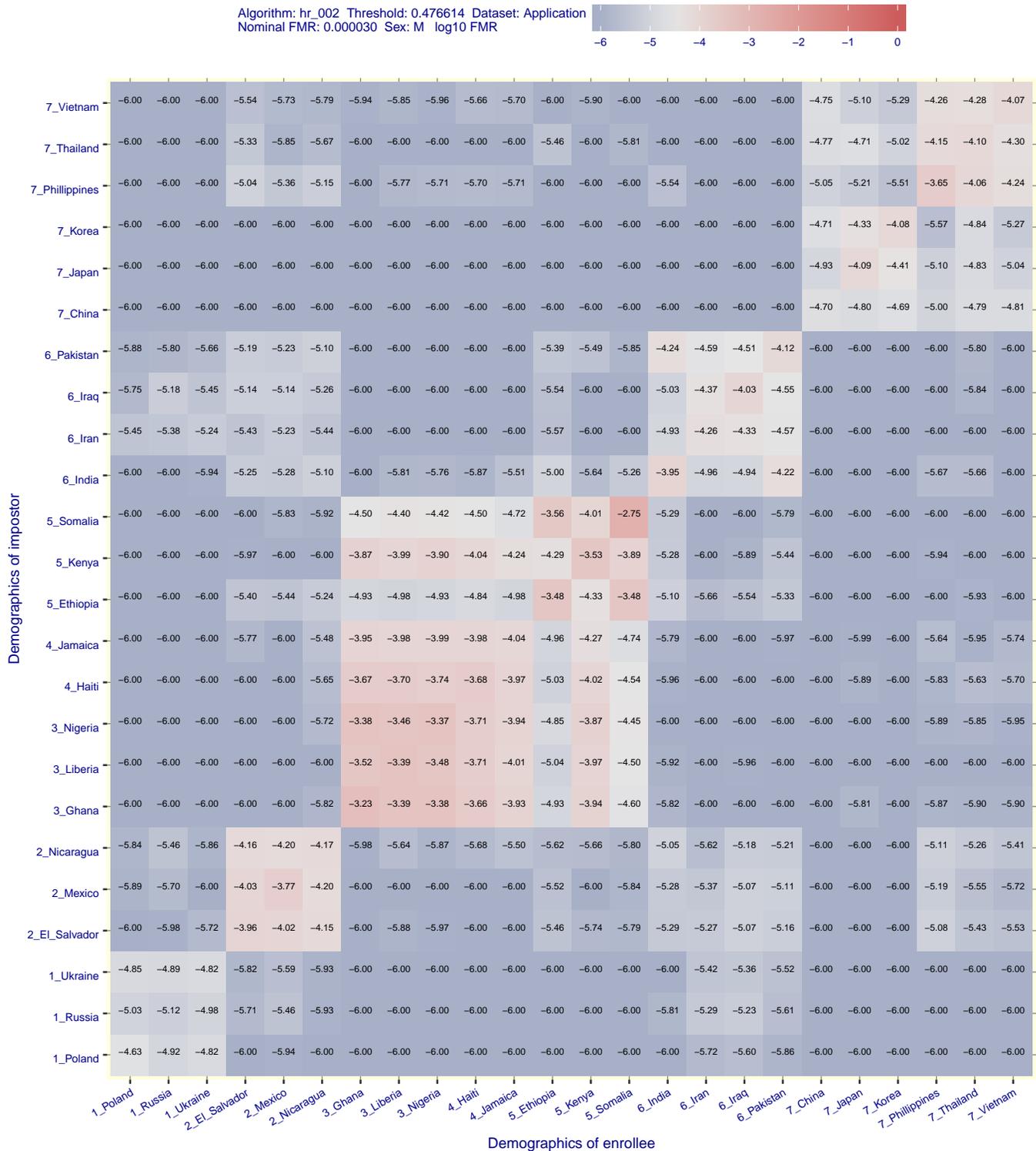


Figure 95: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/hr\_002.pdf

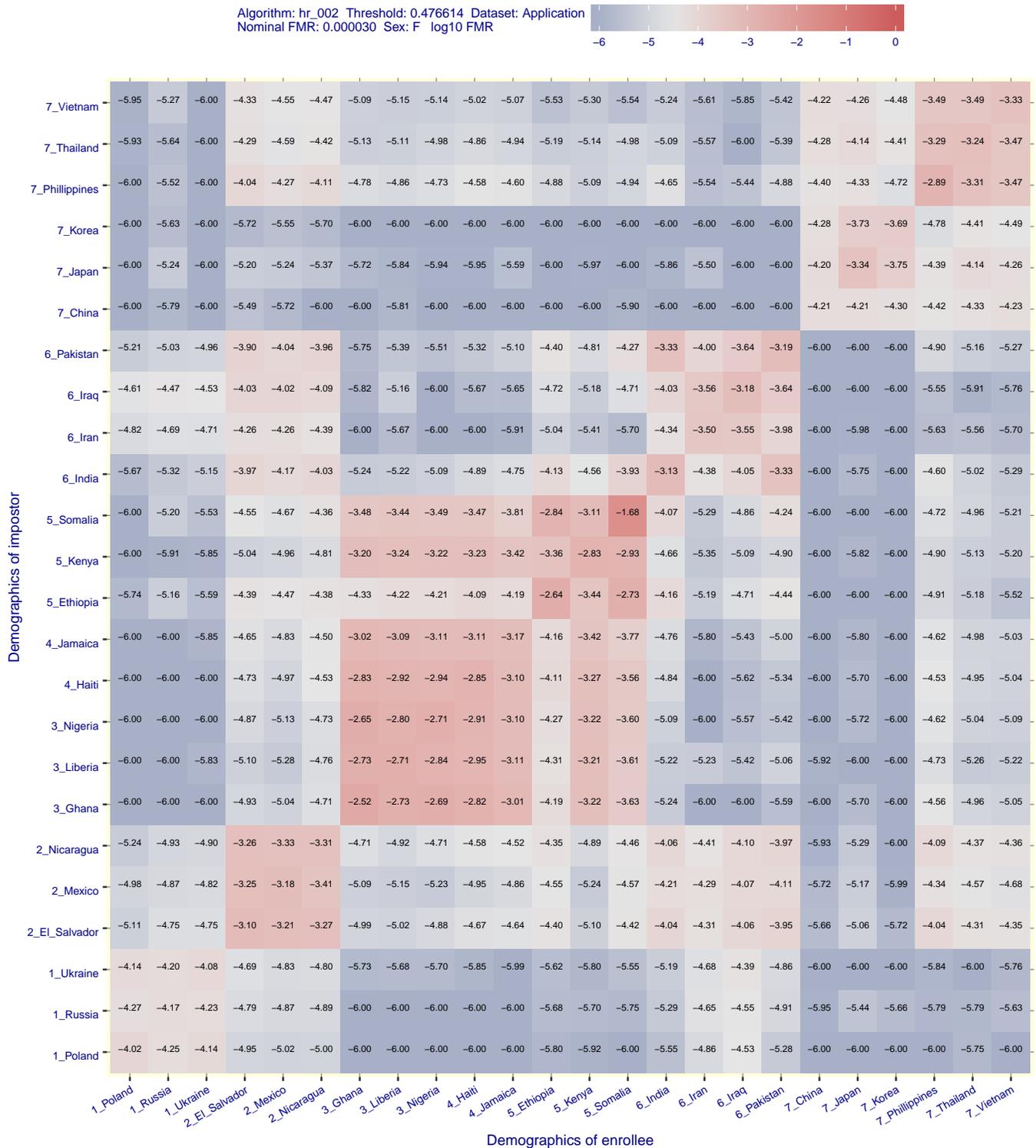


Figure 96: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0$

$\rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/id3\_003.pdf

Algorithm: id3\_003 Threshold: 37637.000000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

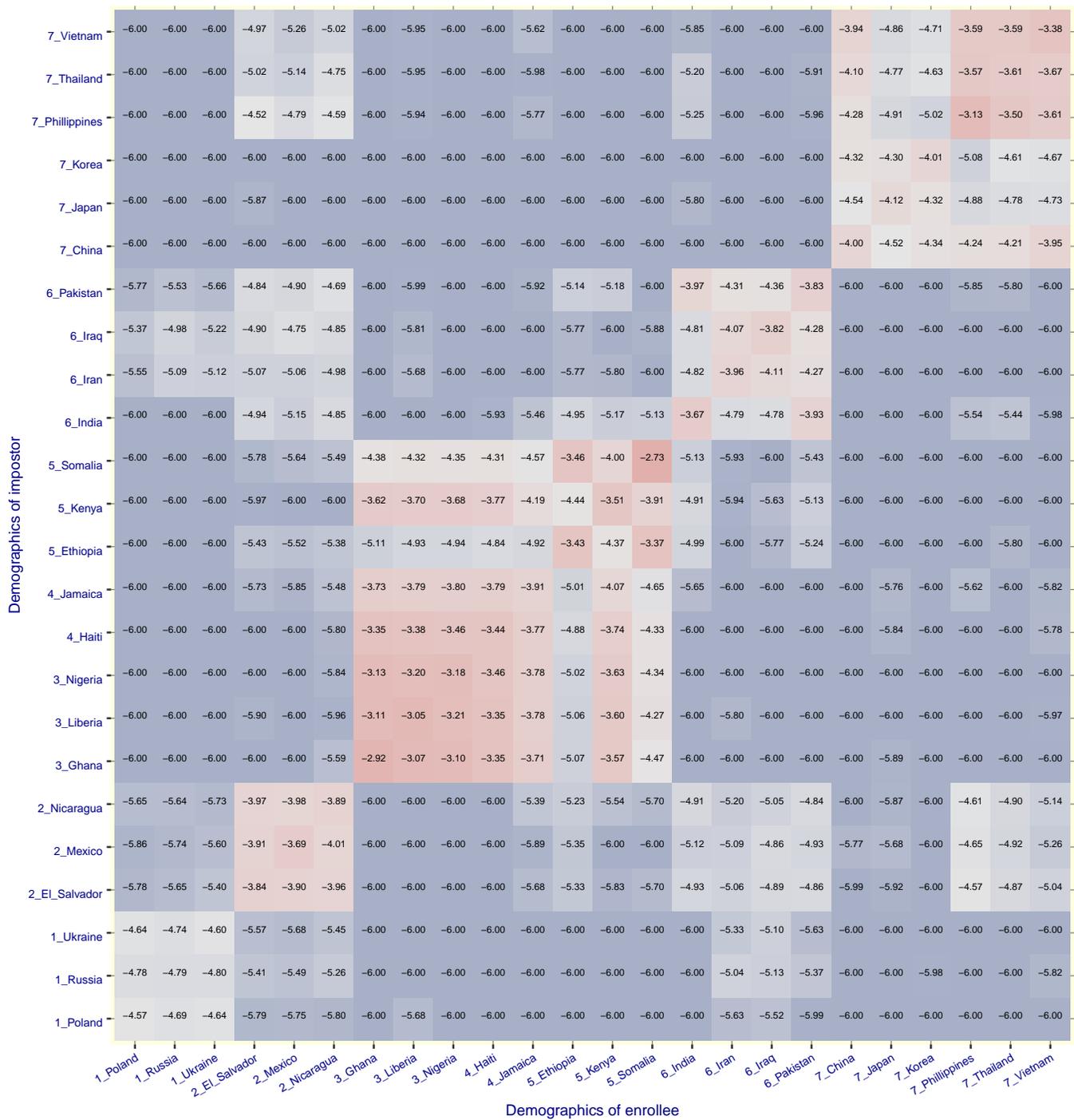
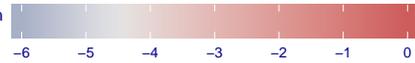


Figure 97: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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False positive: Incorrect association of two subjects  
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1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
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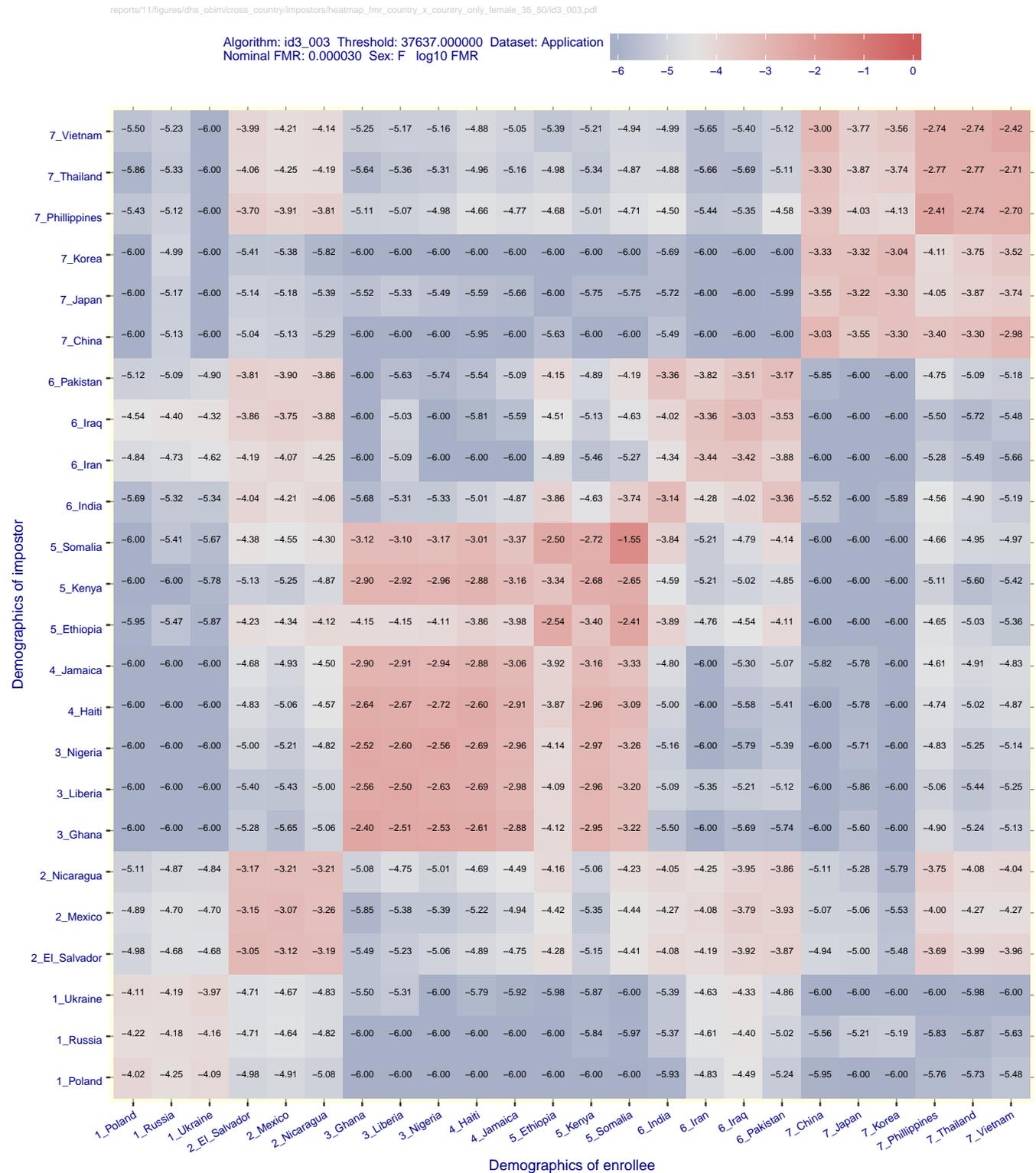


Figure 98: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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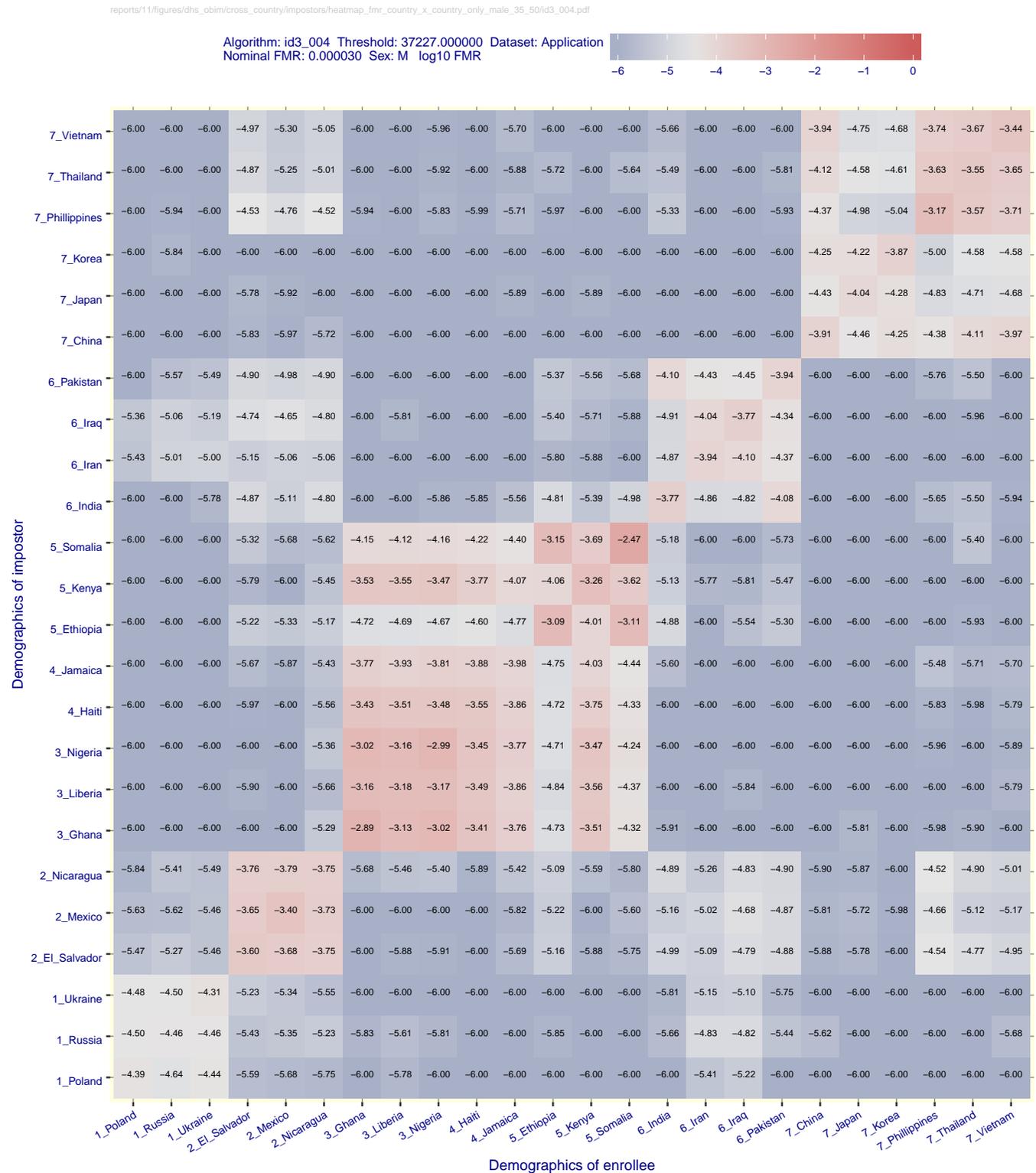


Figure 99: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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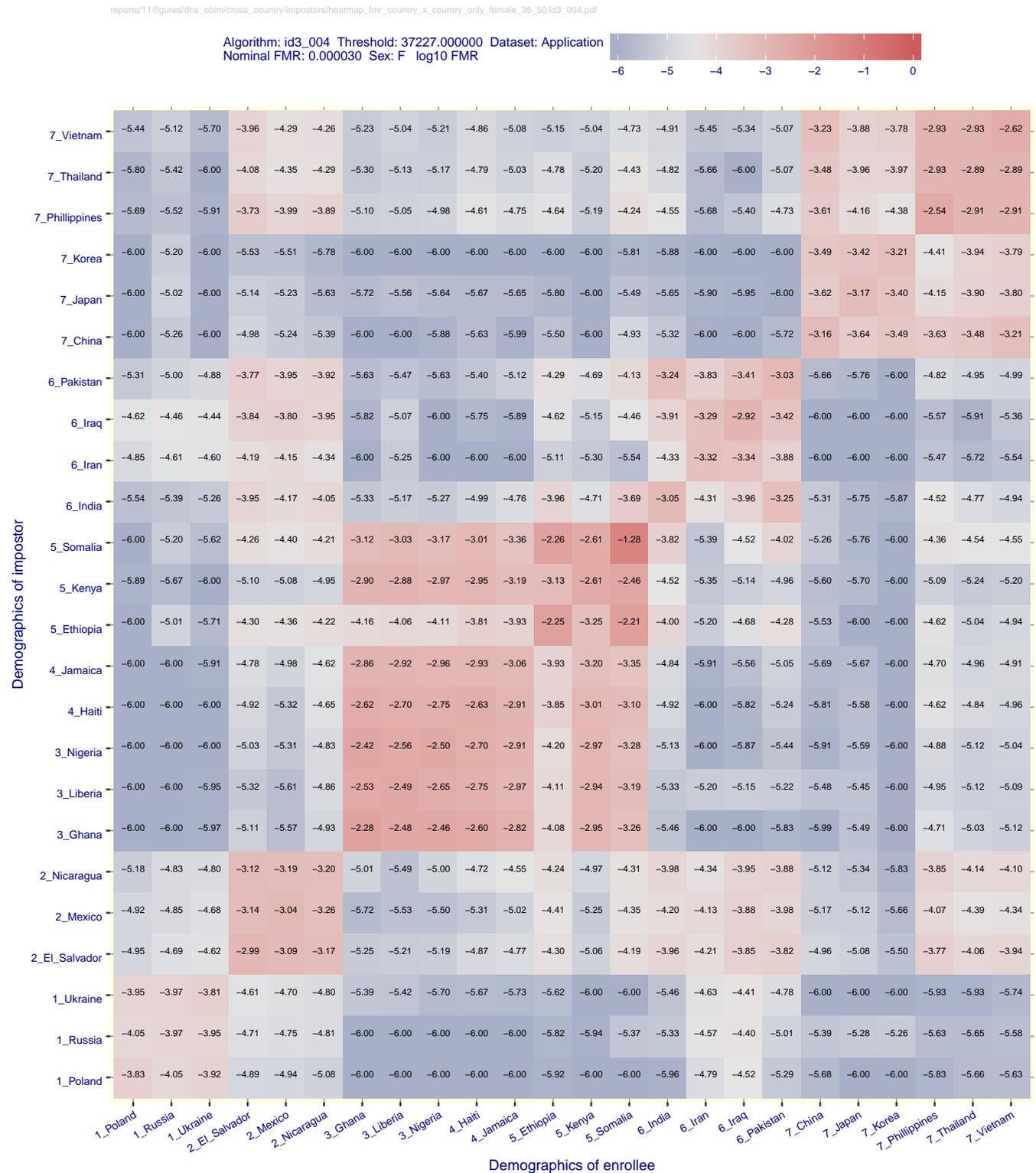


Figure 100: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/ldemia\_004.pdf

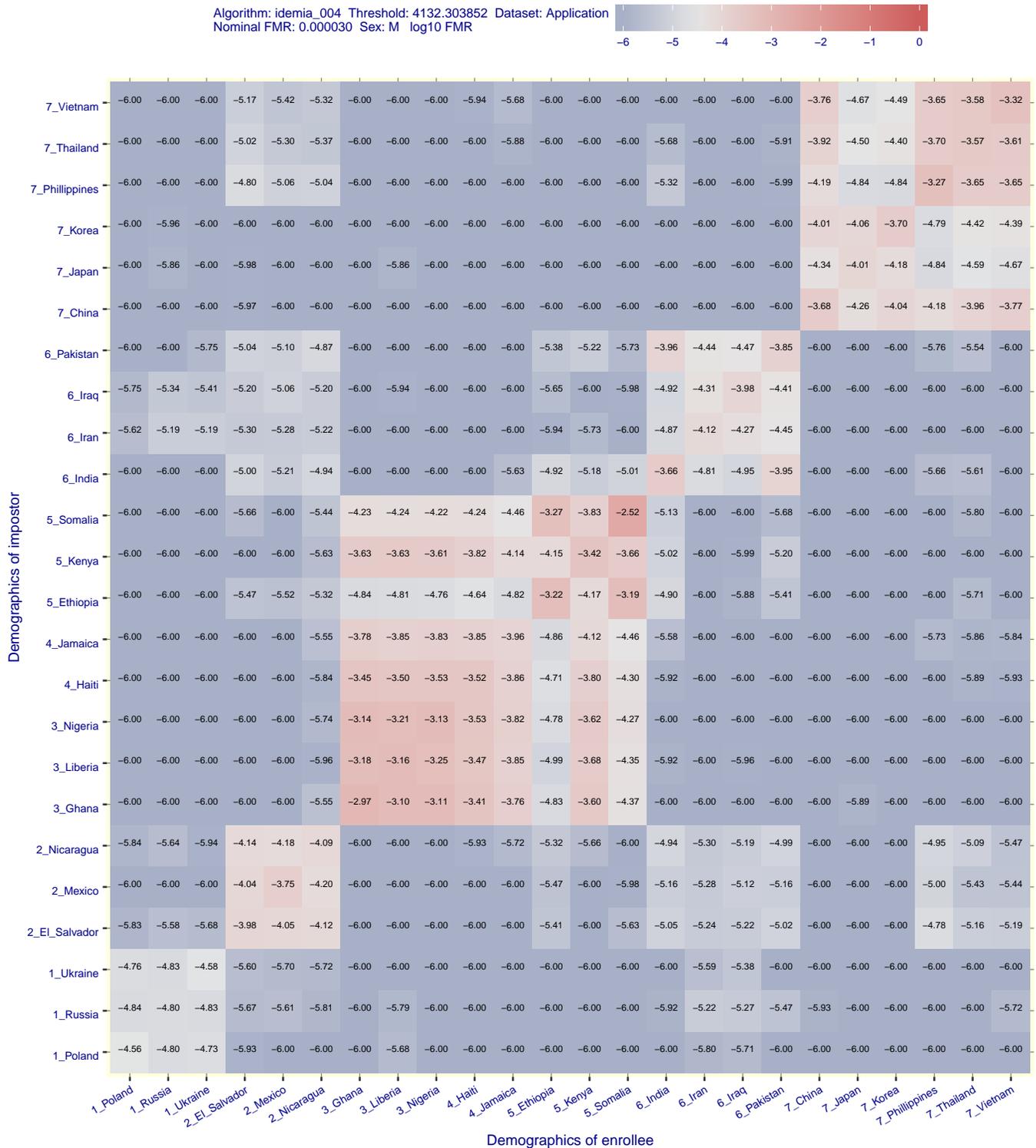


Figure 101: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR | 1:N FPIR |  $T \gg 0$   
 1:1 FNMR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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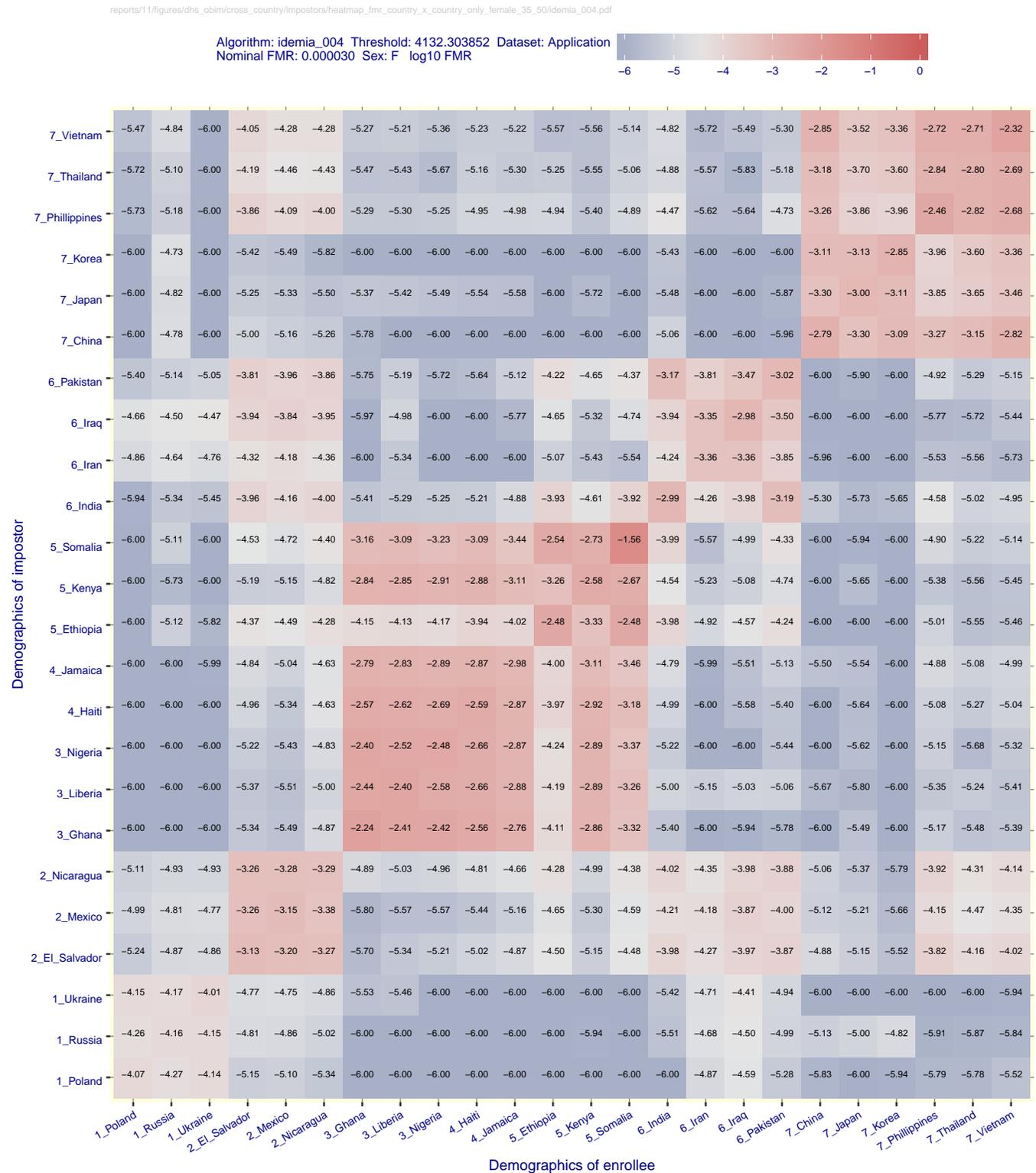


Figure 102: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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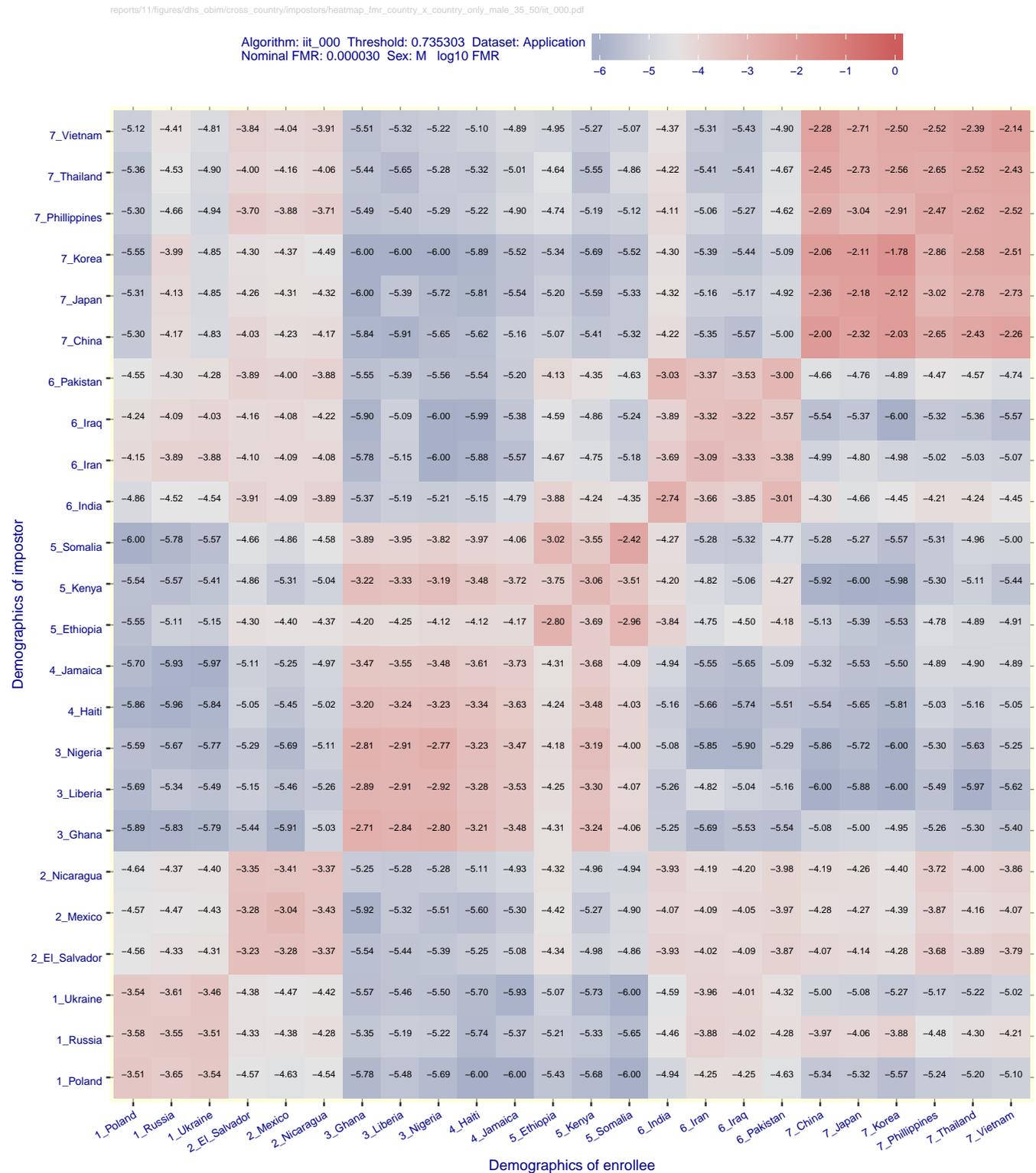


Figure 103: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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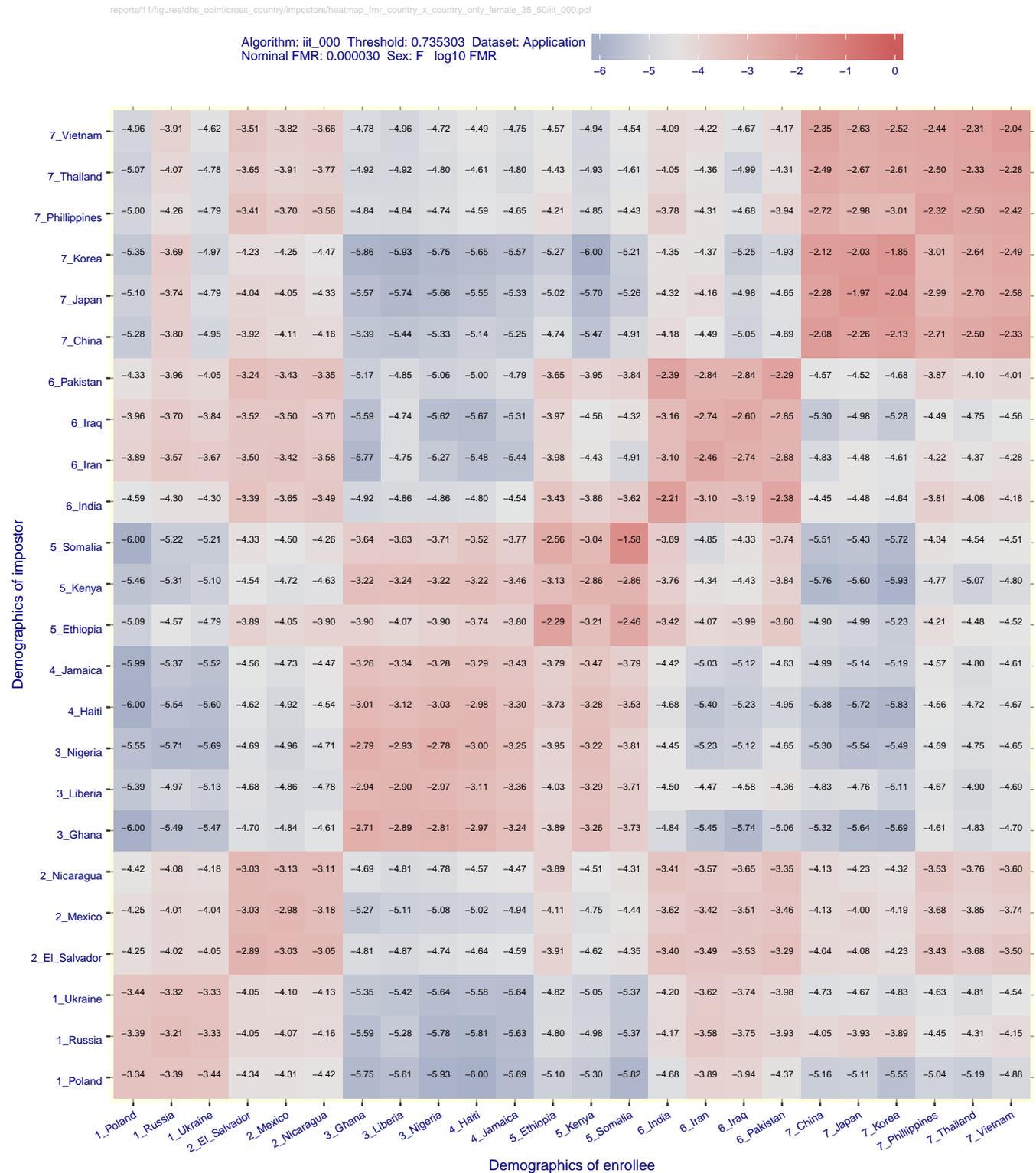


Figure 104: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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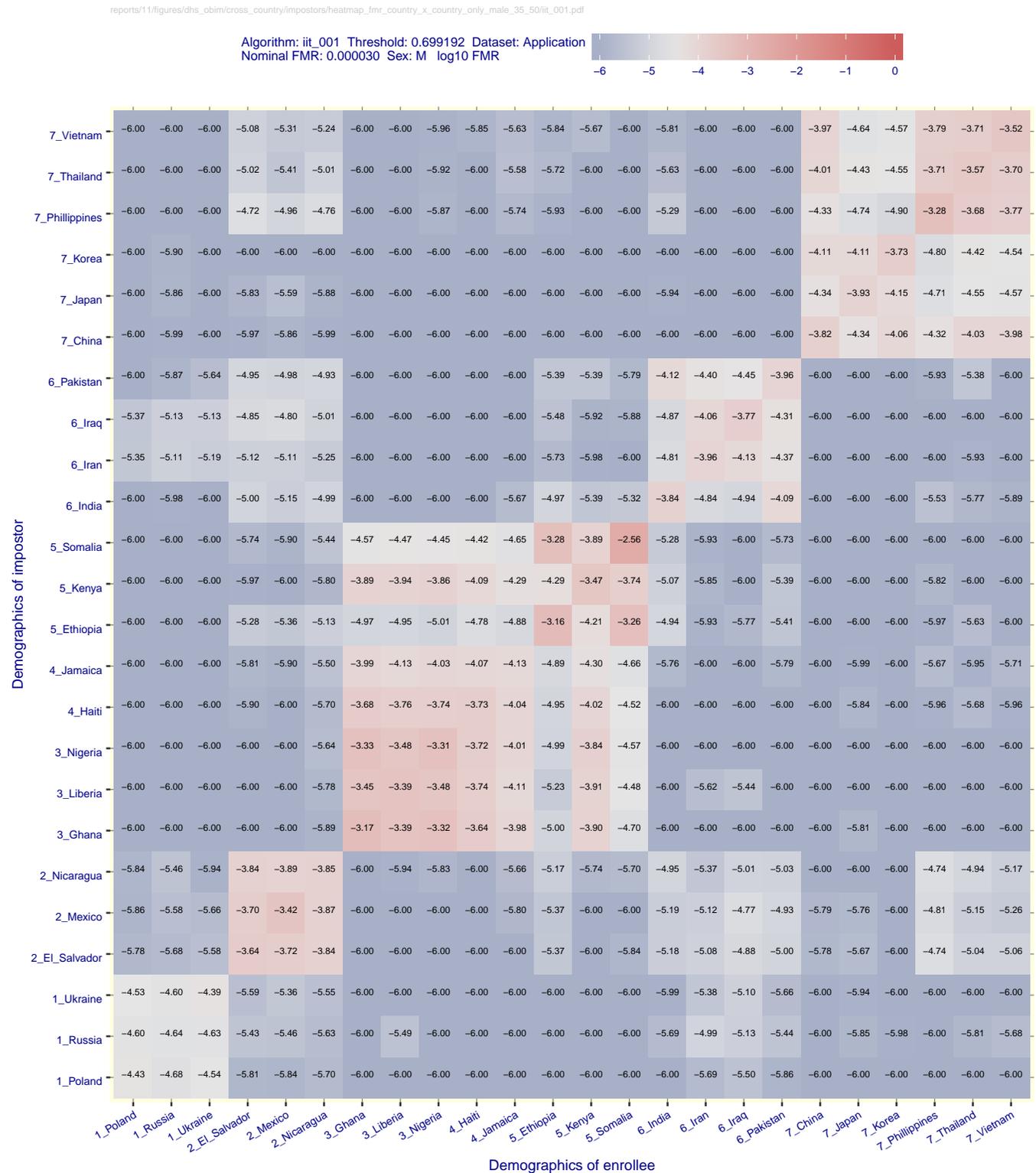


Figure 105: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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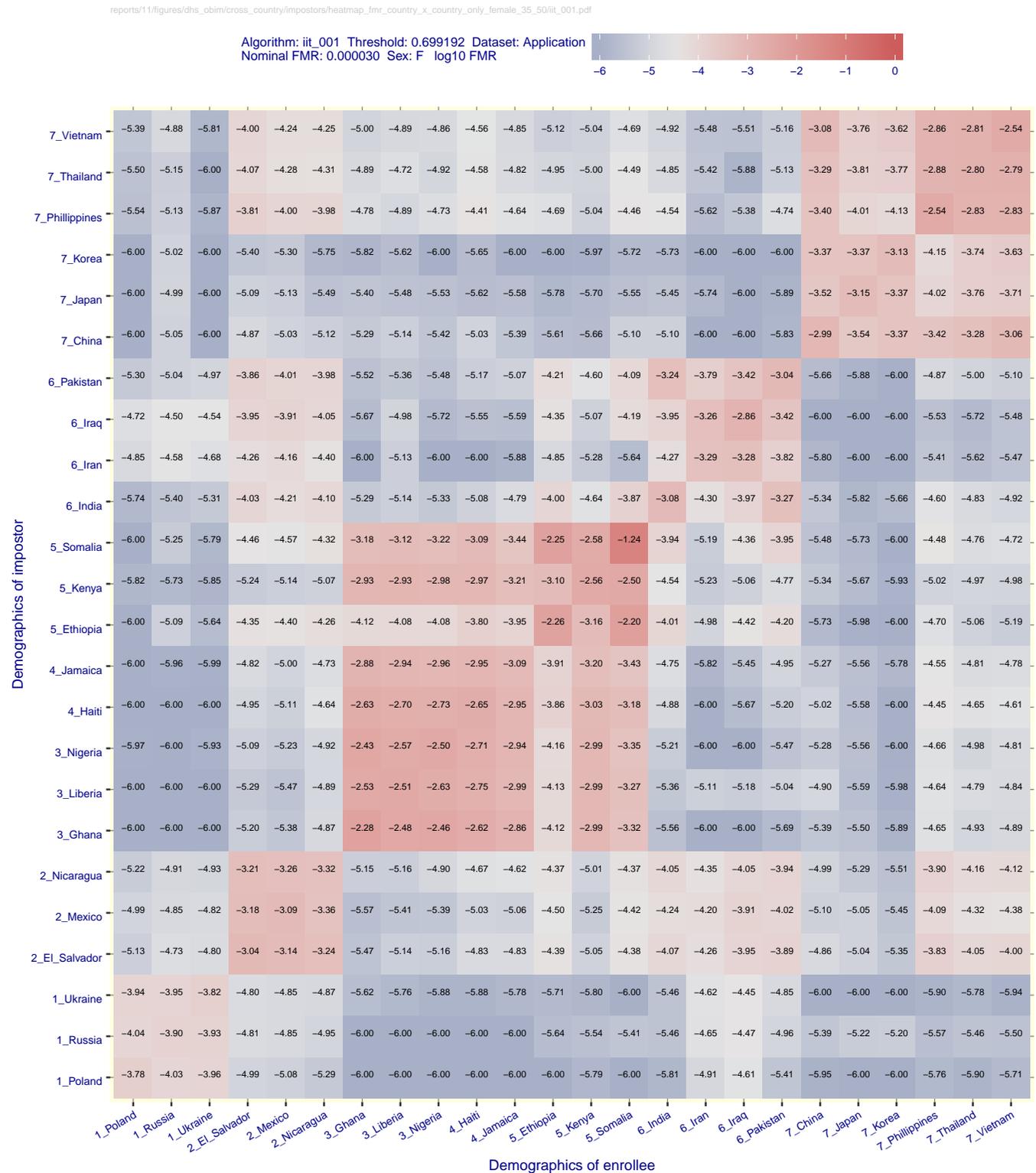


Figure 106: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/imagus\_000.pdf

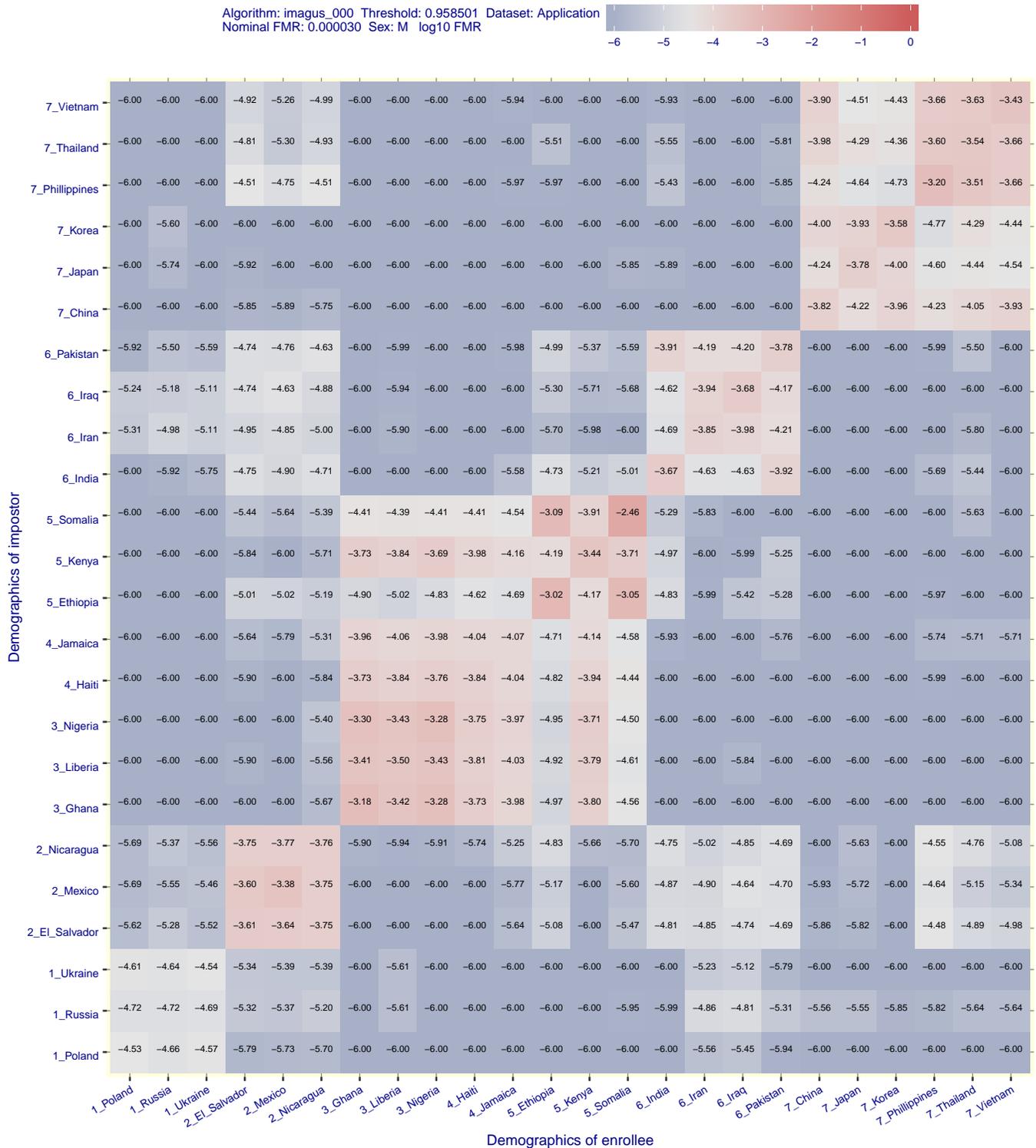


Figure 107: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/imagus\_000.pdf

Algorithm: imagus\_000 Threshold: 0.958501 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

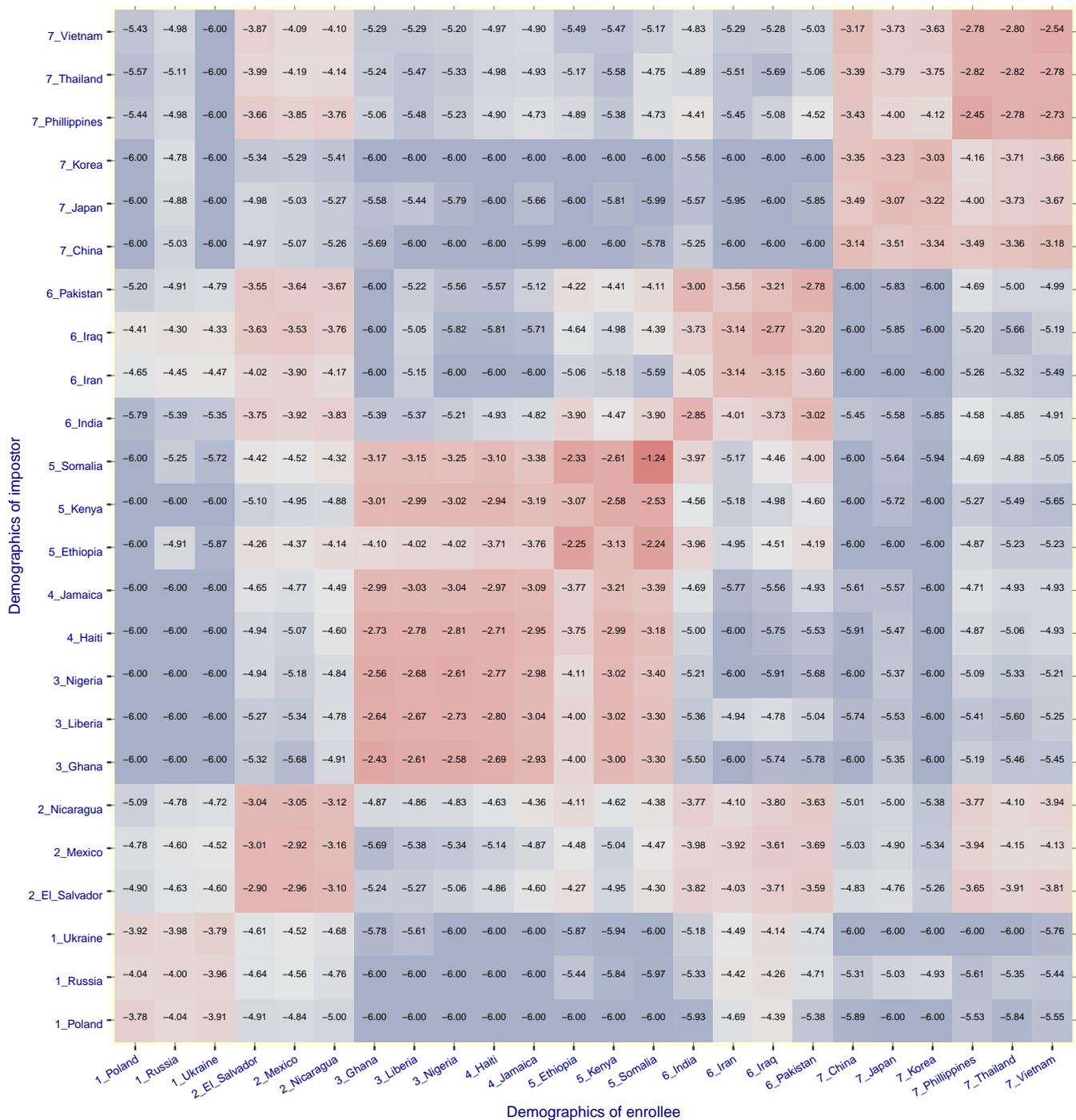


Figure 108: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
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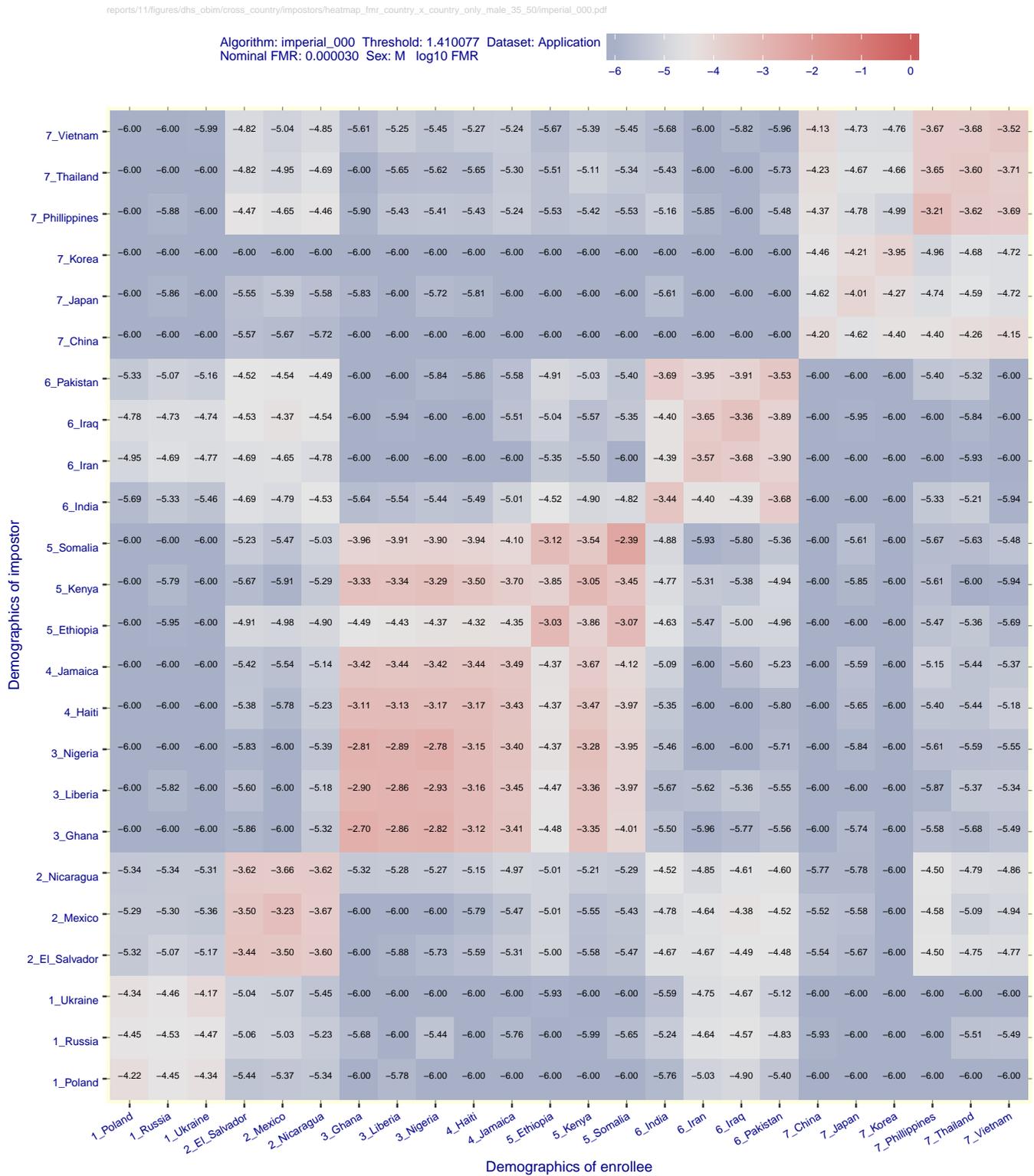


Figure 109: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

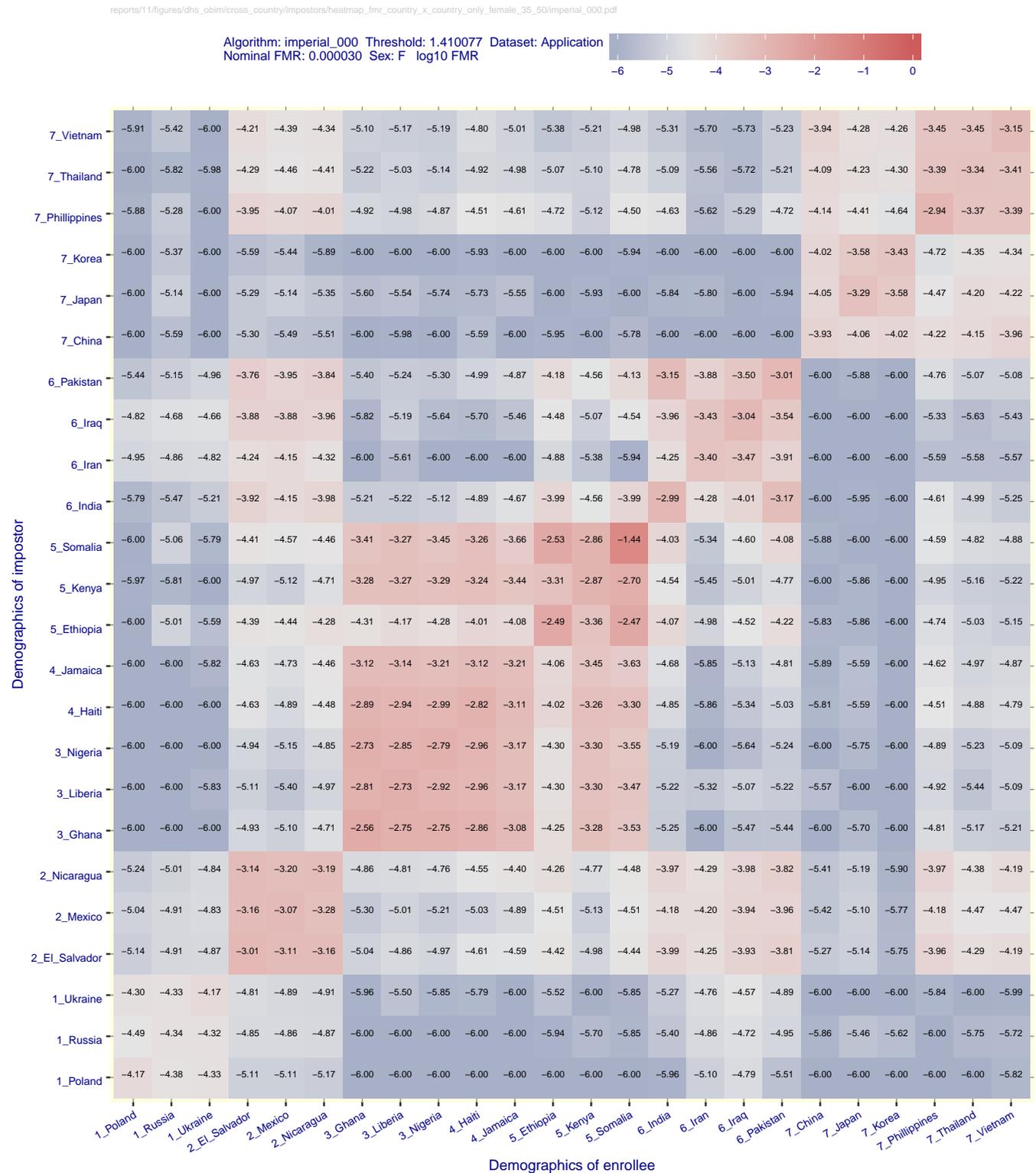


Figure 110: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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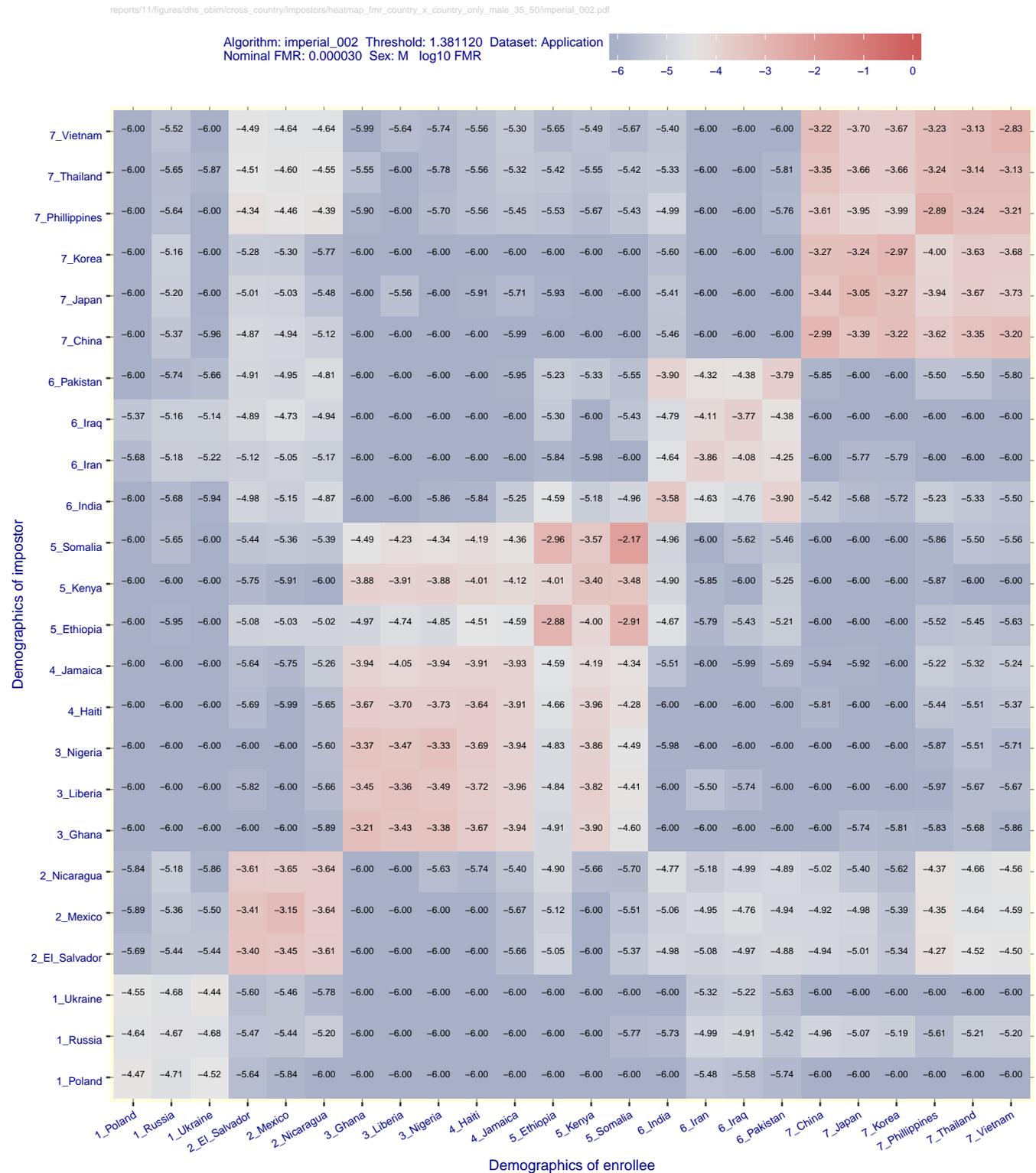


Figure 111: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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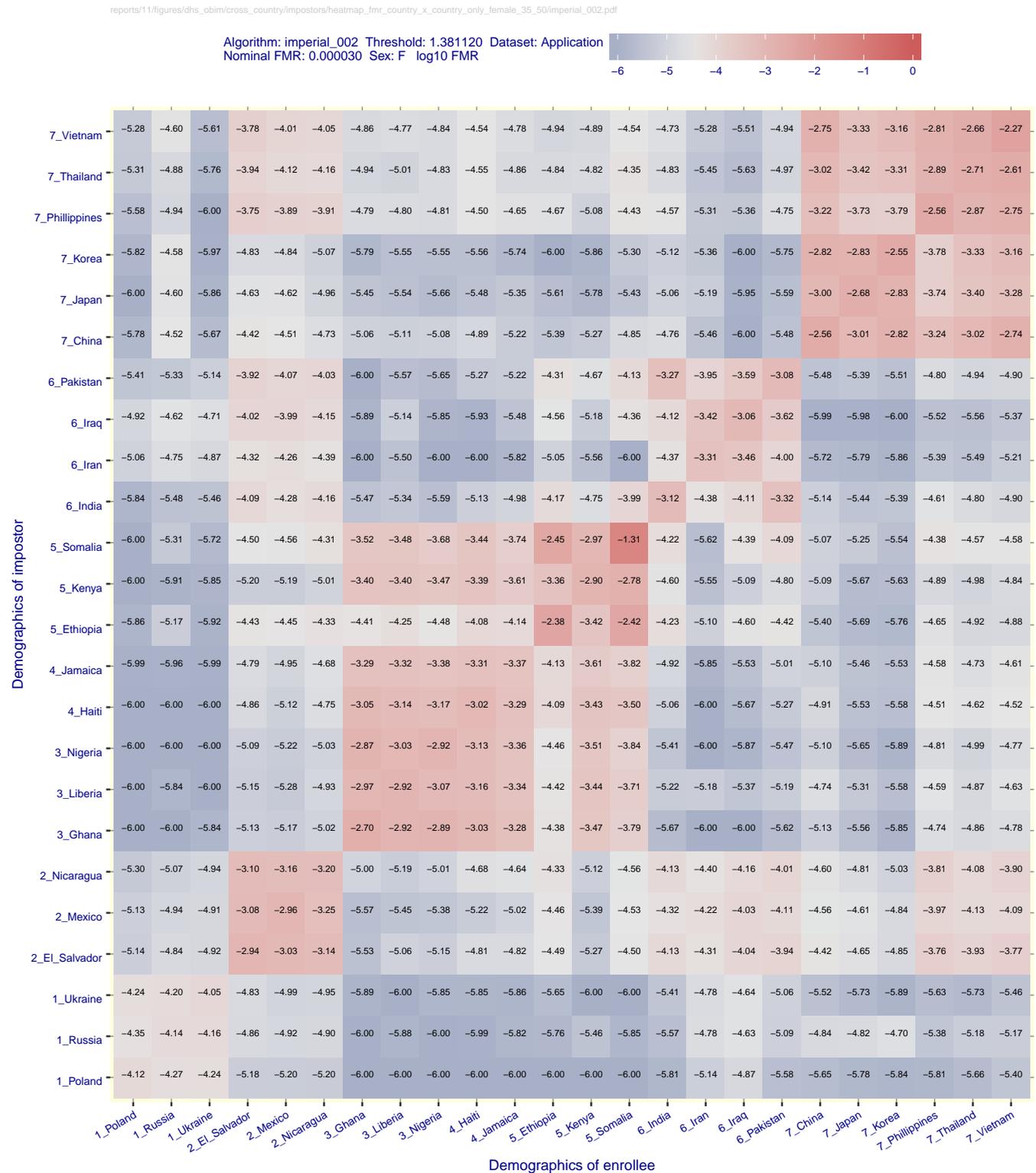


Figure 112: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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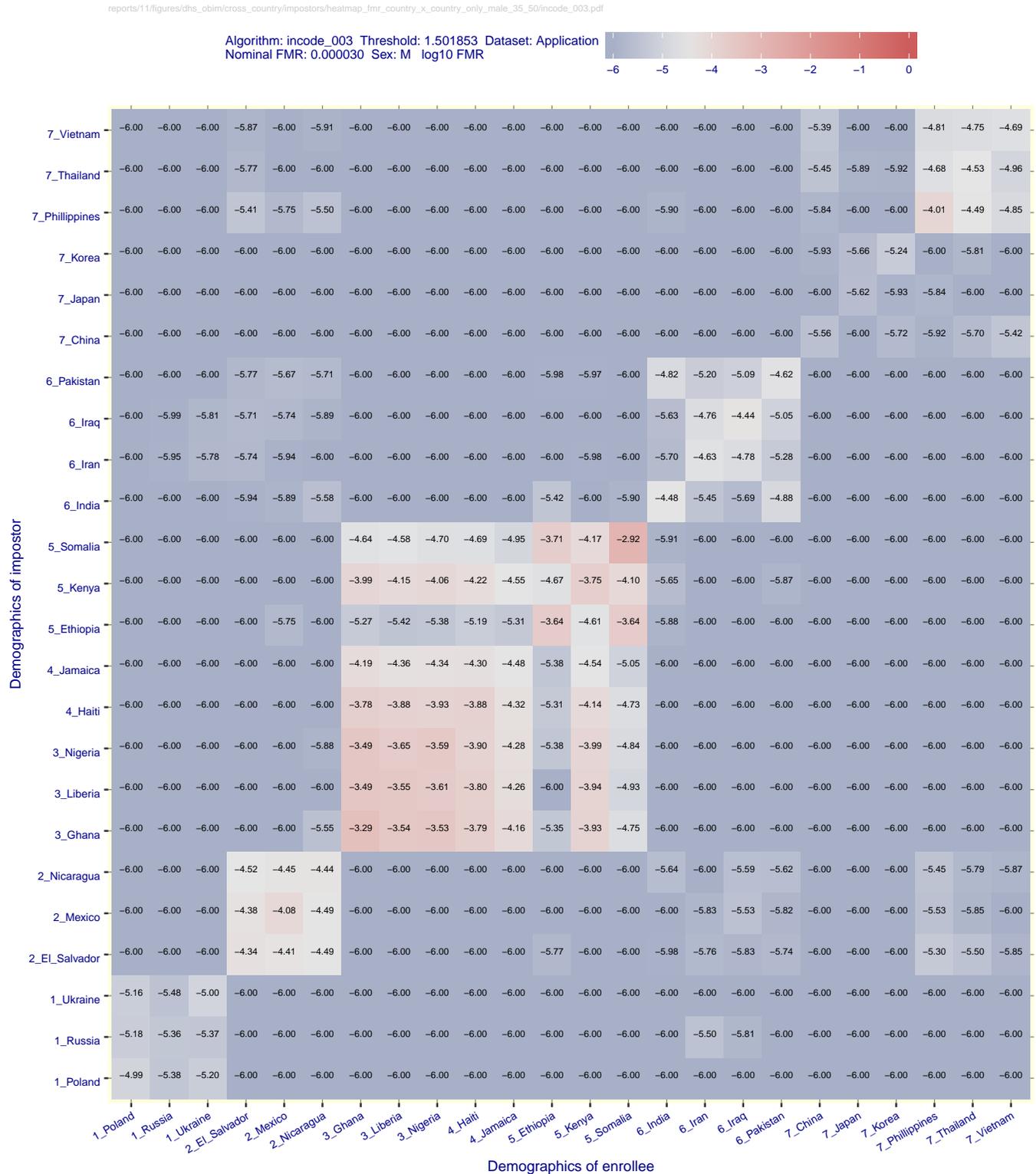


Figure 113: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

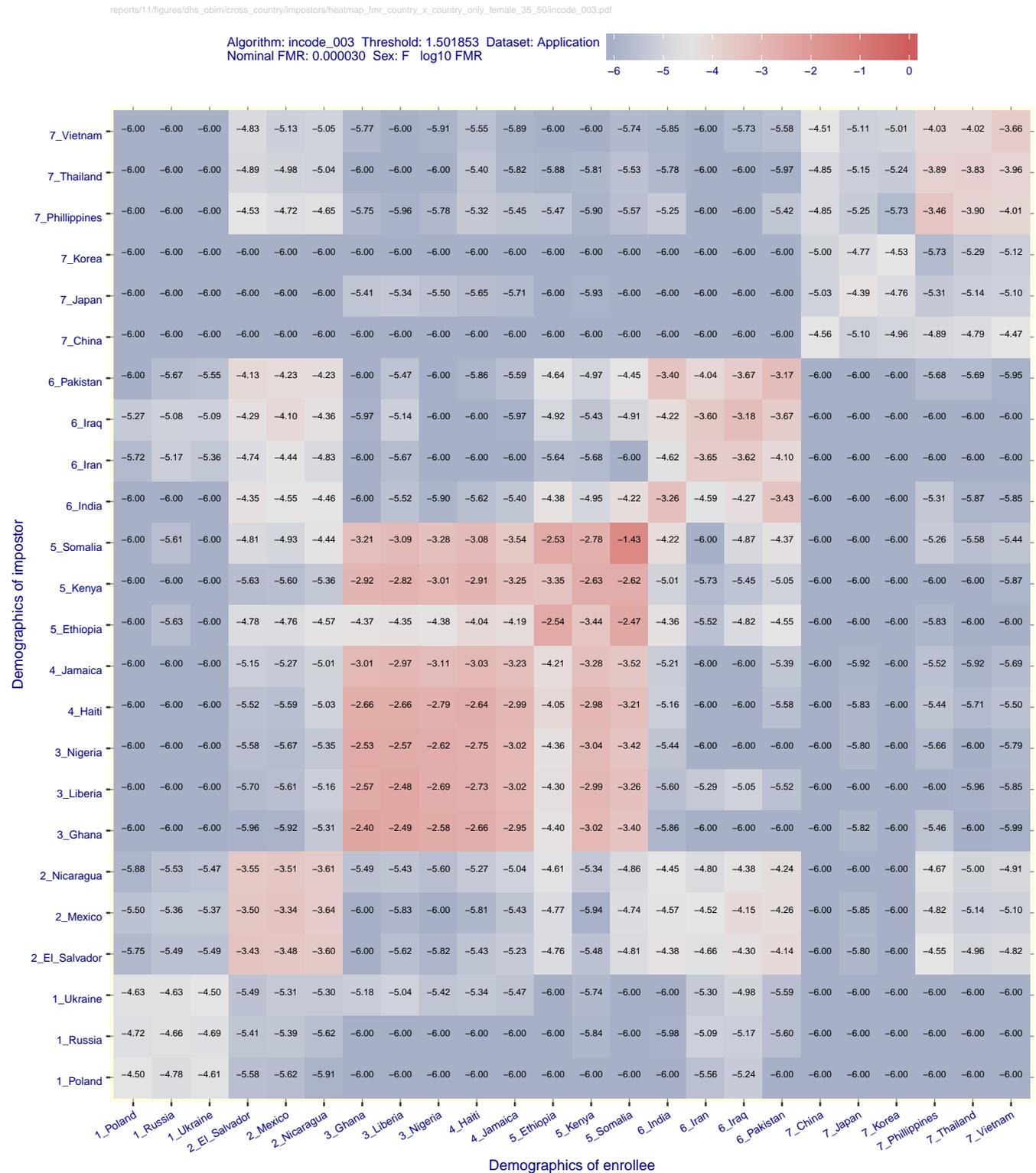


Figure 114: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/incode\_004.pdf

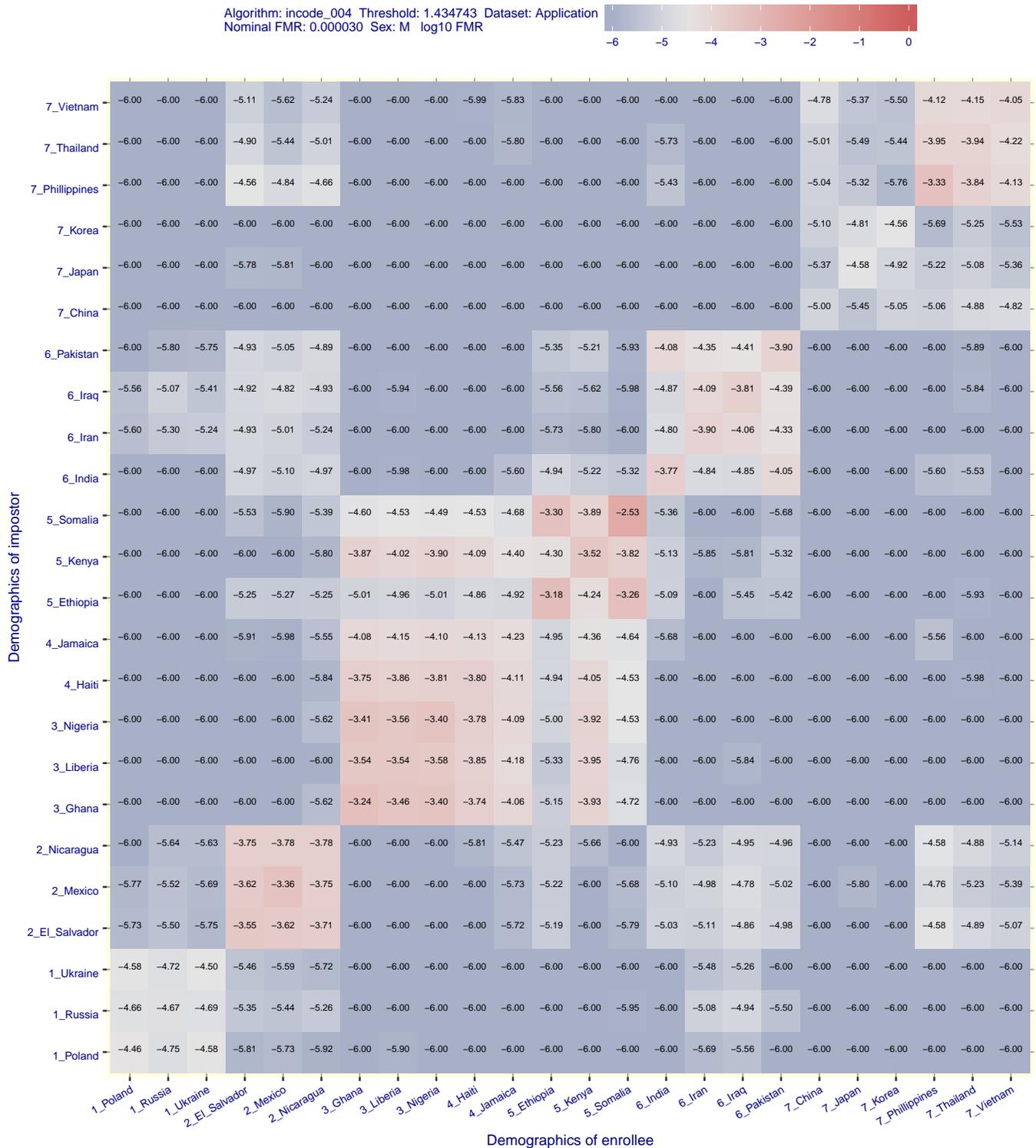


Figure 115: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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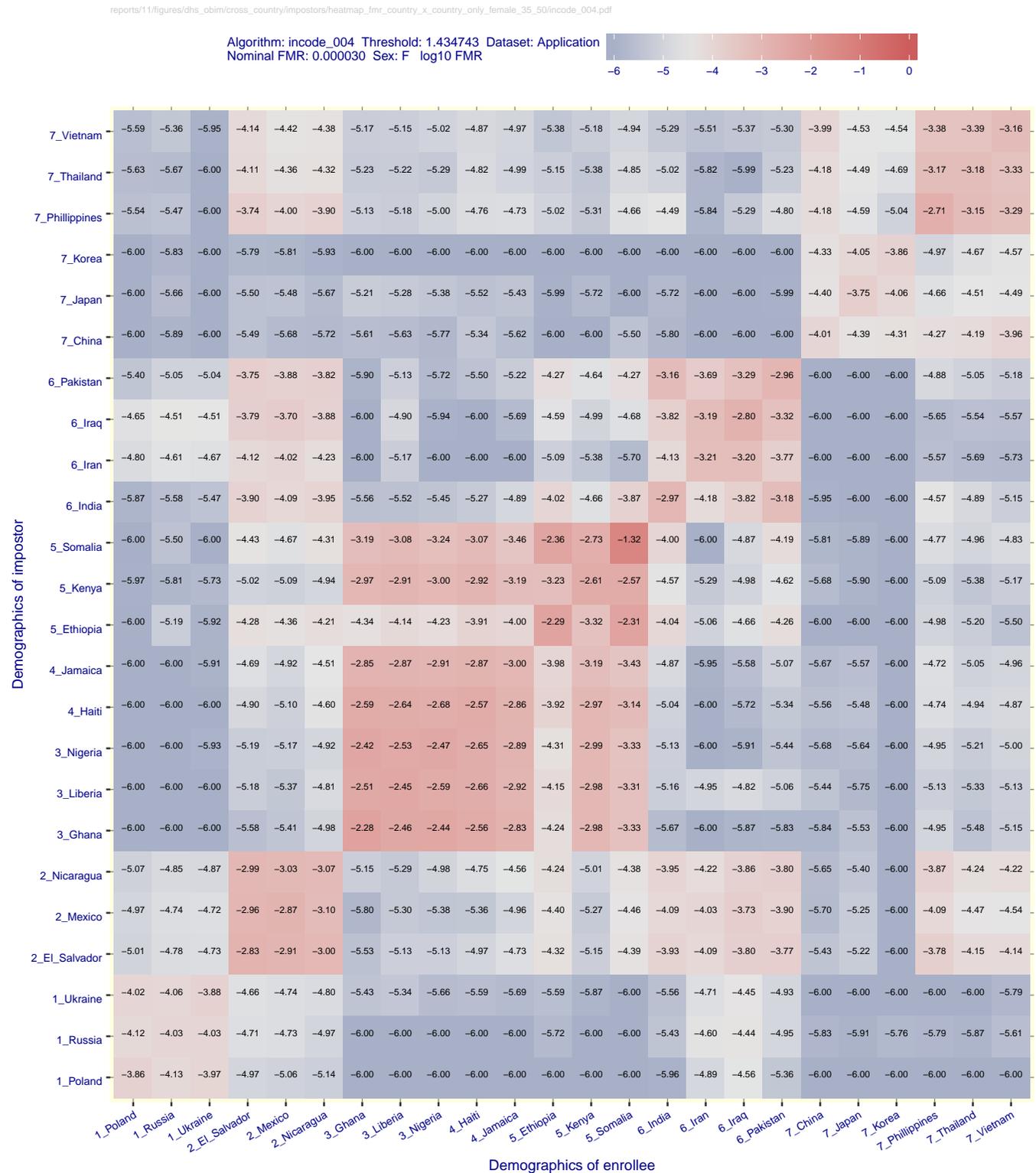


Figure 116: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/innovatrics\_004.pdf

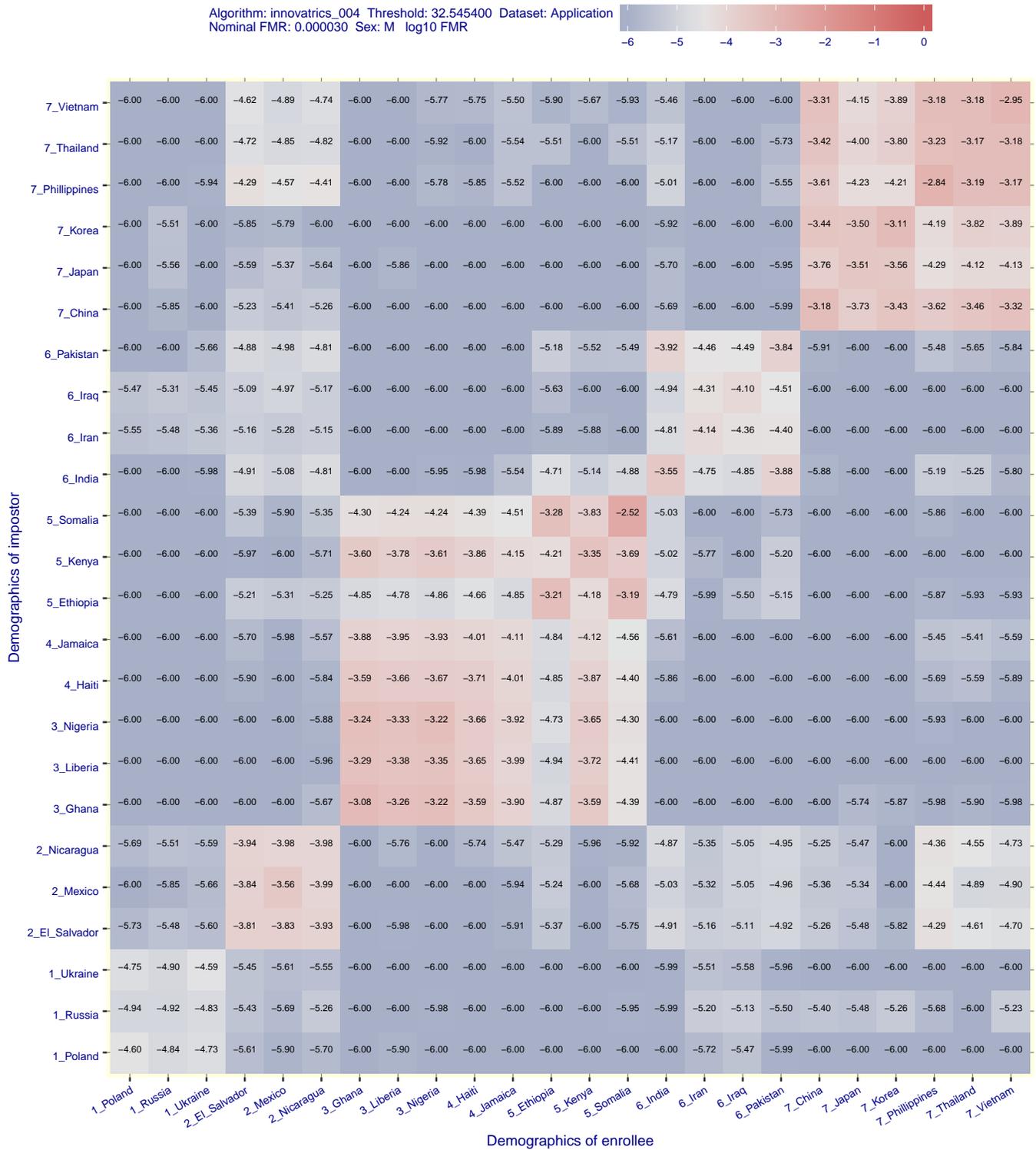


Figure 117: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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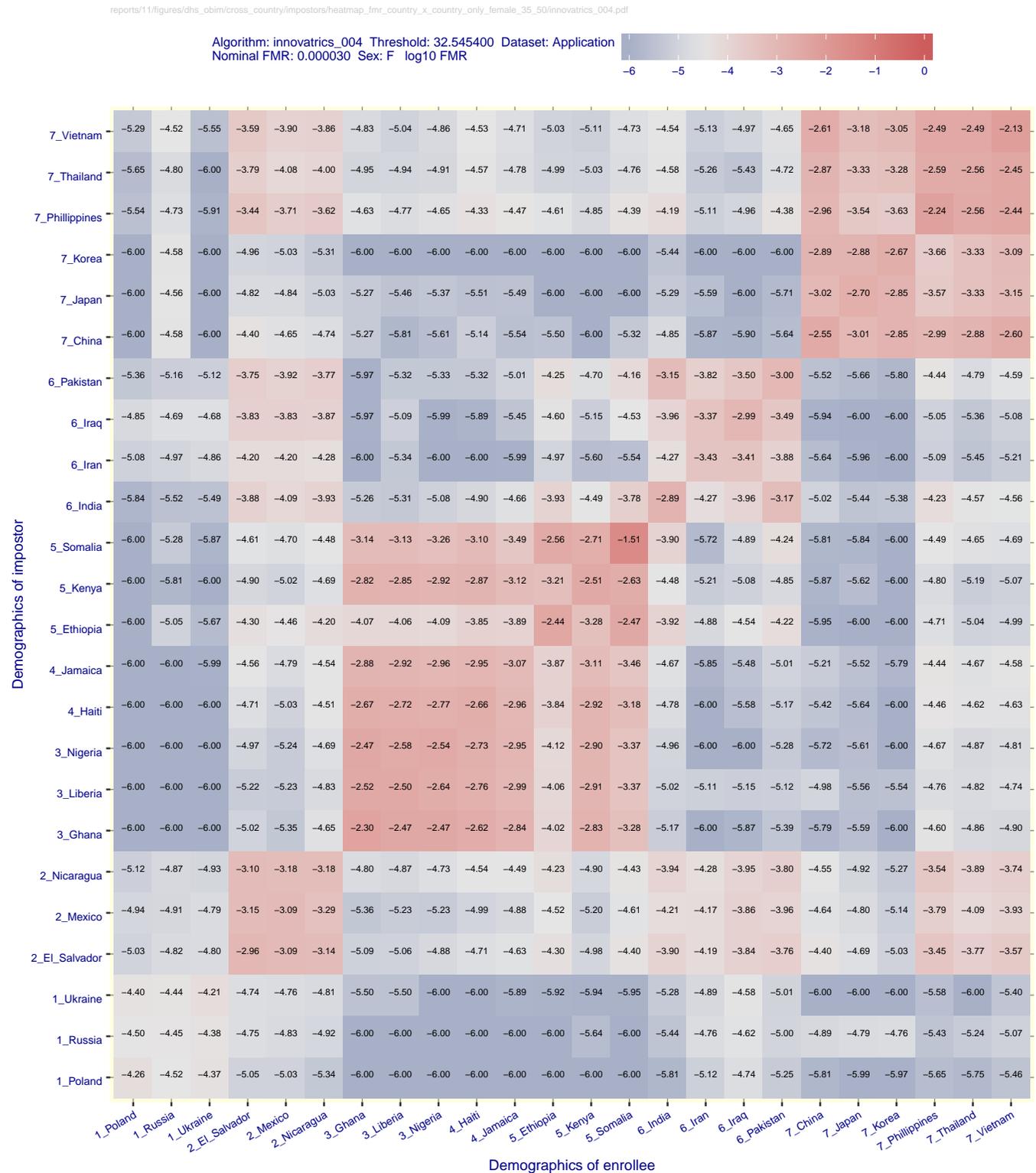


Figure 118: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/innovatics\_006.pdf

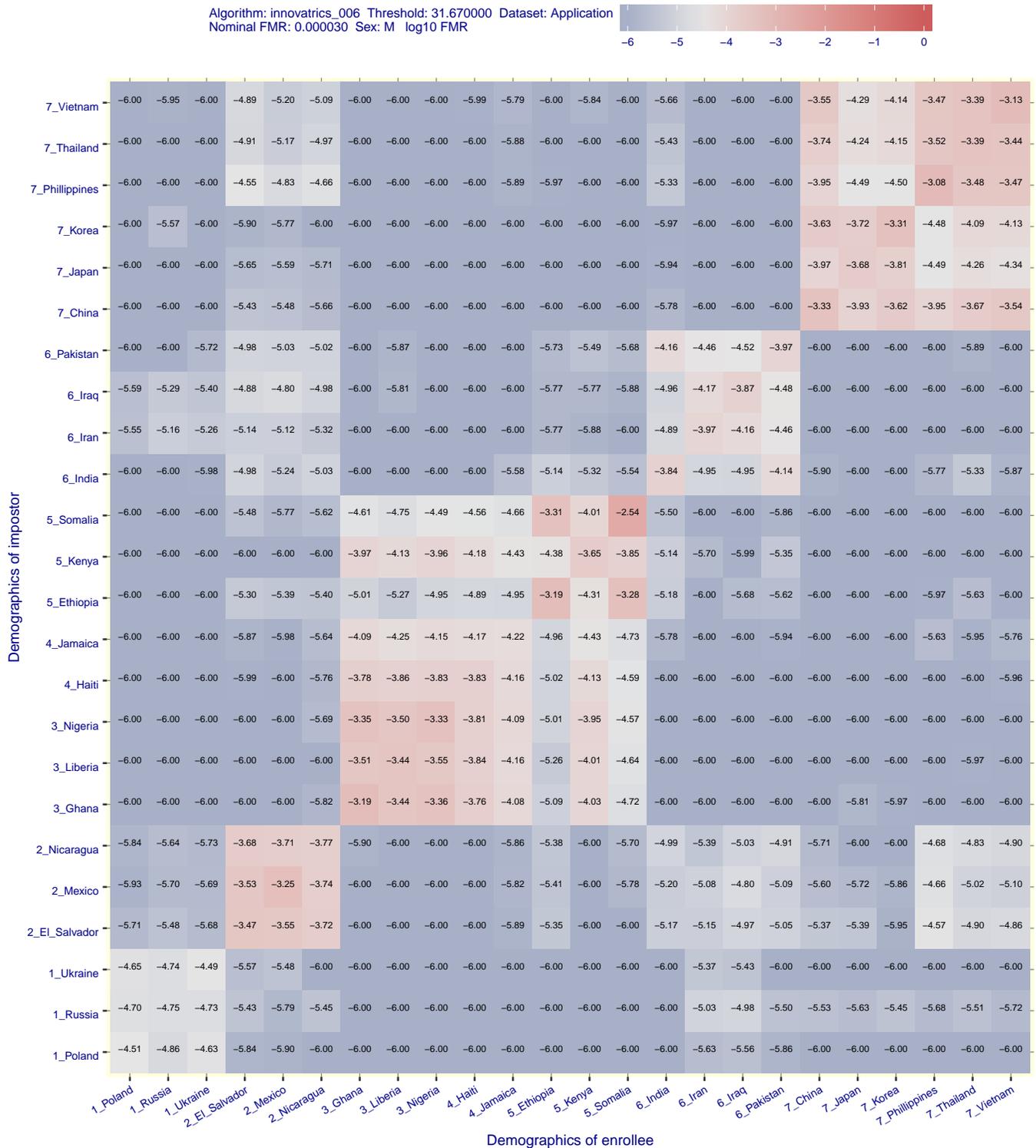


Figure 119: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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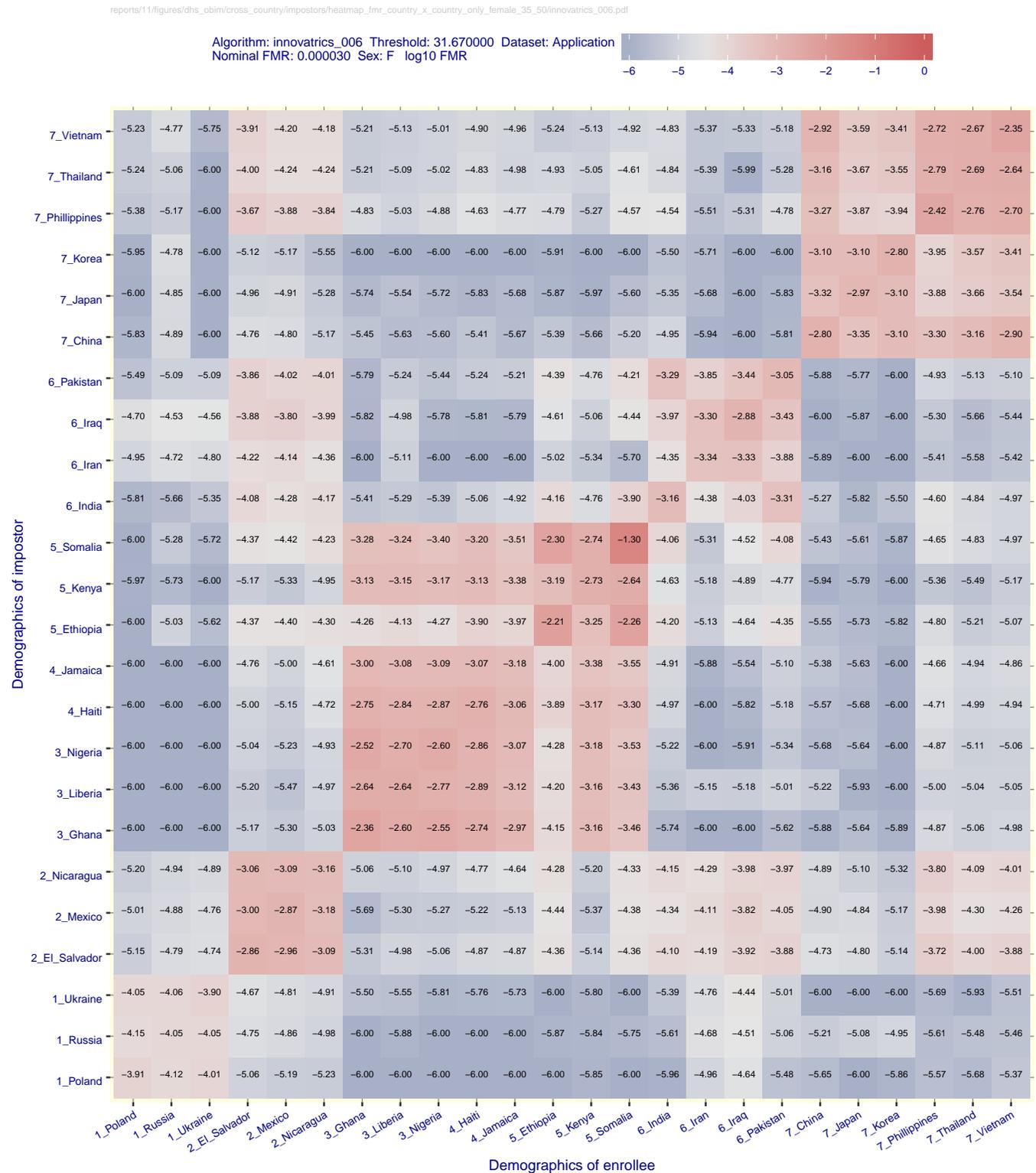


Figure 120: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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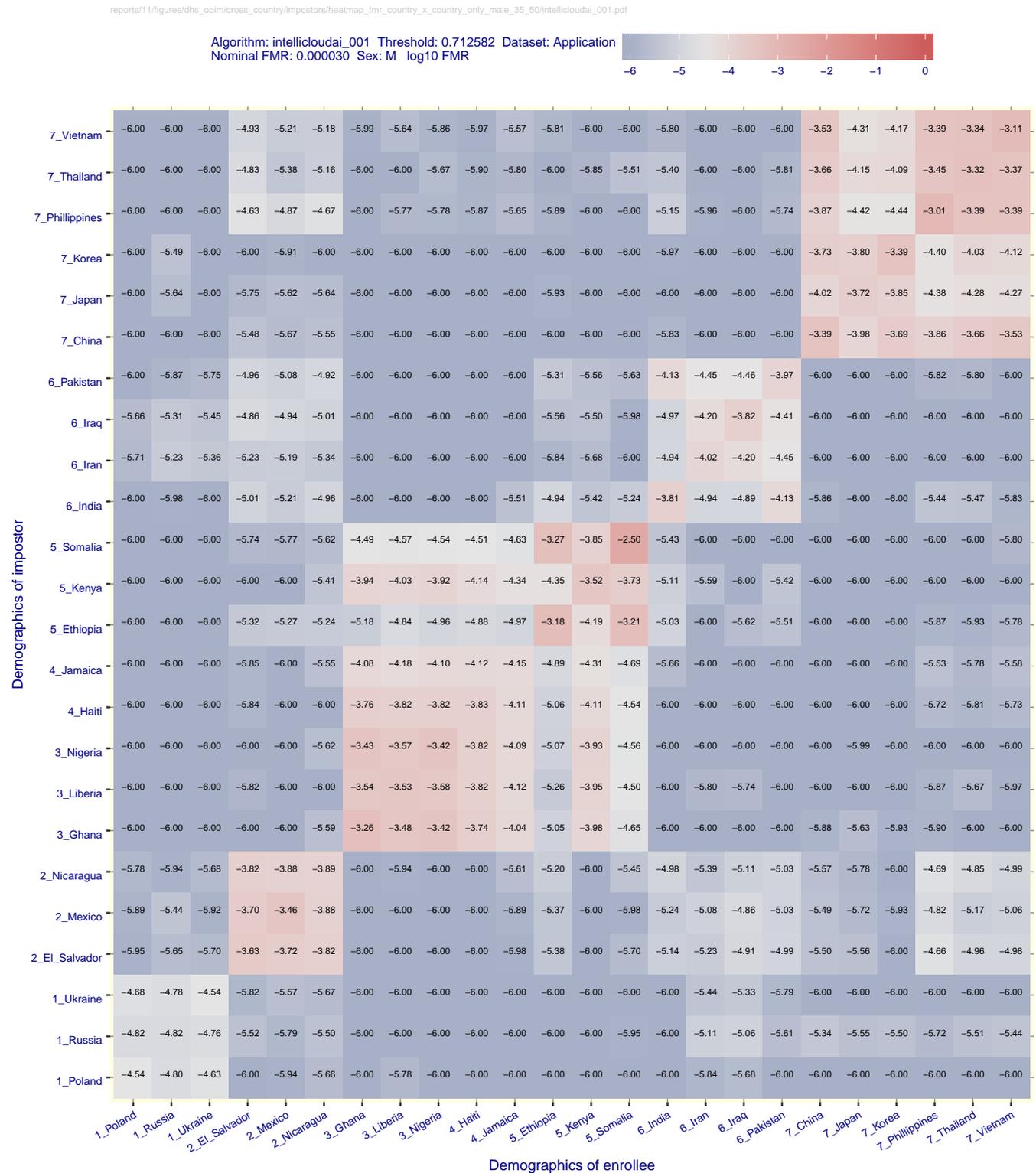


Figure 121: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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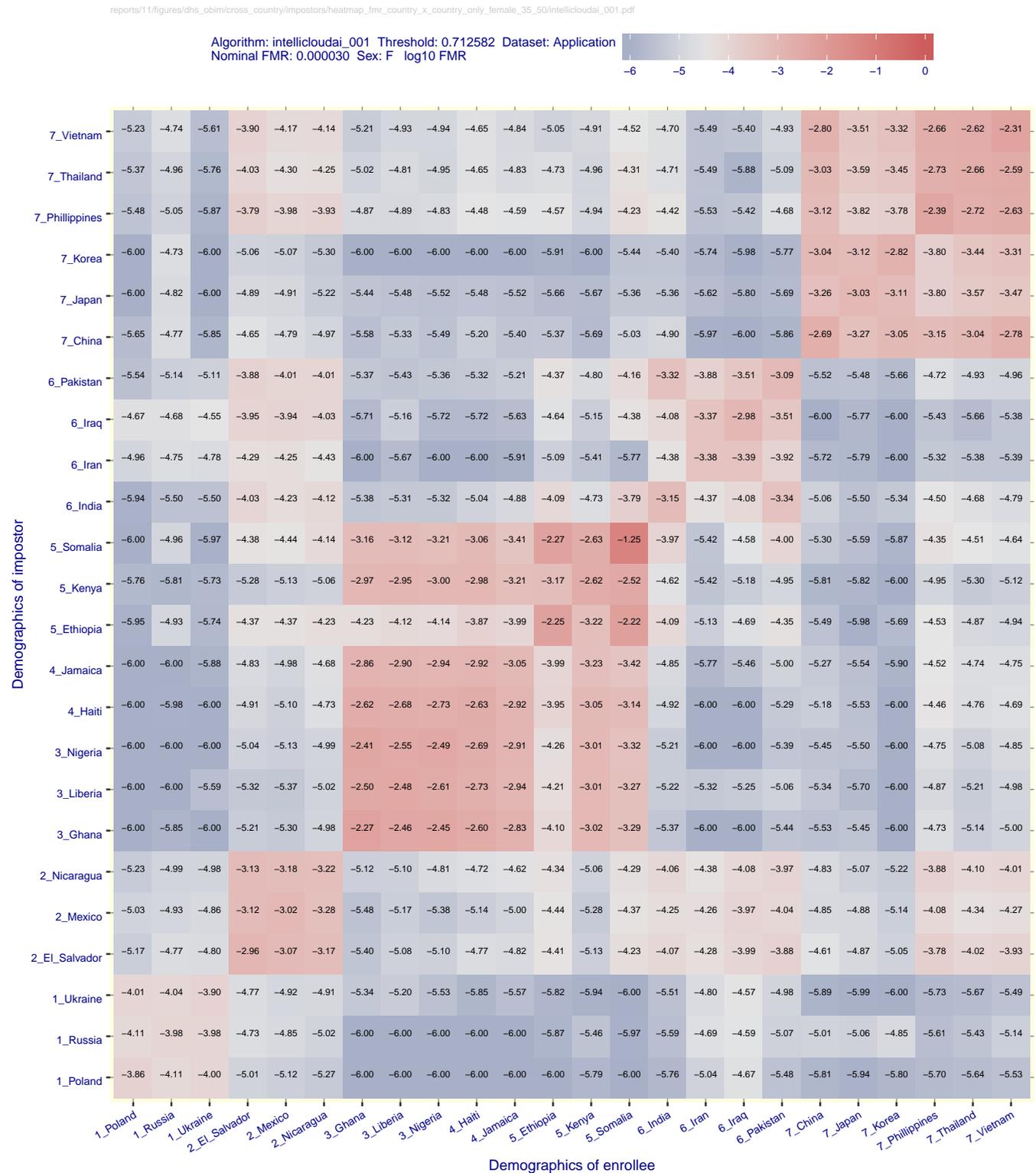


Figure 122: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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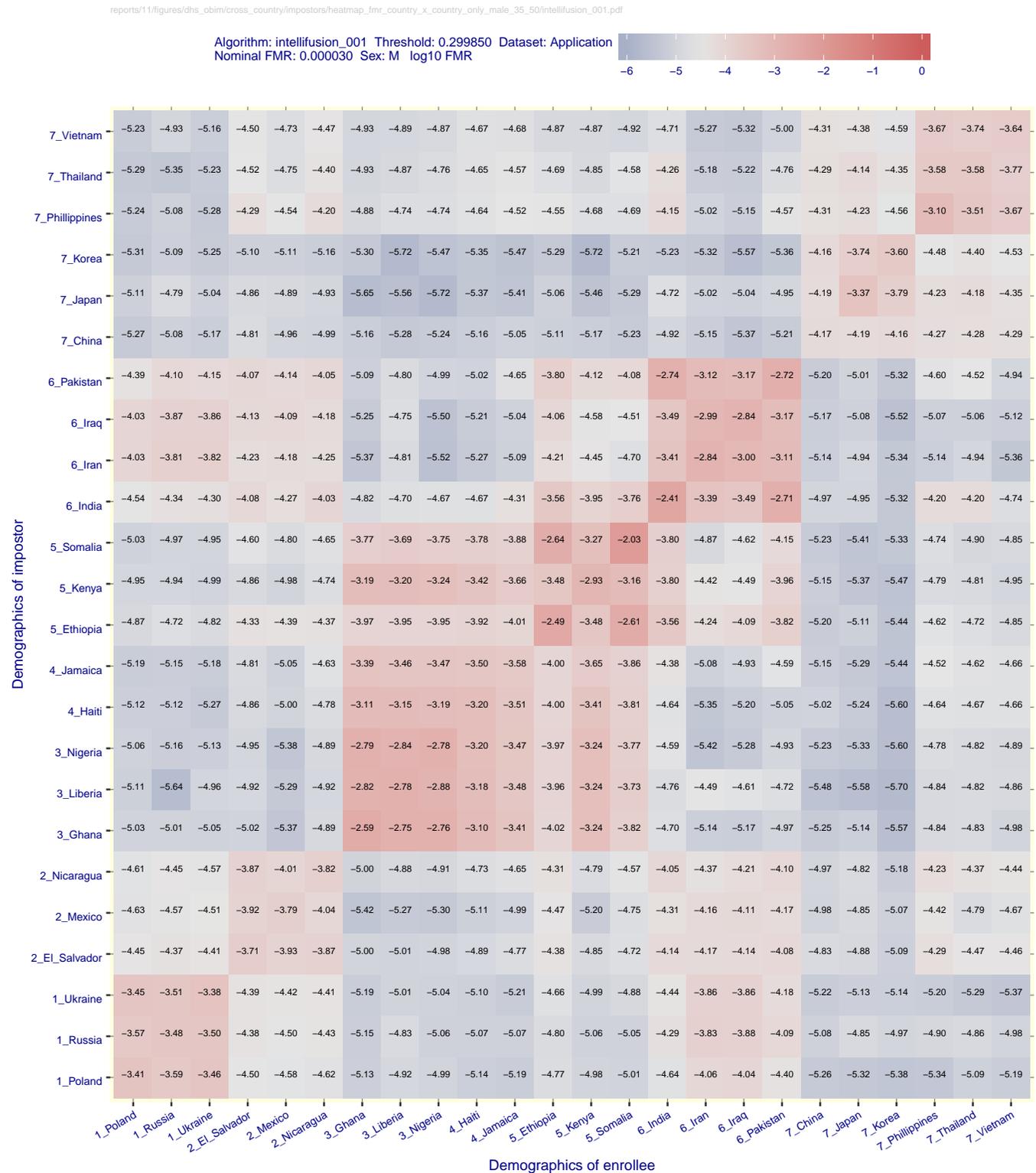


Figure 123: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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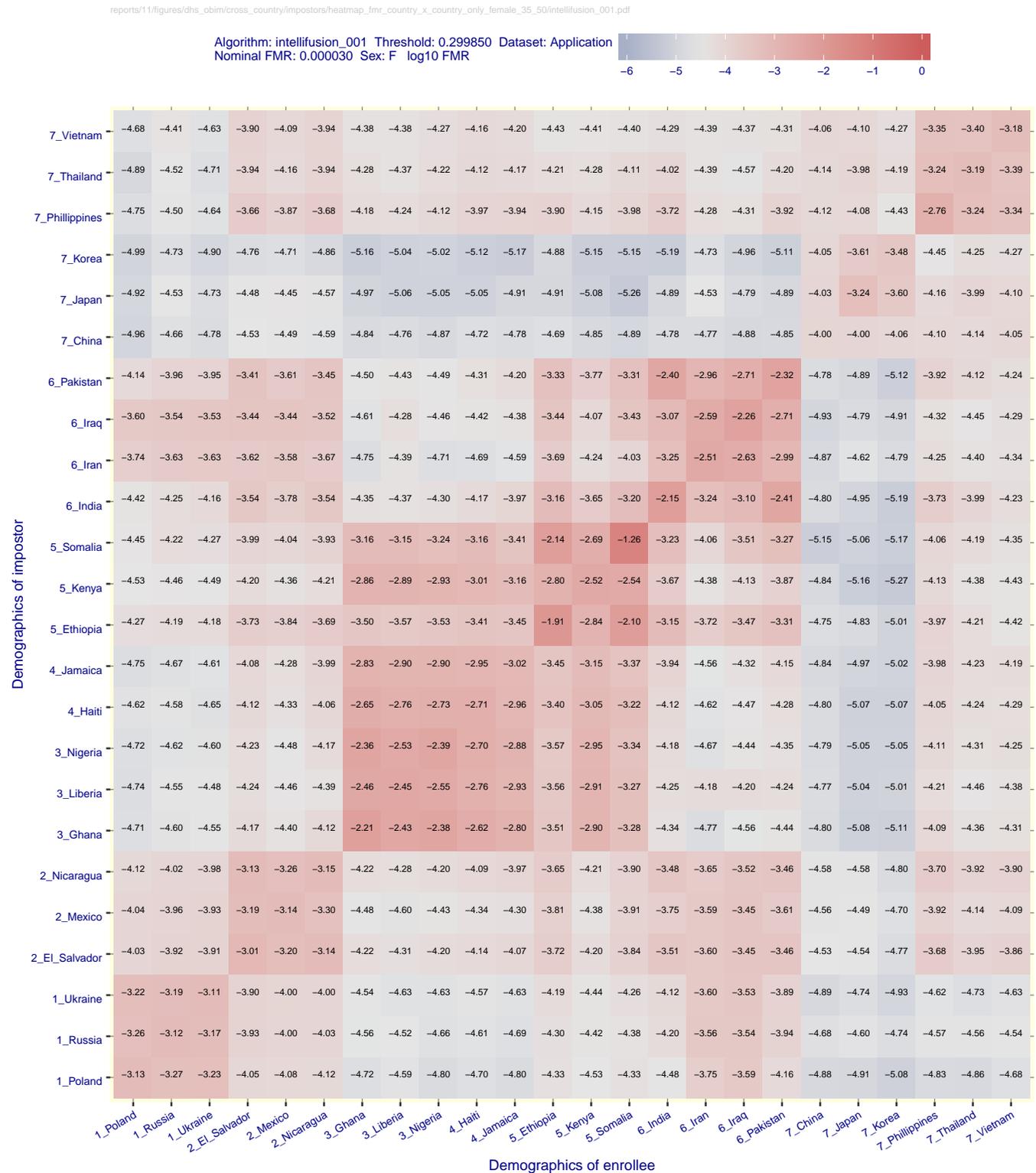


Figure 124: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/intellivision\_002.pdf

Algorithm: intellivision\_002 Threshold: 36.723813 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

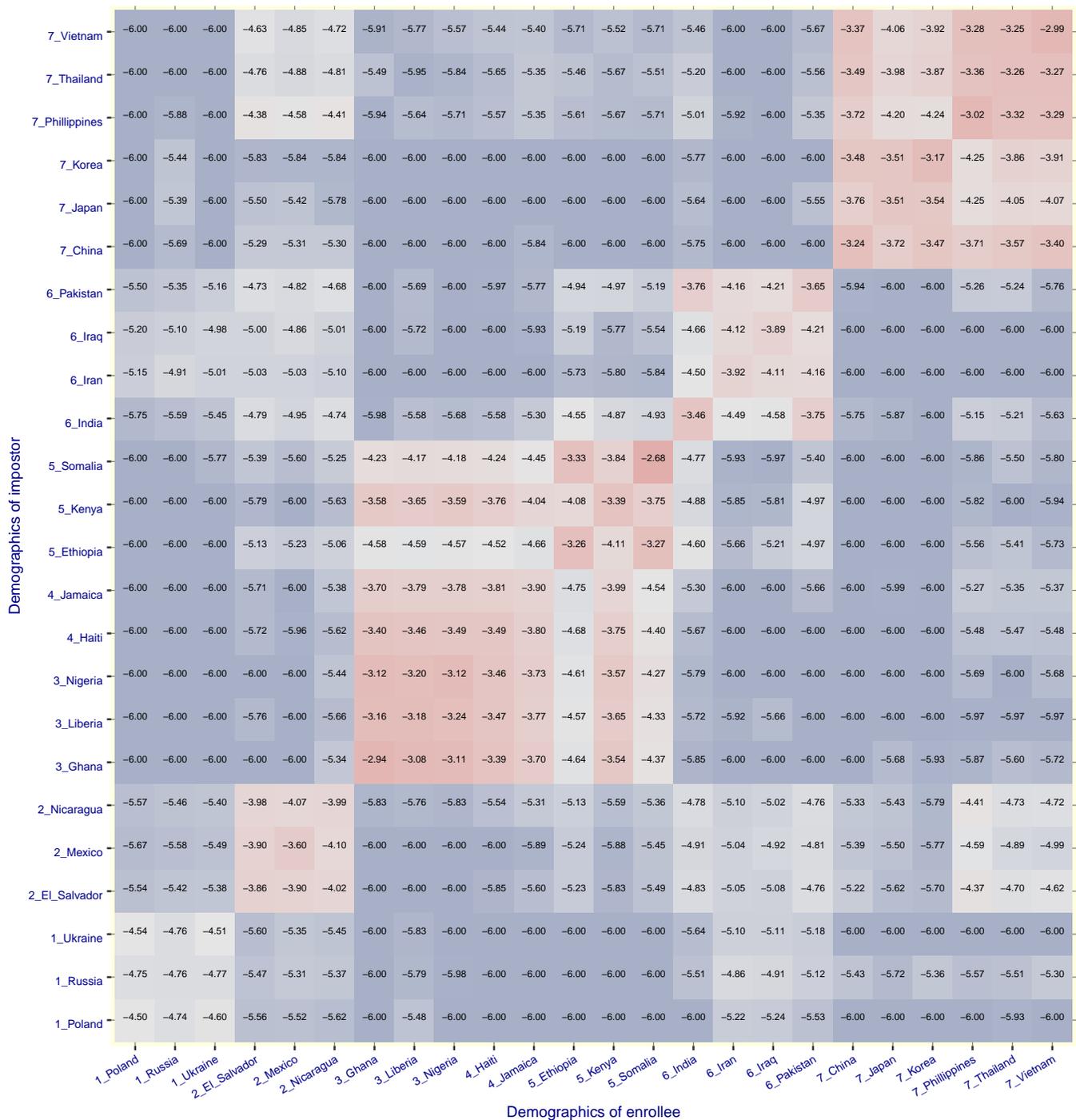


Figure 125: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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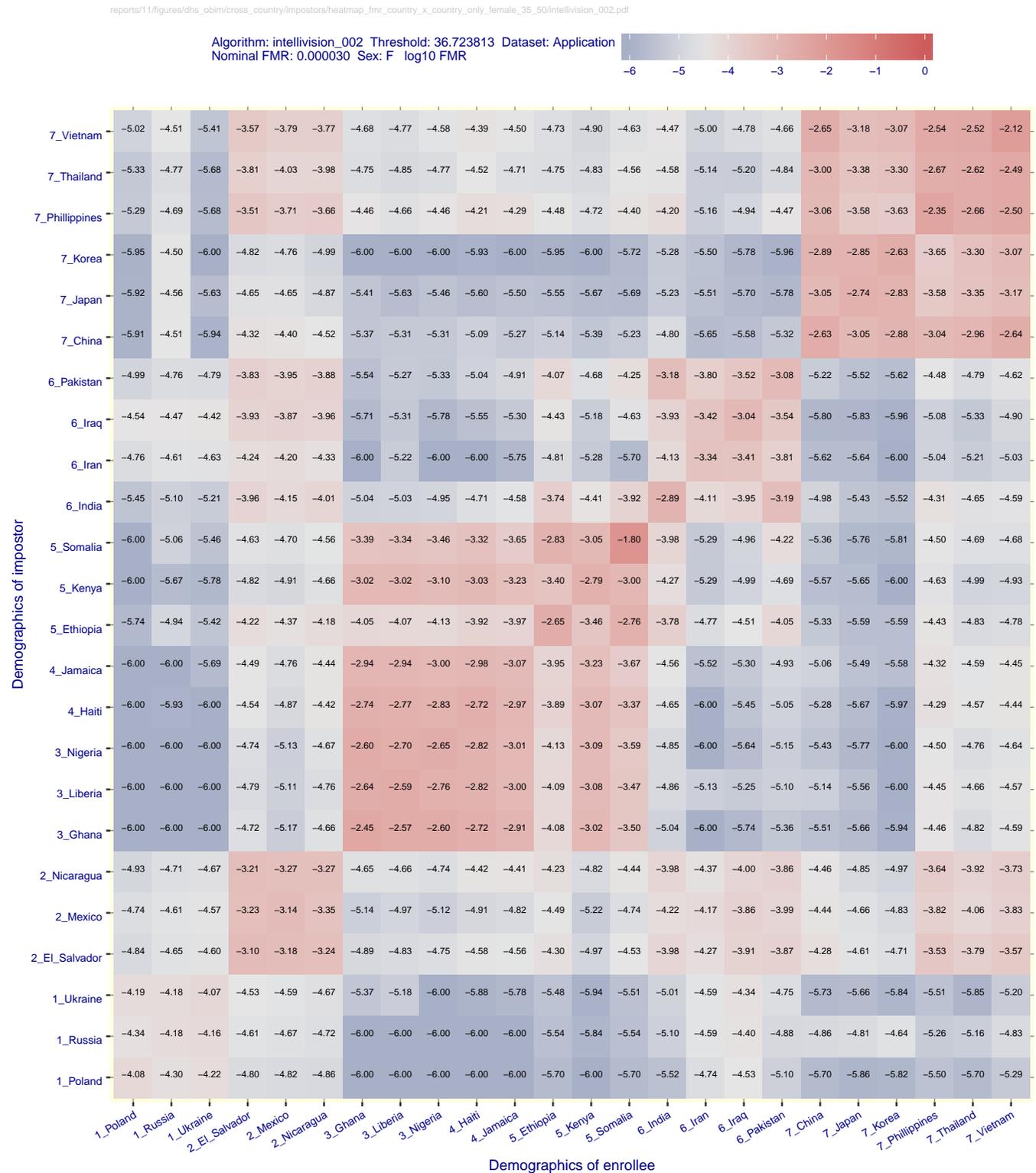


Figure 126: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/intelresearch\_000.pdf

Algorithm: intelresearch\_000 Threshold: 596.908597 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

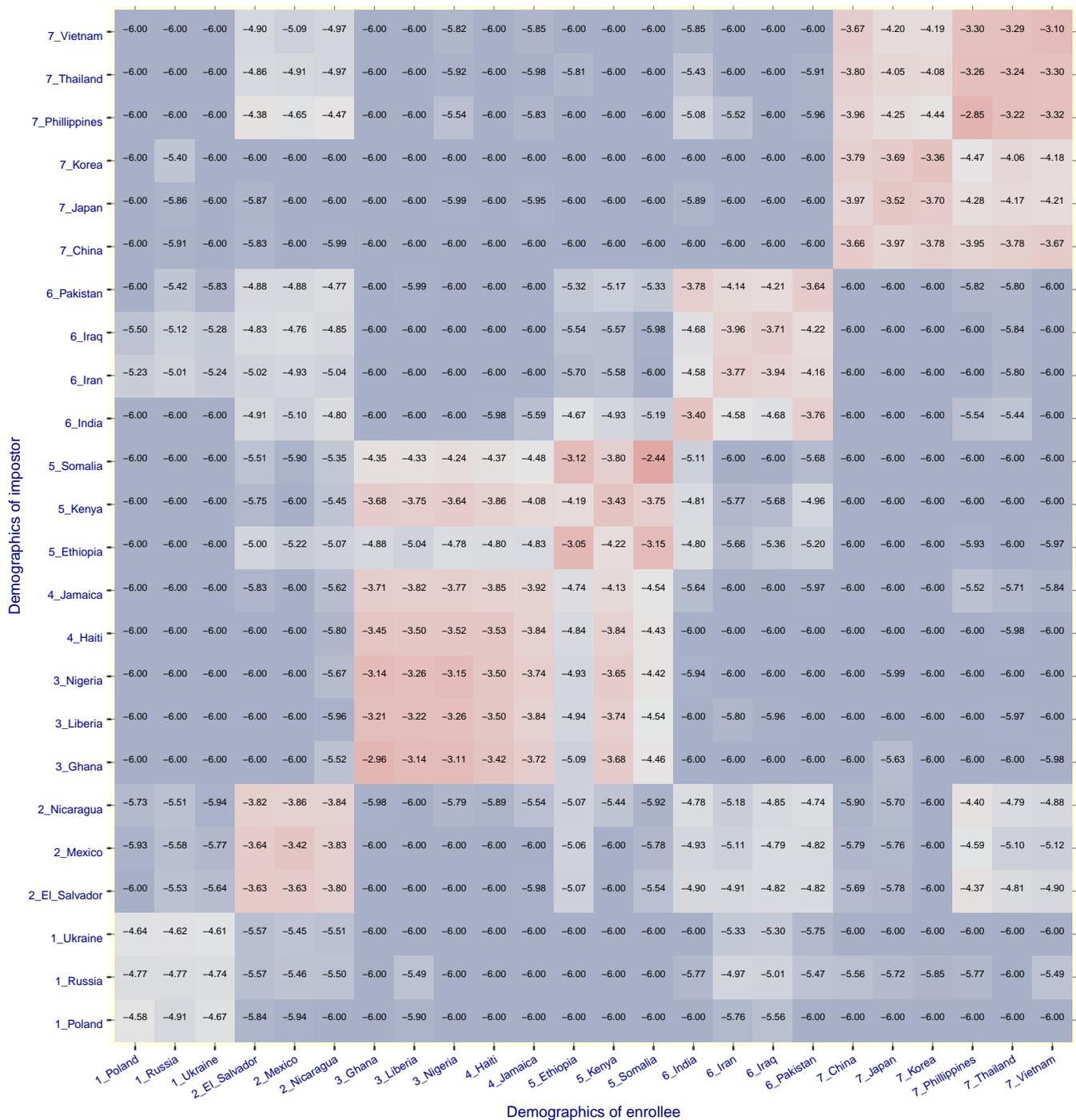
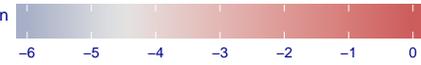


Figure 127: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR | 1:N FPIR | T >> 0  
1:1 FNMR | 1:N FNIR

T >> 0 → FMR, FPIR → 0  
→ FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/intelresearch\_000.pdf

Algorithm: intelresearch\_000 Threshold: 596.908597 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

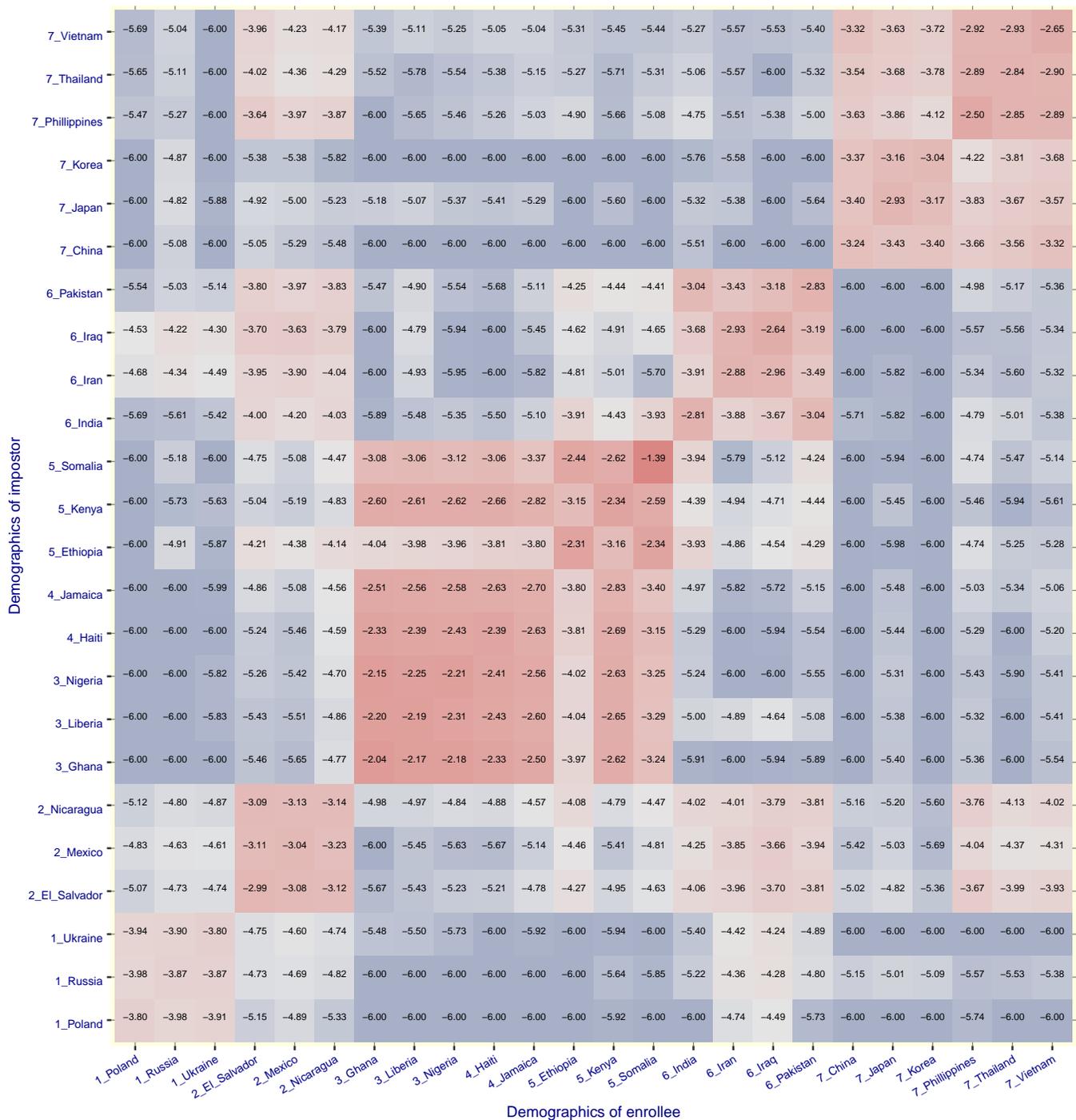


Figure 128: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/intsysmsu\_000.pdf

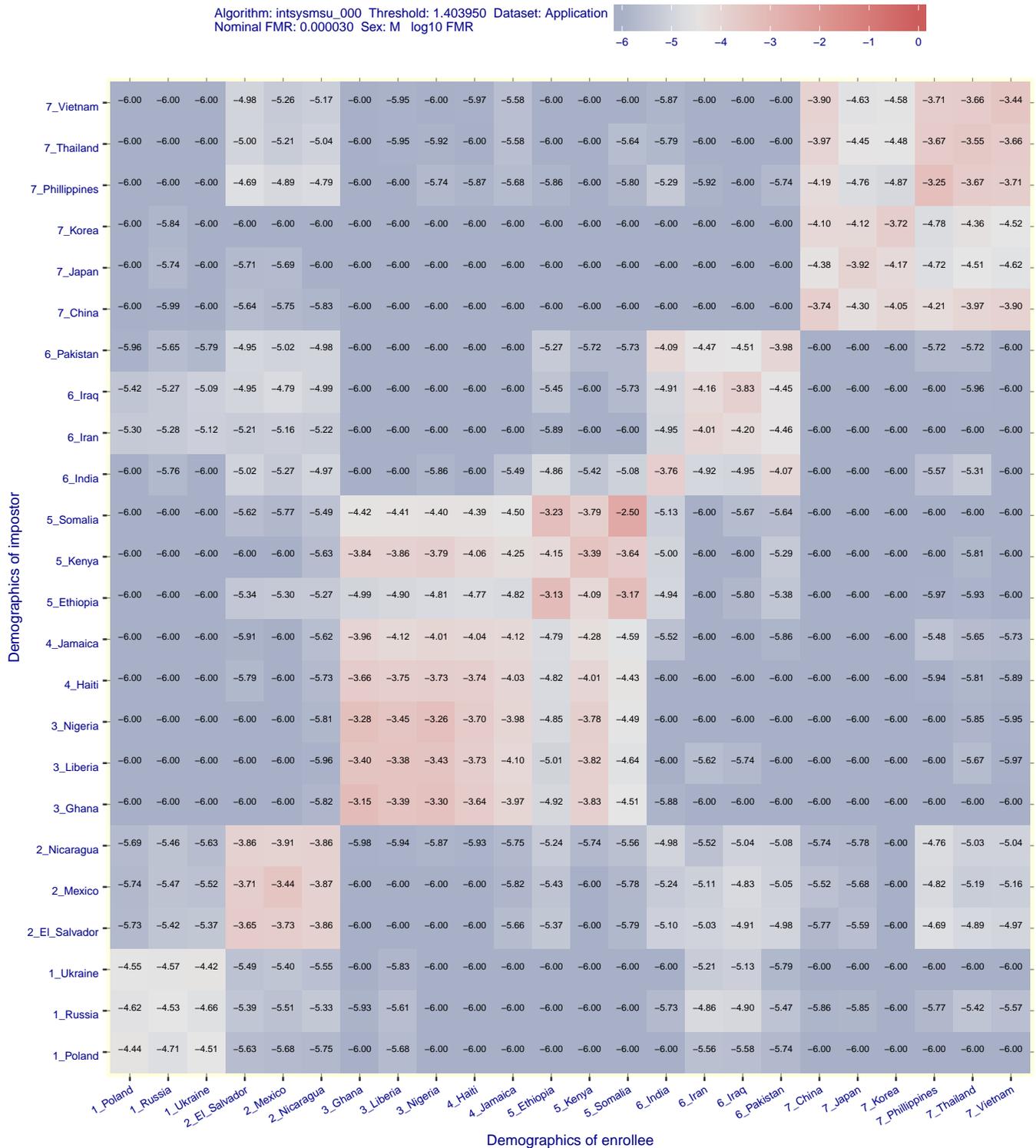


Figure 129: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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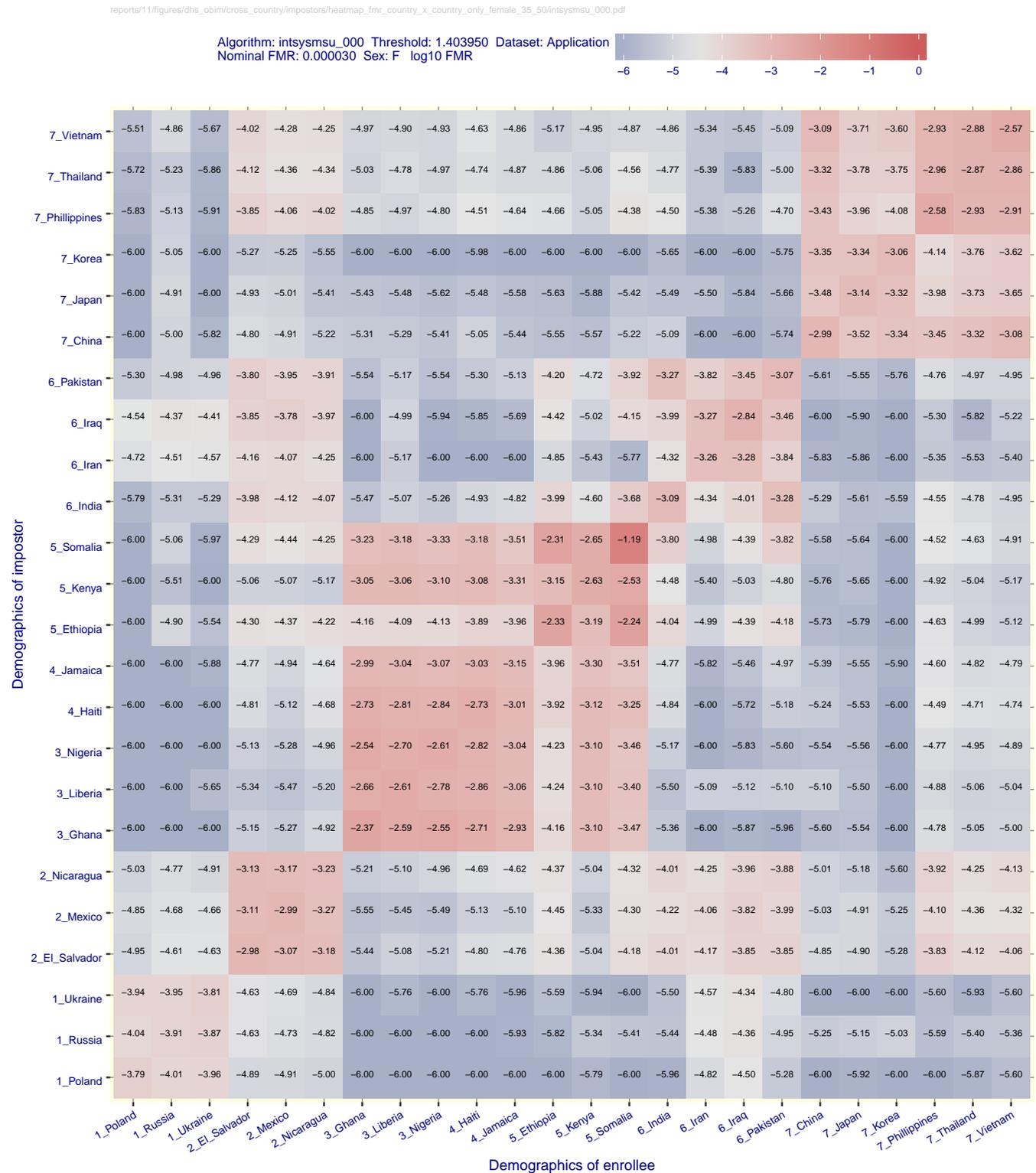
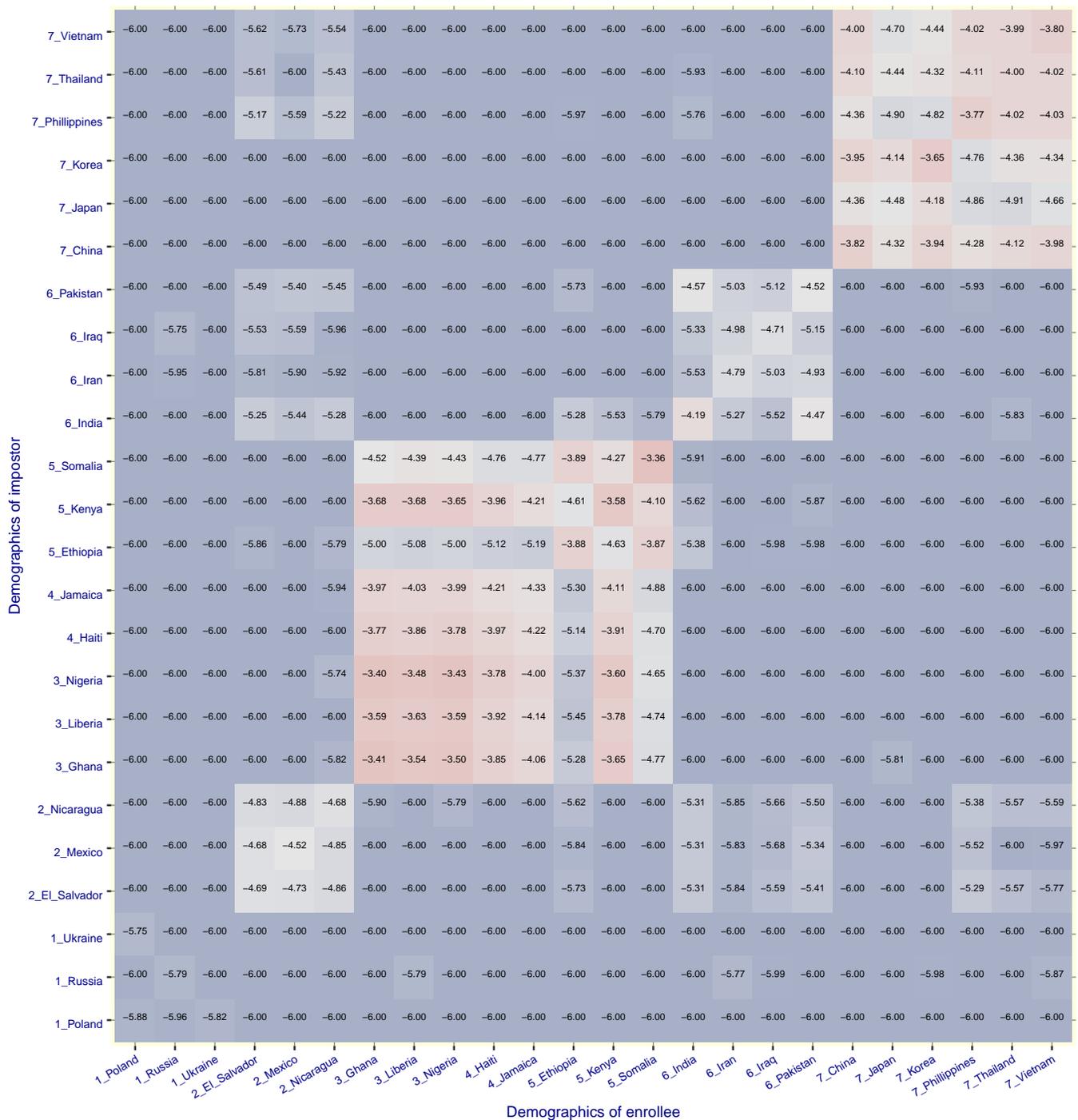
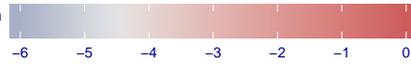


Figure 130: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/isap\_001.pdf

Algorithm: isap\_001 Threshold: 0.984592 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR



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Figure 131: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

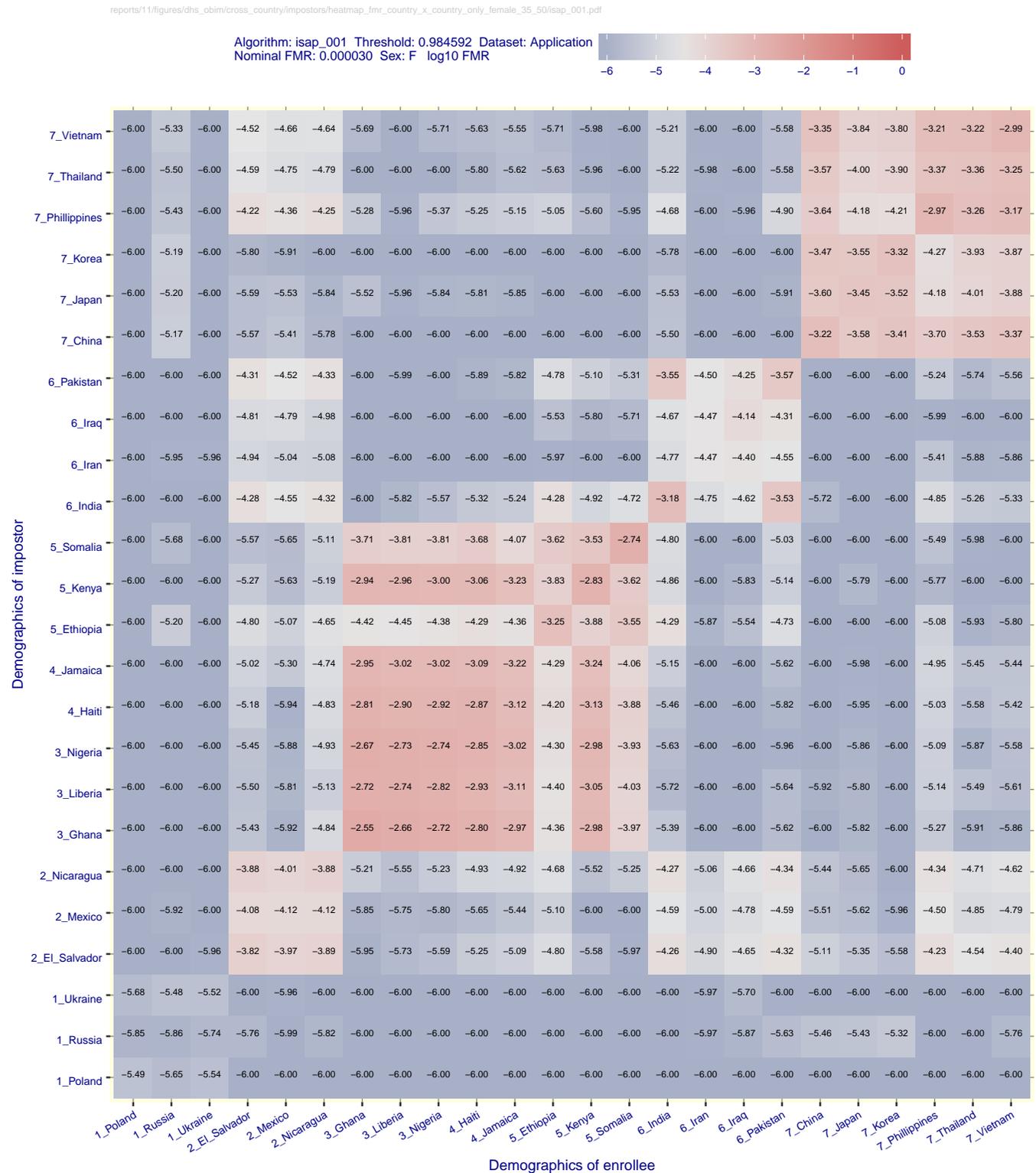


Figure 132: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/isytems\_001.pdf

Algorithm: isystems\_001 Threshold: 0.700563 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

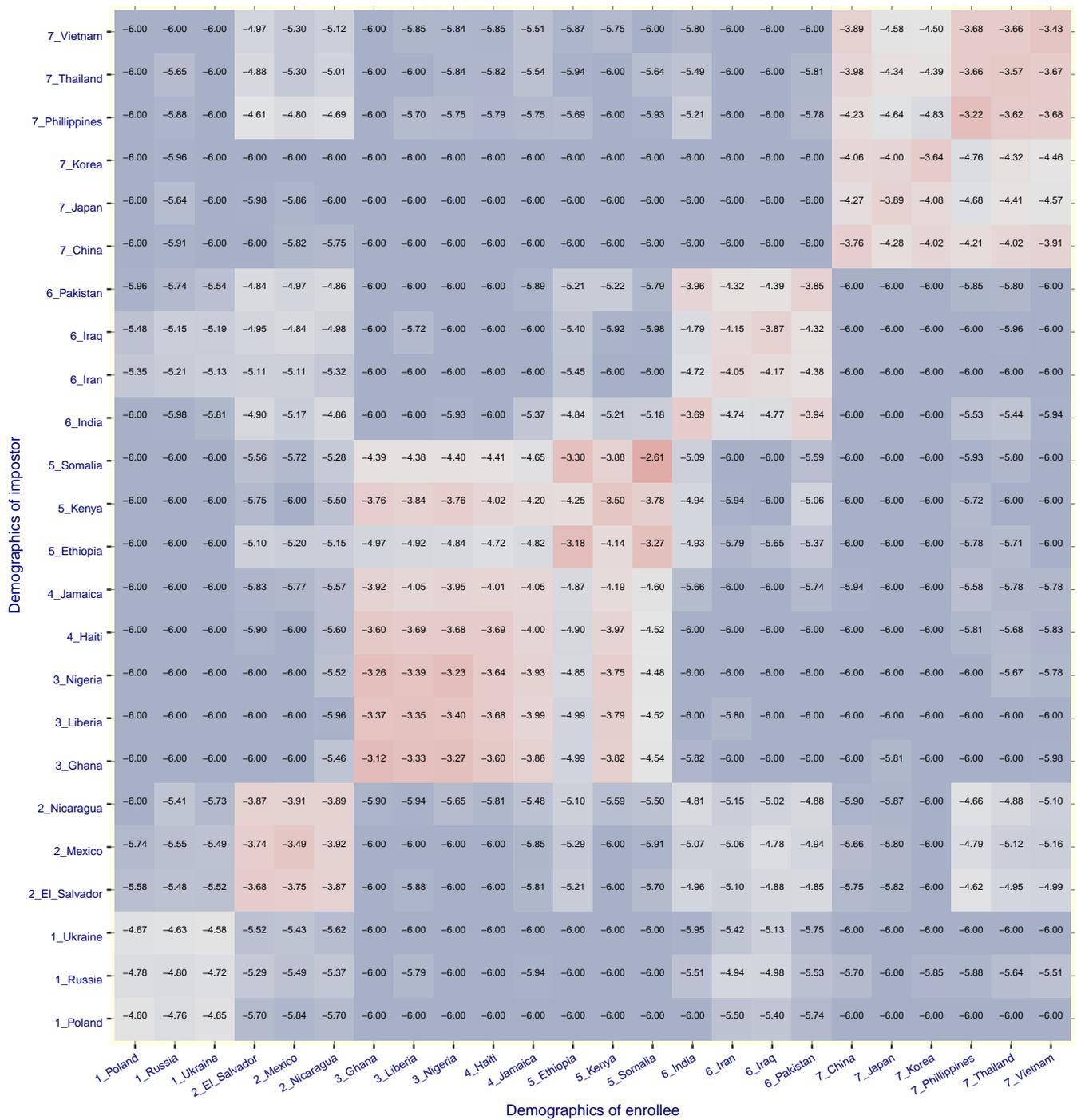
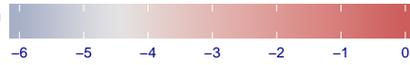


Figure 133: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/systems\_001.pdf

Algorithm: isystems\_001 Threshold: 0.700563 Dataset: Application  
Nominal FMR: 0.000030 Sex: F log10 FMR

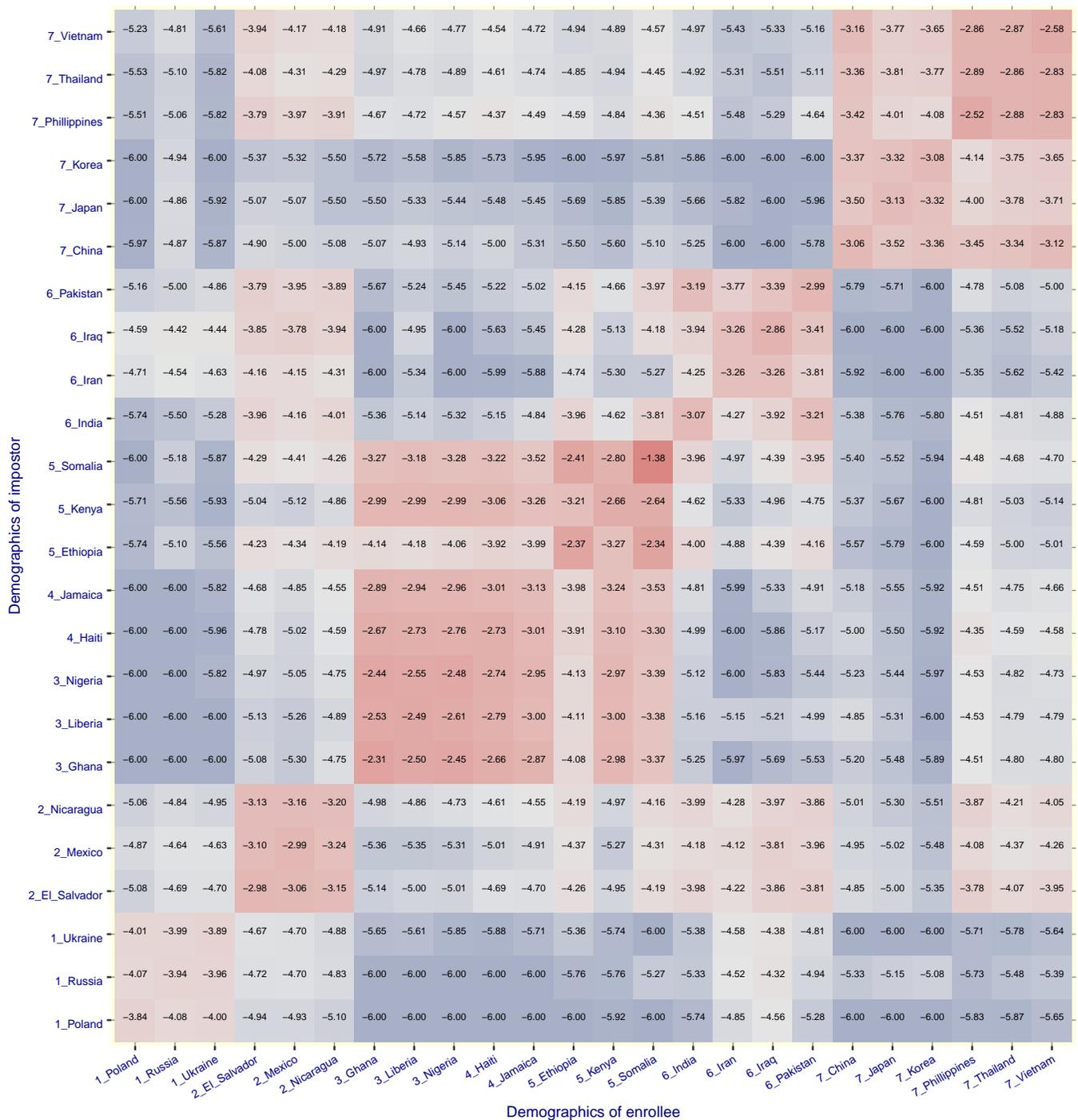
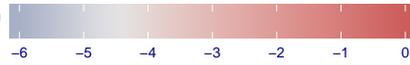


Figure 134: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/isytems\_002.pdf

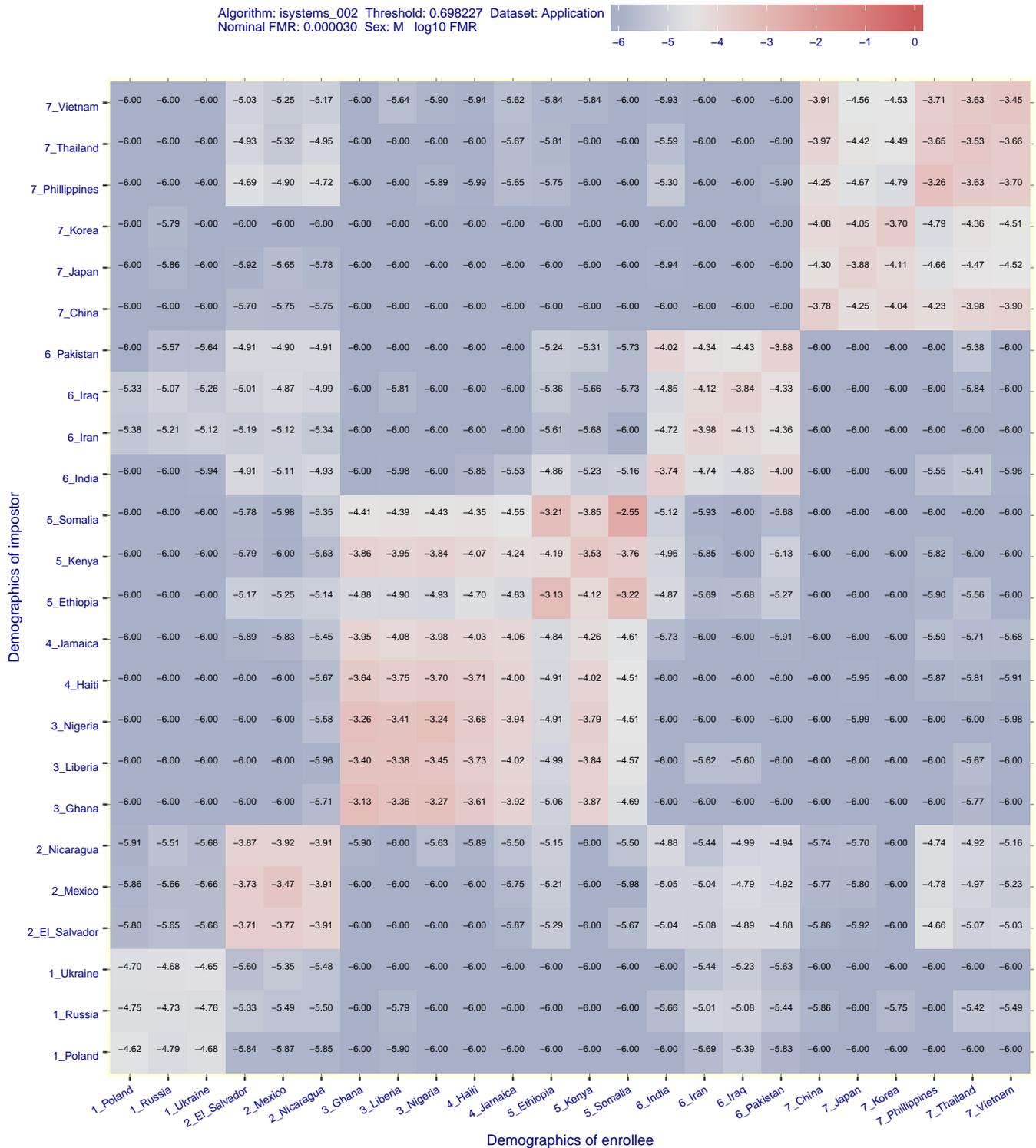


Figure 135: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/systems\_002.pdf

Algorithm: isystems\_002 Threshold: 0.698227 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

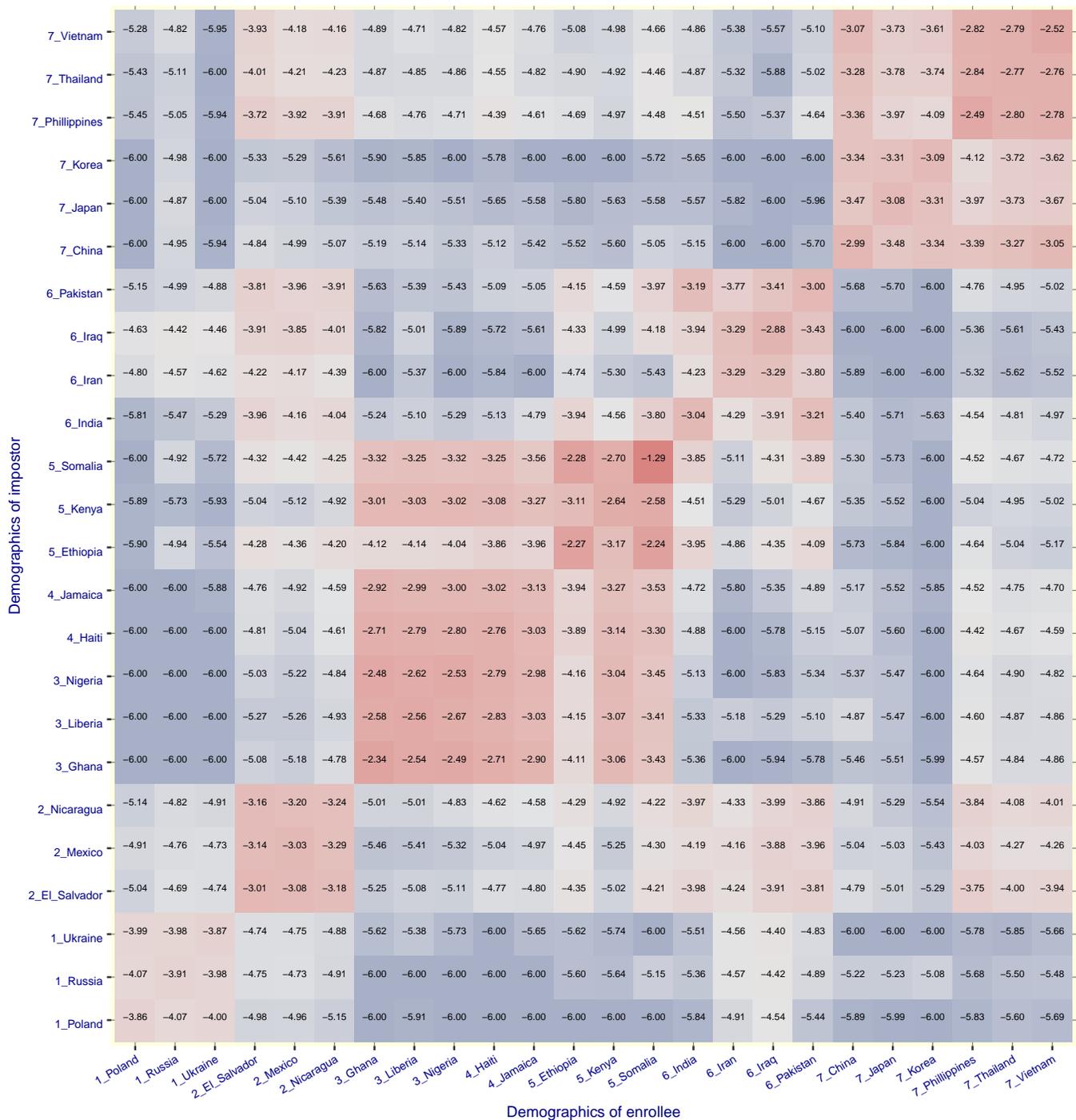


Figure 136: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≥ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/itmo\_005.pdf

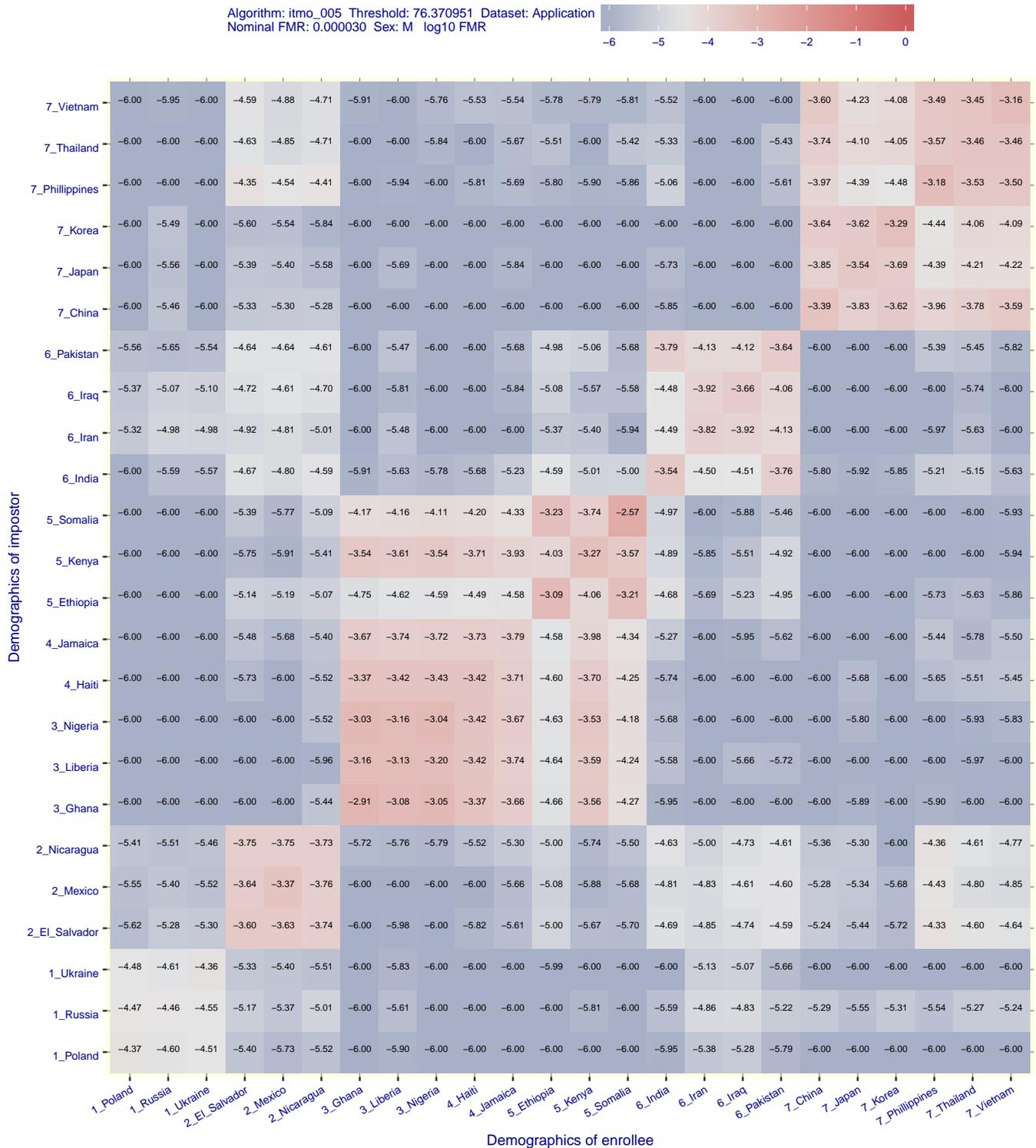


Figure 137: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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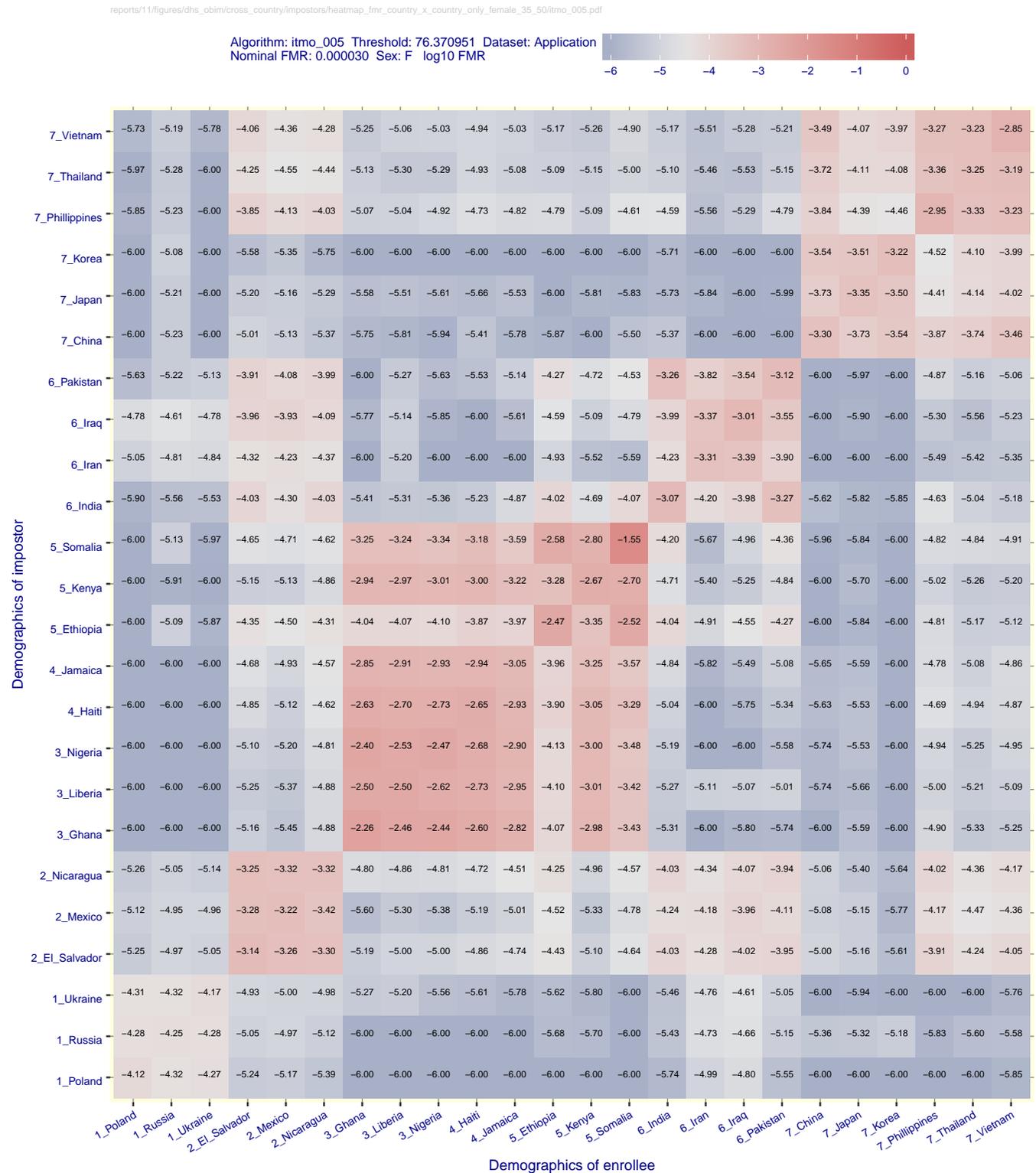


Figure 138: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/itmo\_006.pdf

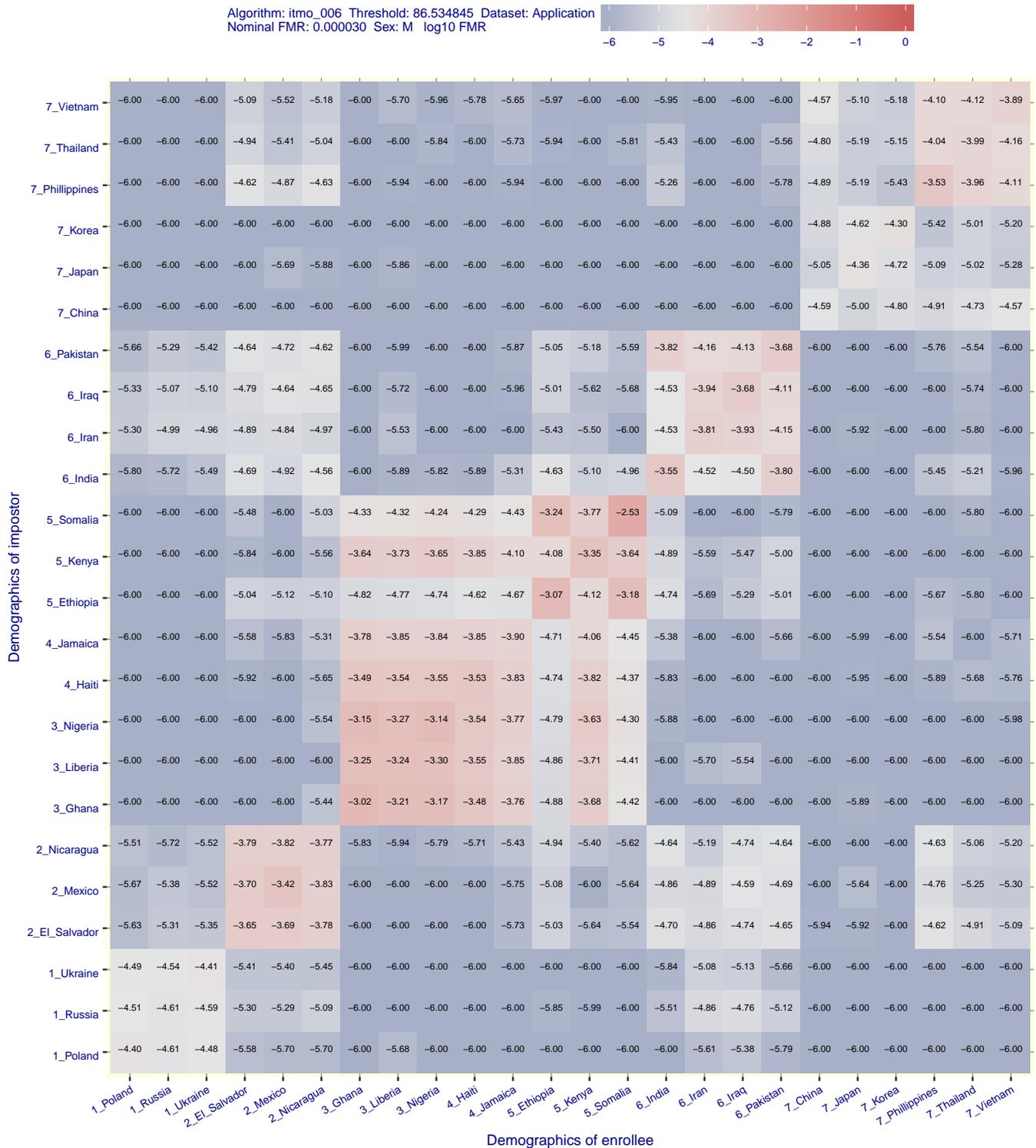


Figure 139: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≫ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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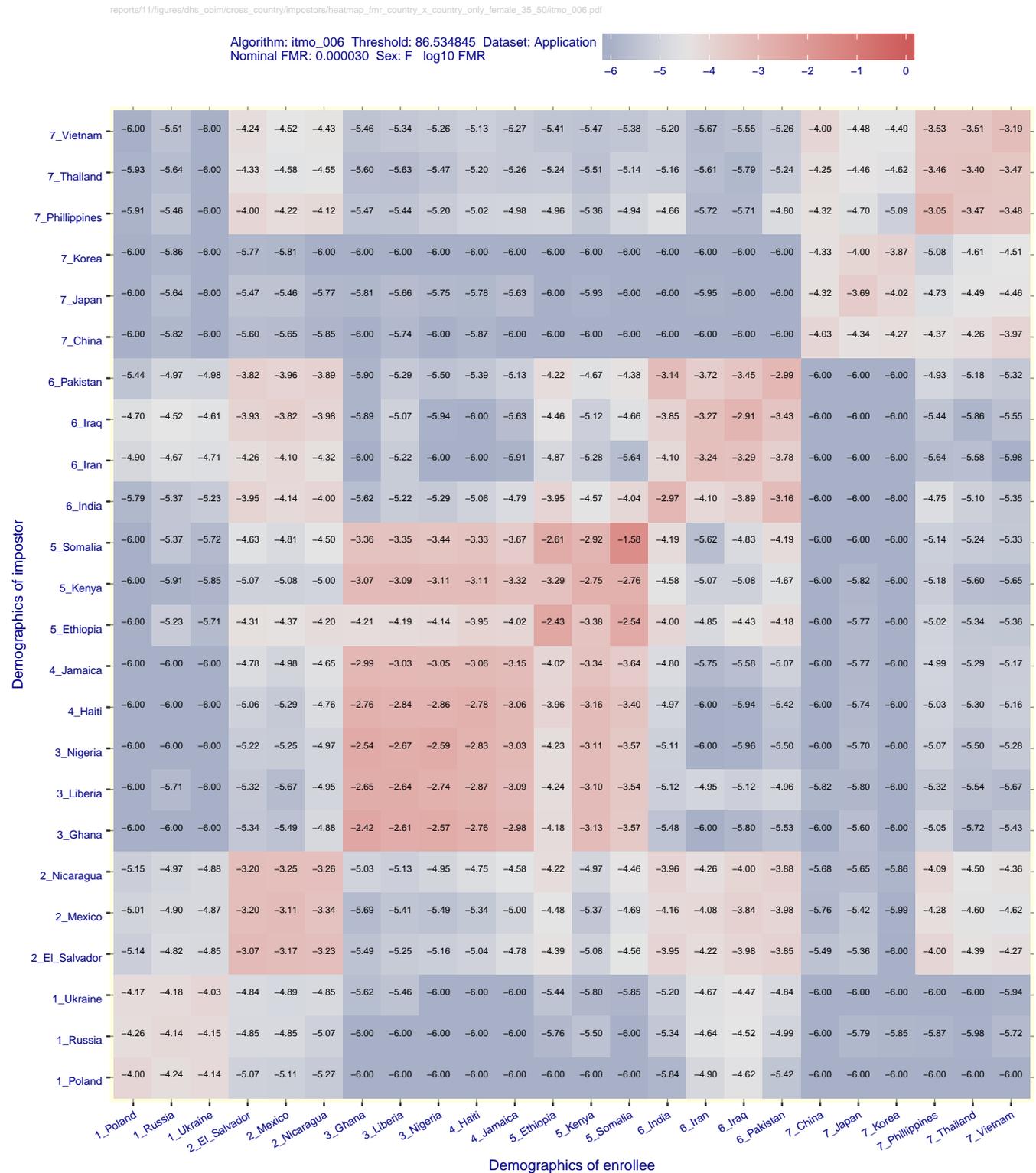


Figure 140: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/kakao\_002.pdf

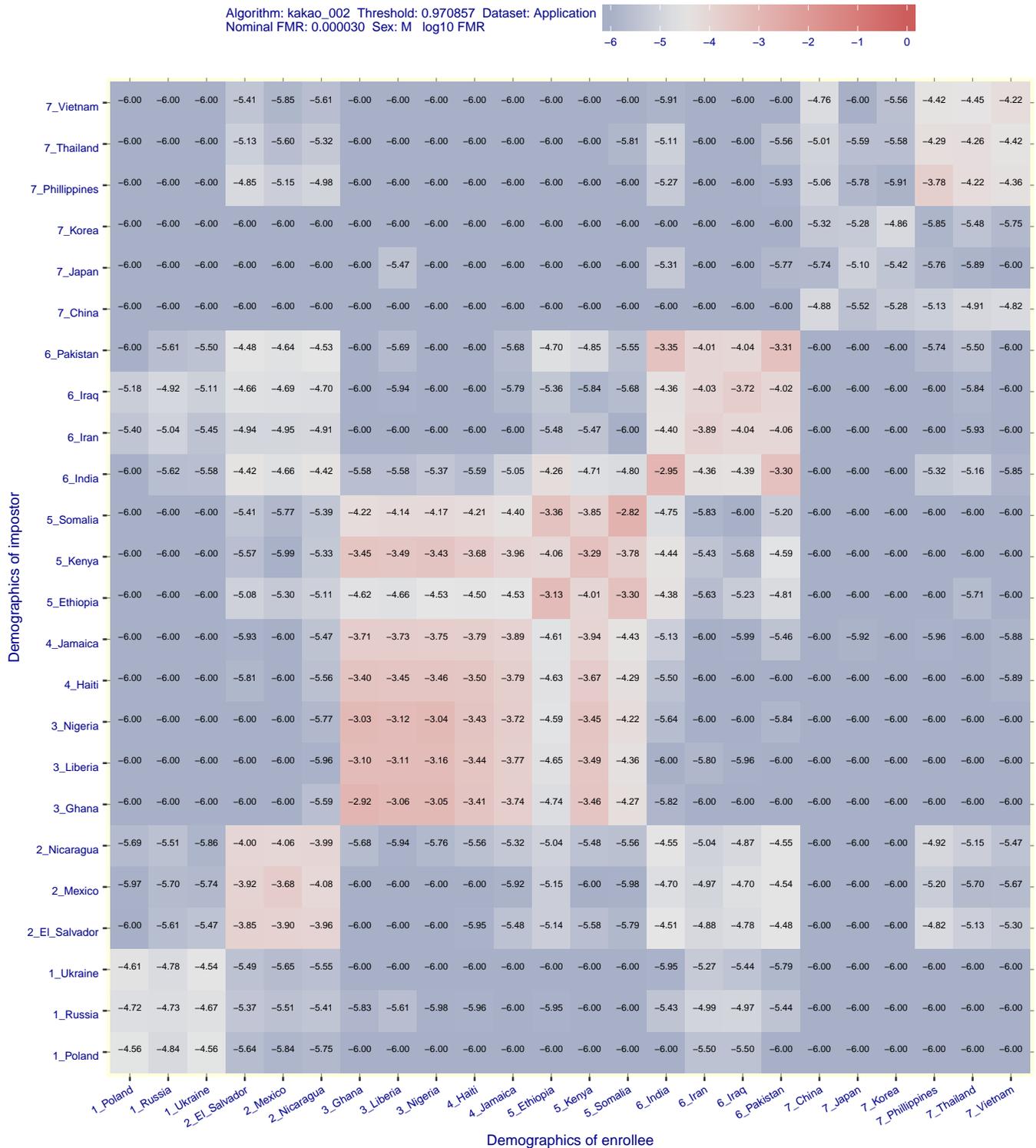


Figure 141: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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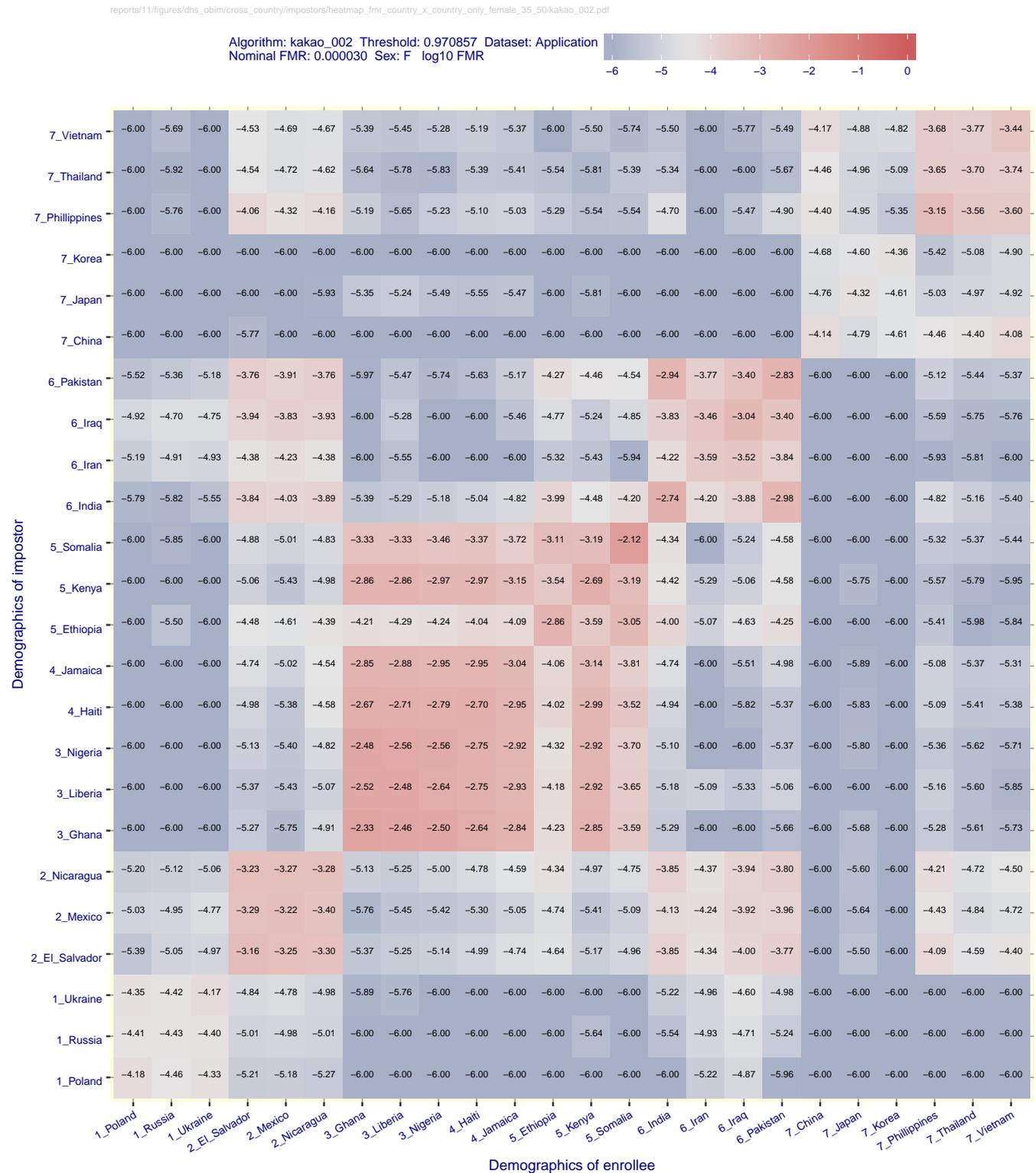


Figure 142: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/kedacom\_000.pdf

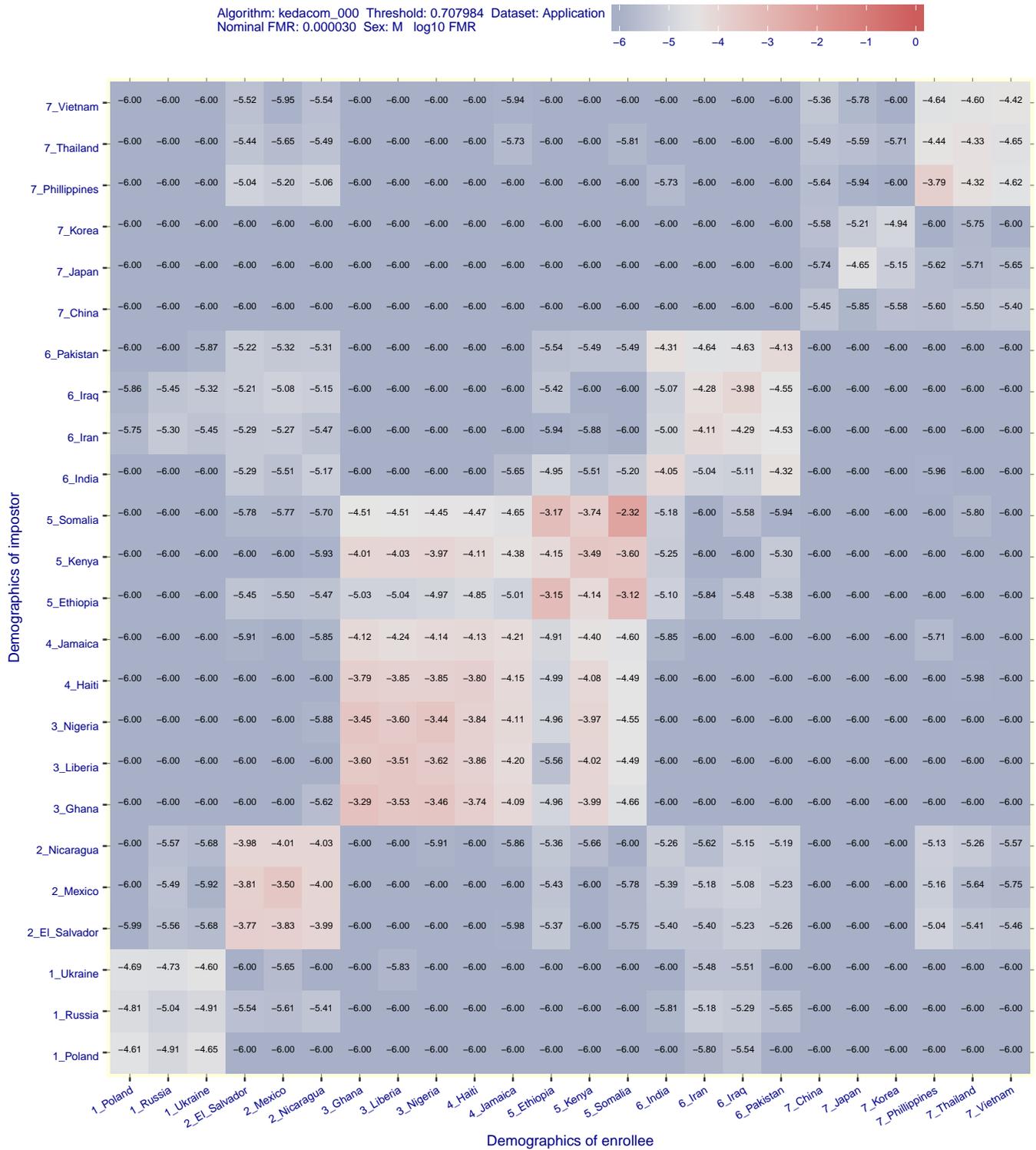


Figure 143: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/kedacom\_000.pdf

Algorithm: kedacom\_000 Threshold: 0.707984 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

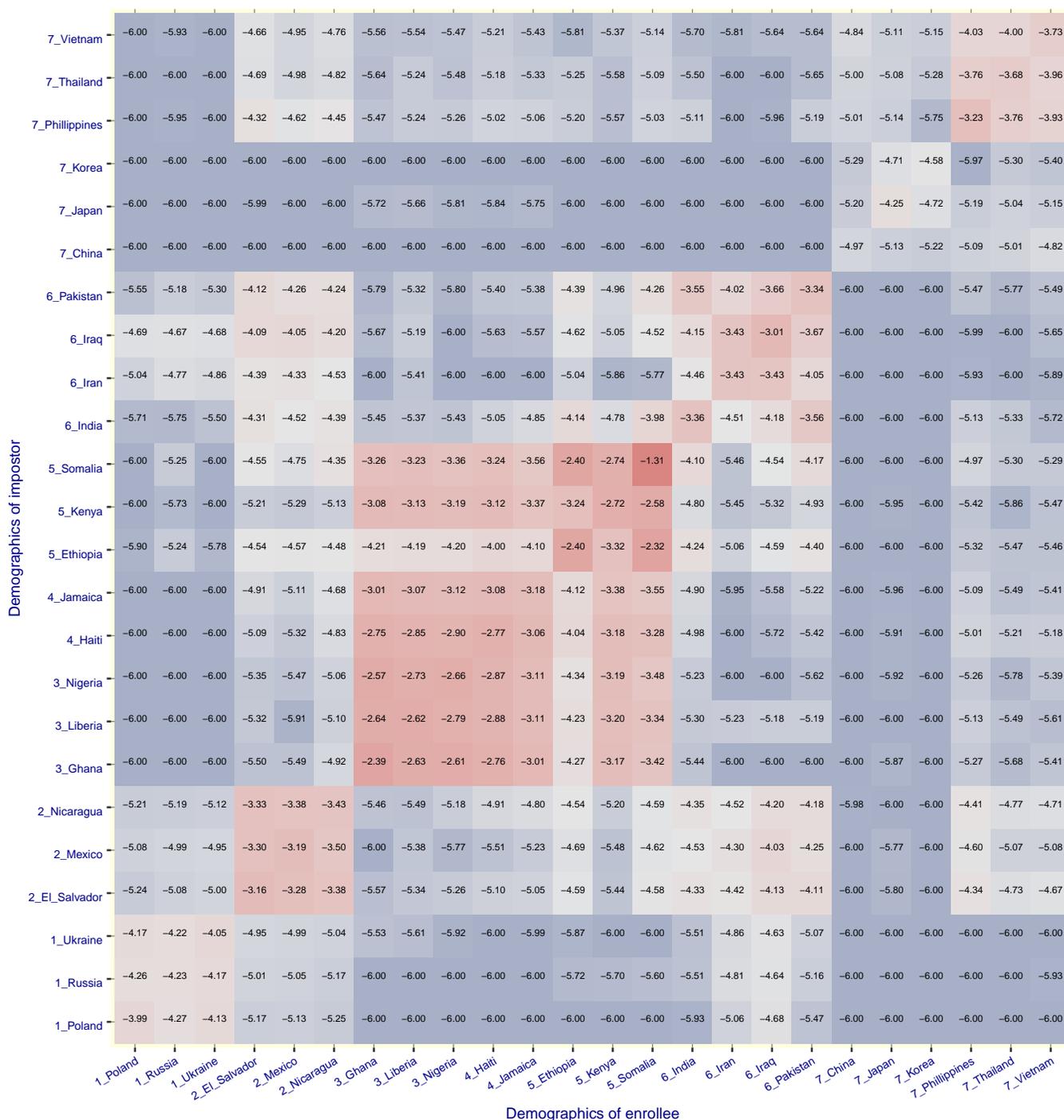


Figure 144: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/kneron\_003.pdf

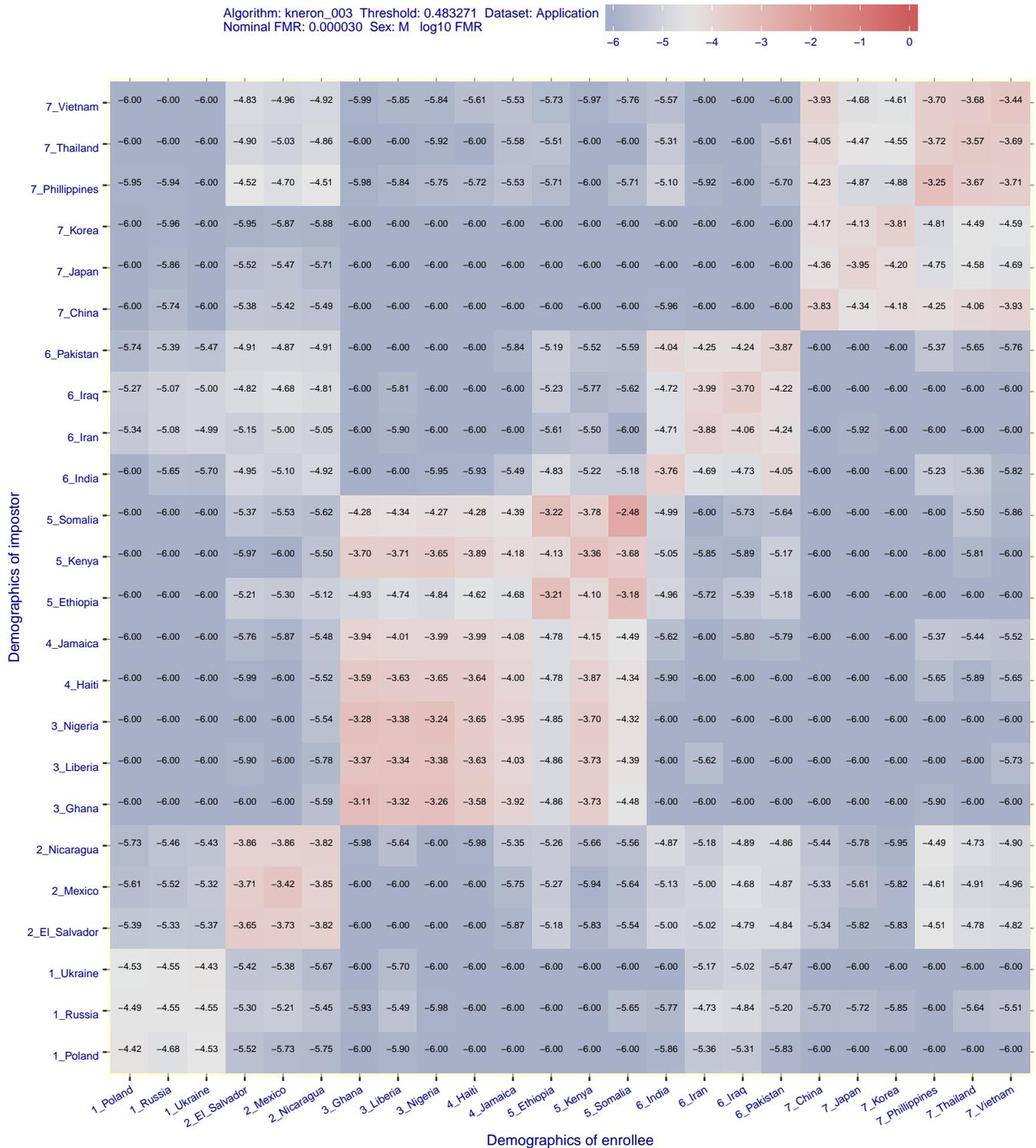


Figure 145: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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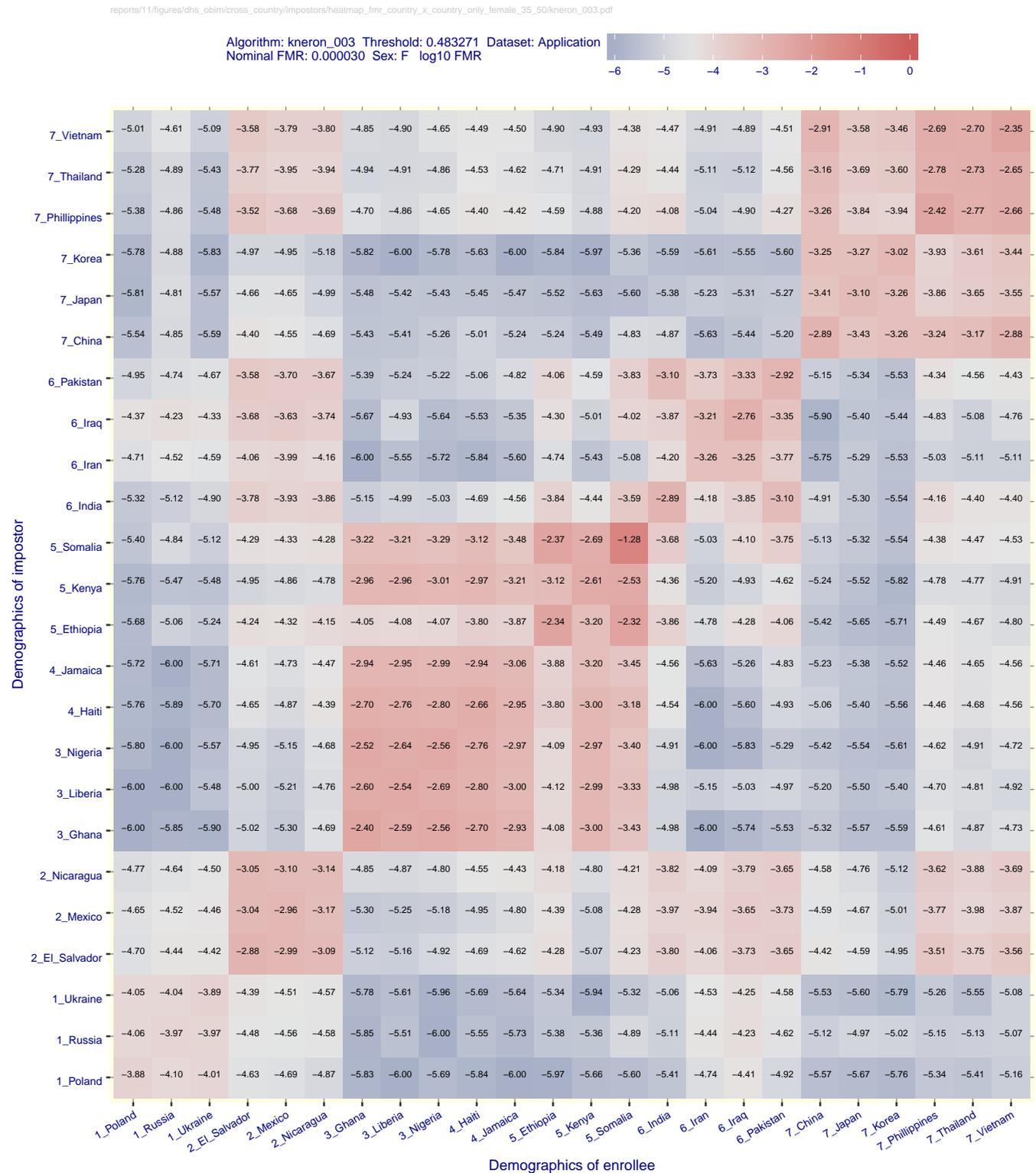


Figure 146: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/lookman\_002.pdf

Algorithm: lookman\_002 Threshold: 0.710714 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

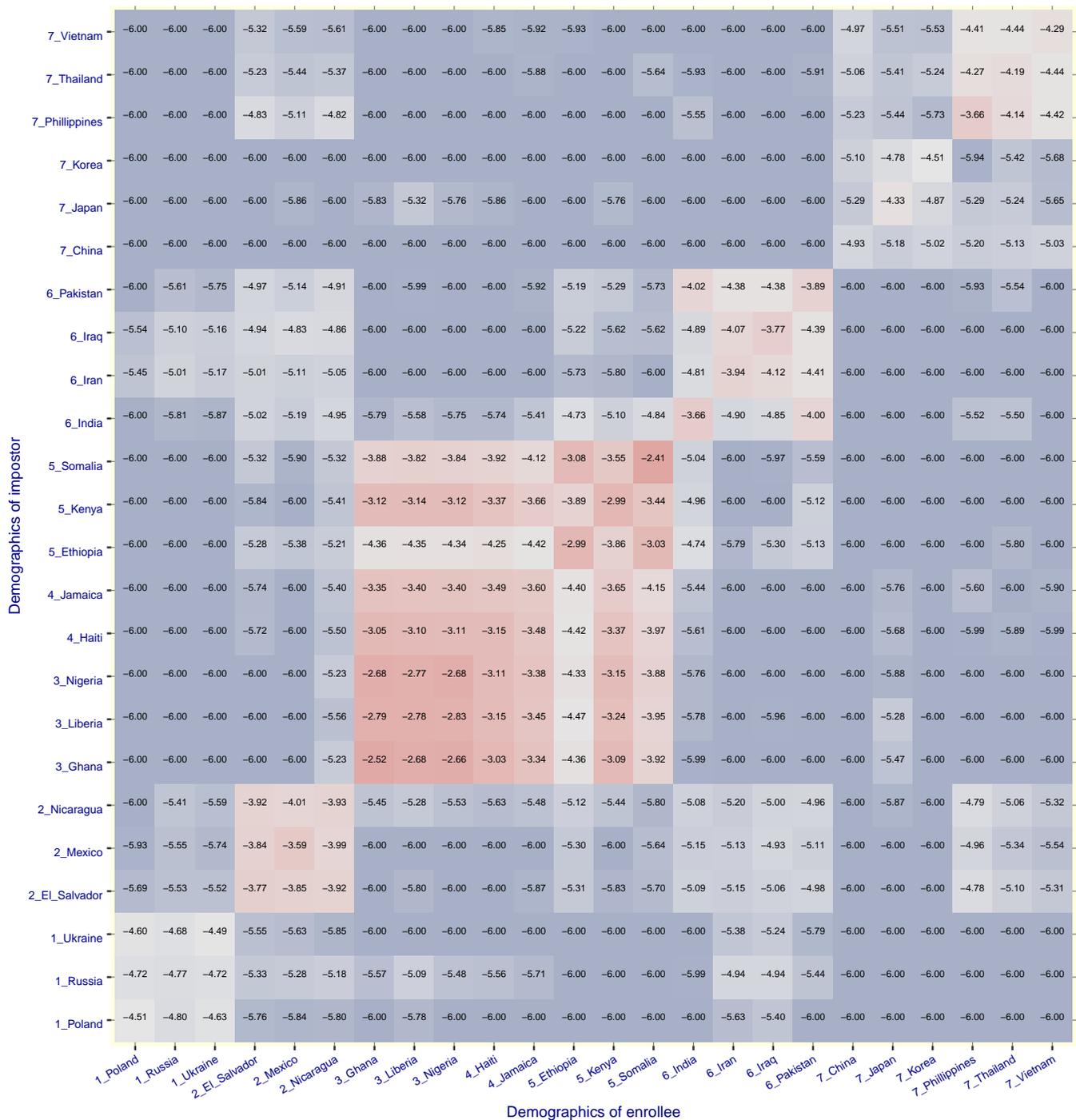
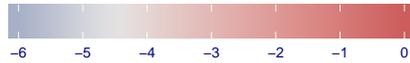


Figure 147: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/lookman\_002.pdf

Algorithm: lookman\_002 Threshold: 0.710714 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

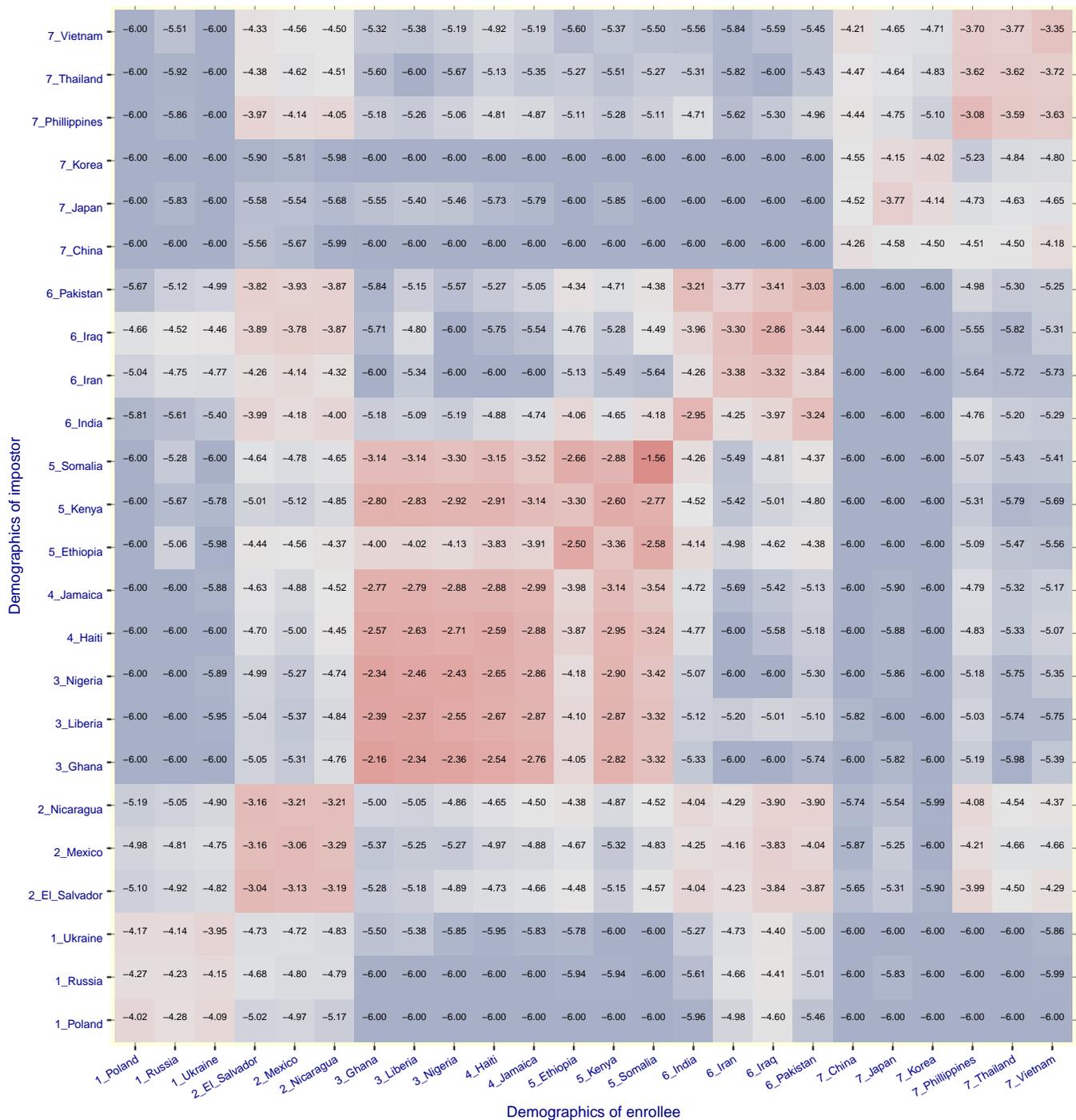


Figure 148: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/lookman\_004.pdf

Algorithm: lookman\_004 Threshold: 0.750753 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

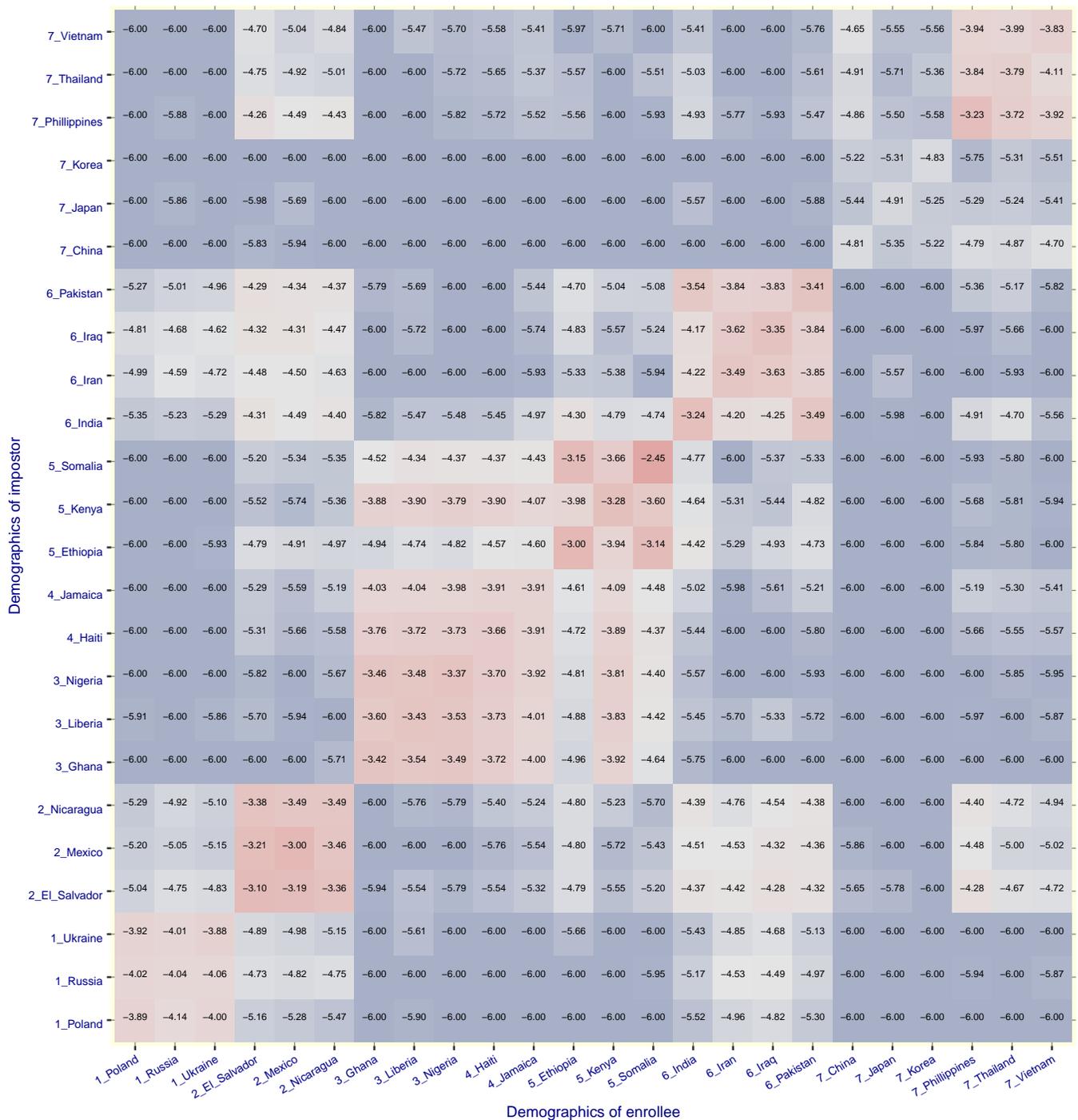


Figure 149: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/lookman\_004.pdf

Algorithm: lookman\_004 Threshold: 0.750753 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

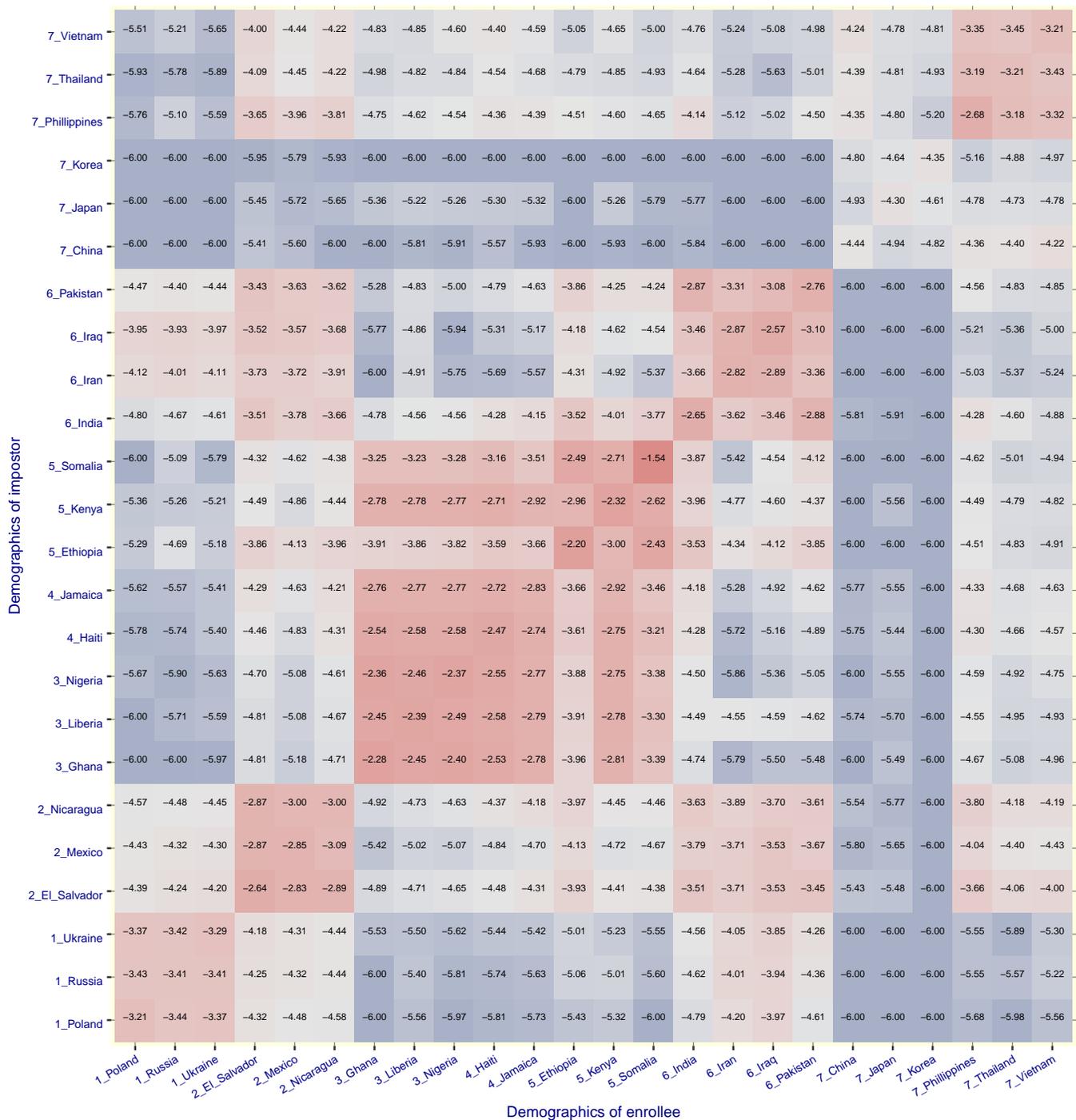


Figure 150: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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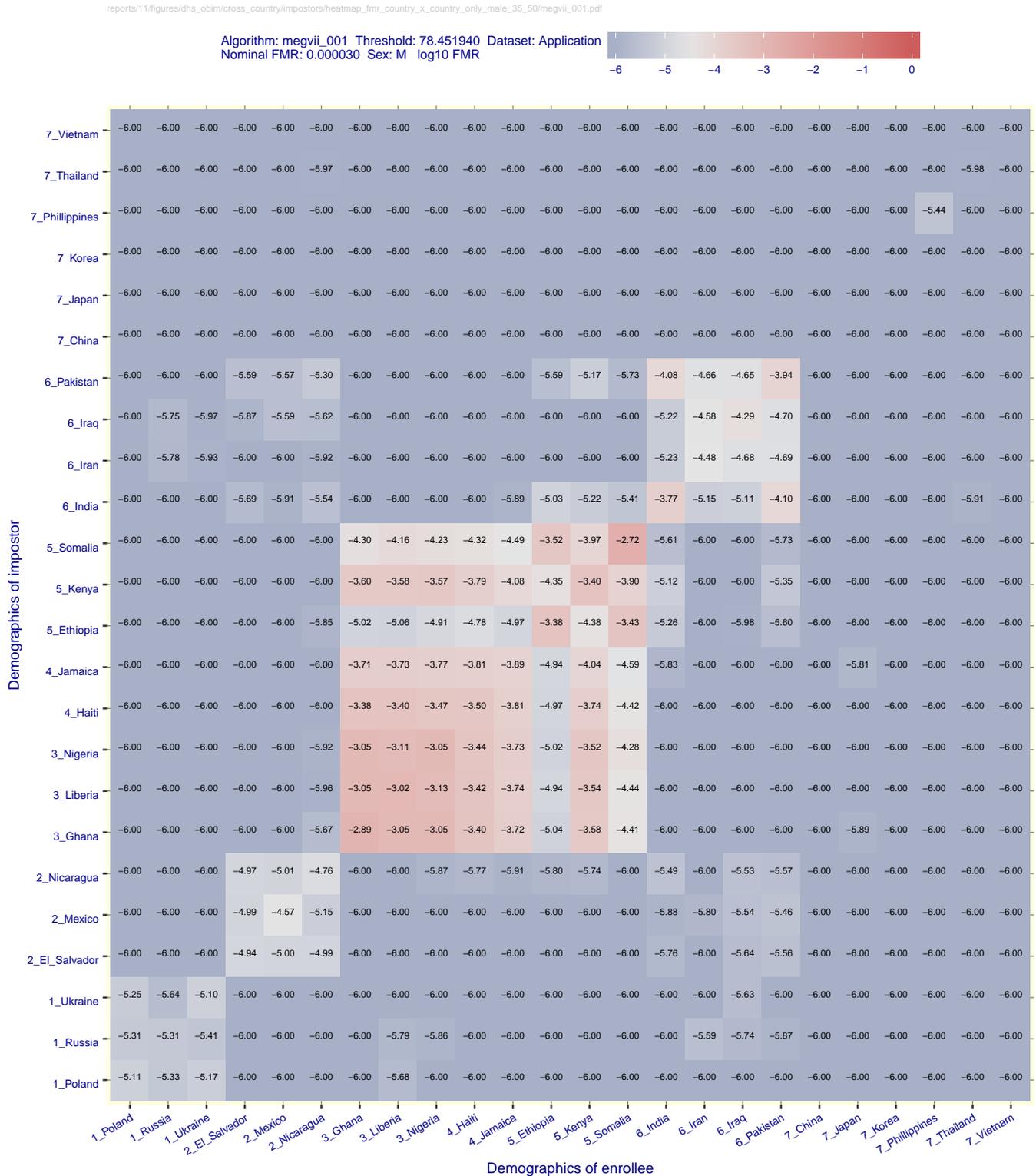


Figure 151: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

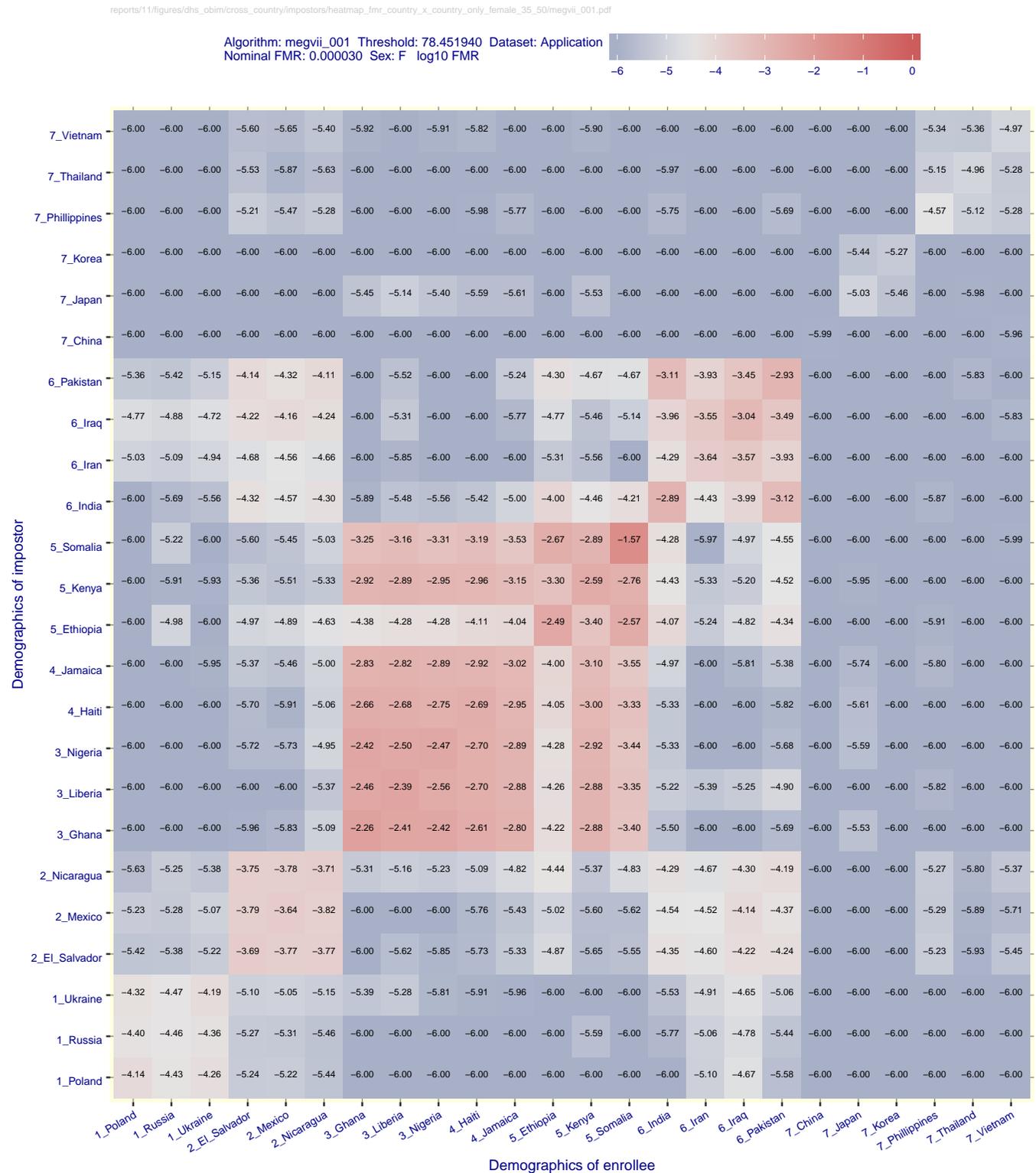
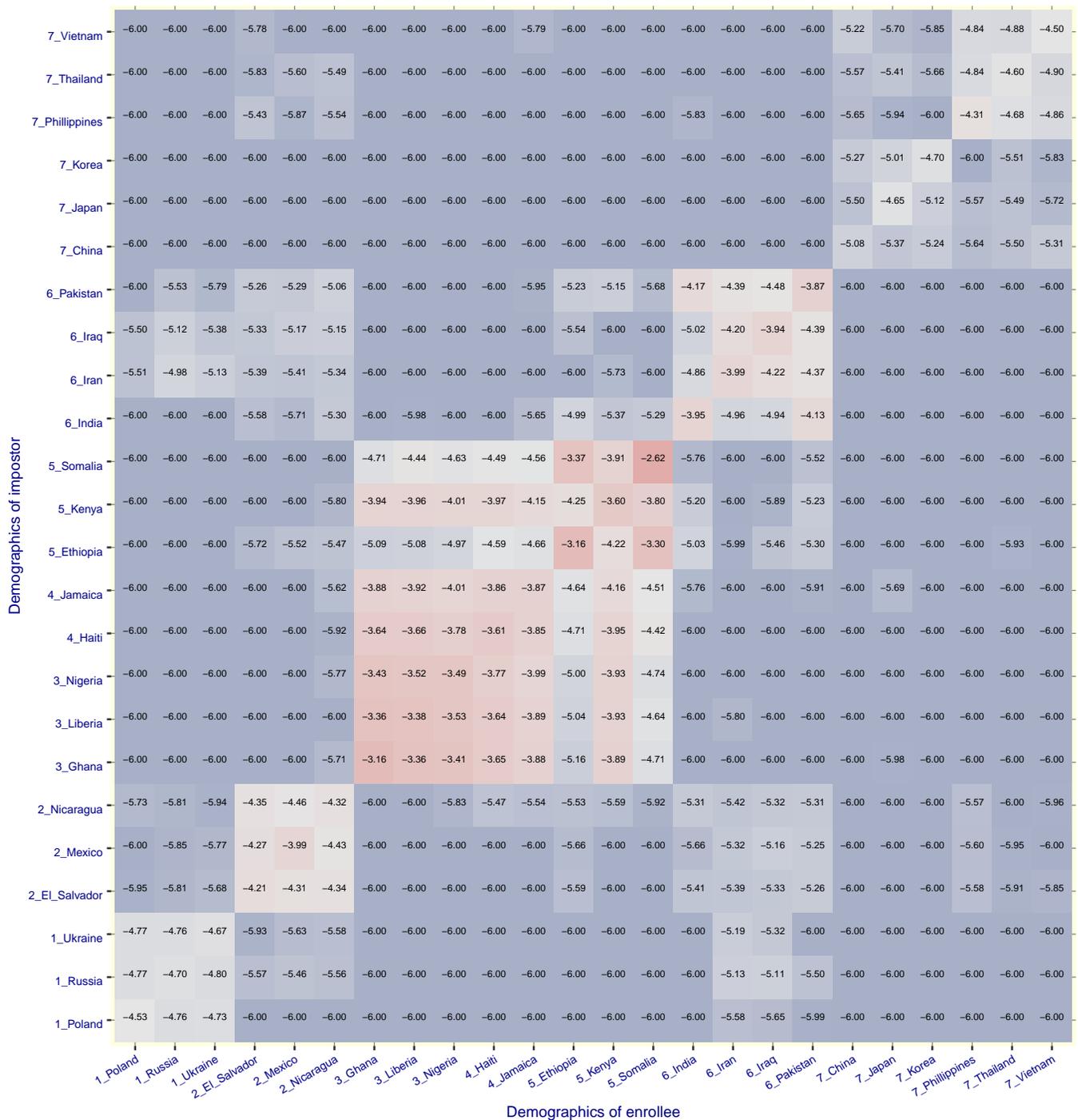
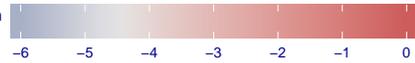


Figure 152: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/megvii\_002.pdf

Algorithm: megvii\_002 Threshold: 71.017436 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR



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Figure 153: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/megvii\_002.pdf

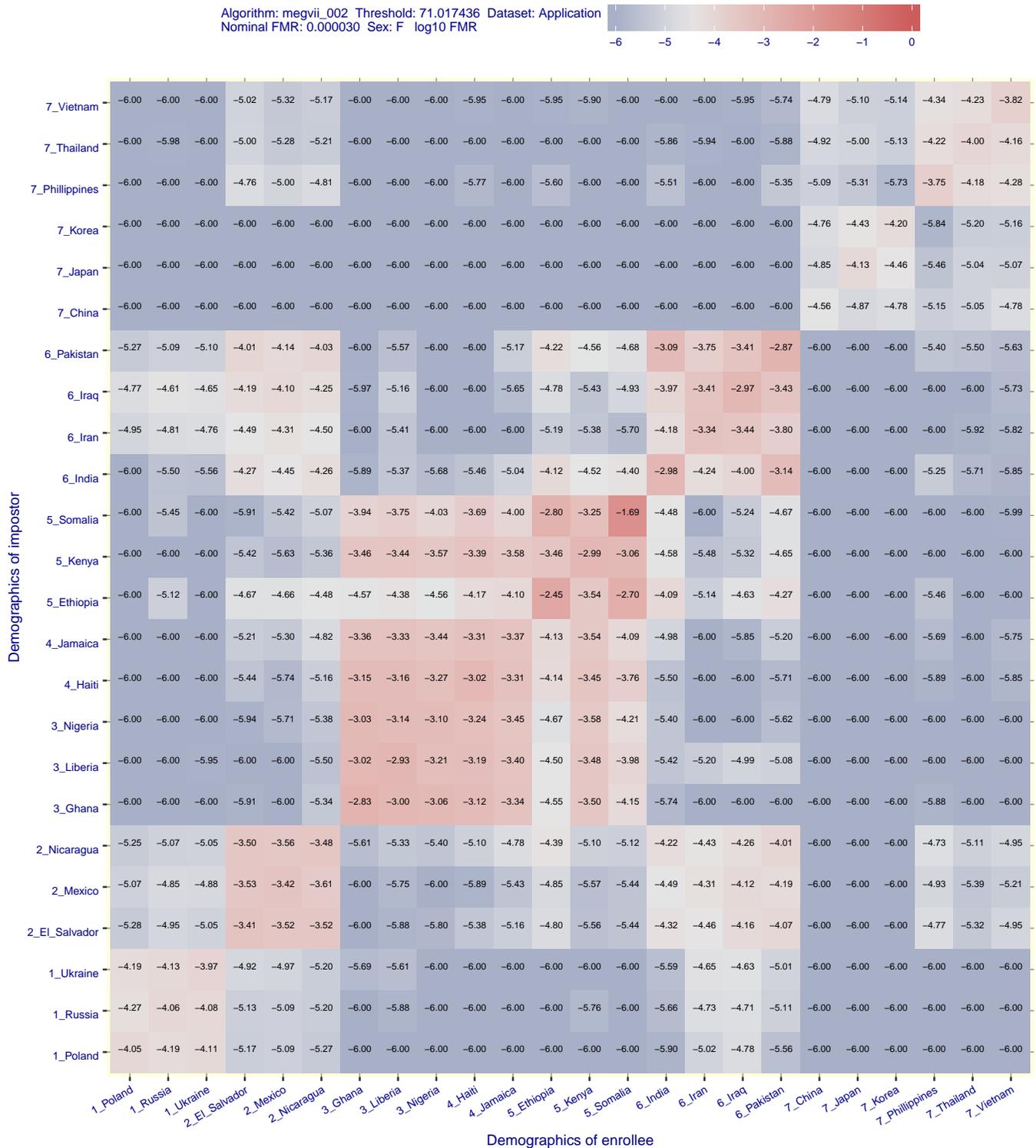


Figure 154: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/meiya\_001.pdf

Algorithm: meiya\_001 Threshold: 0.464403 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

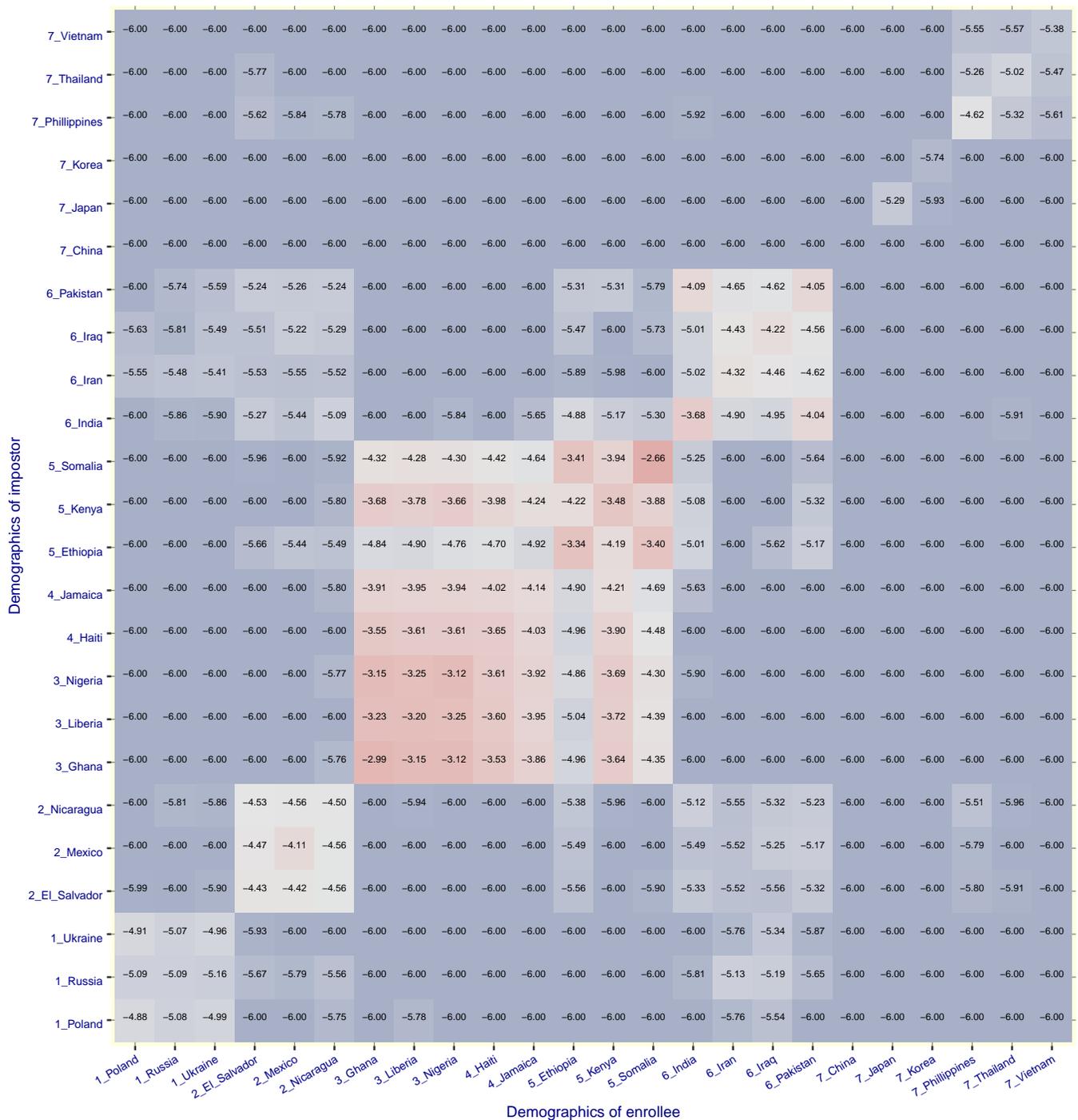
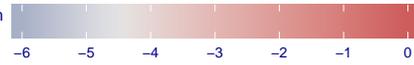


Figure 155: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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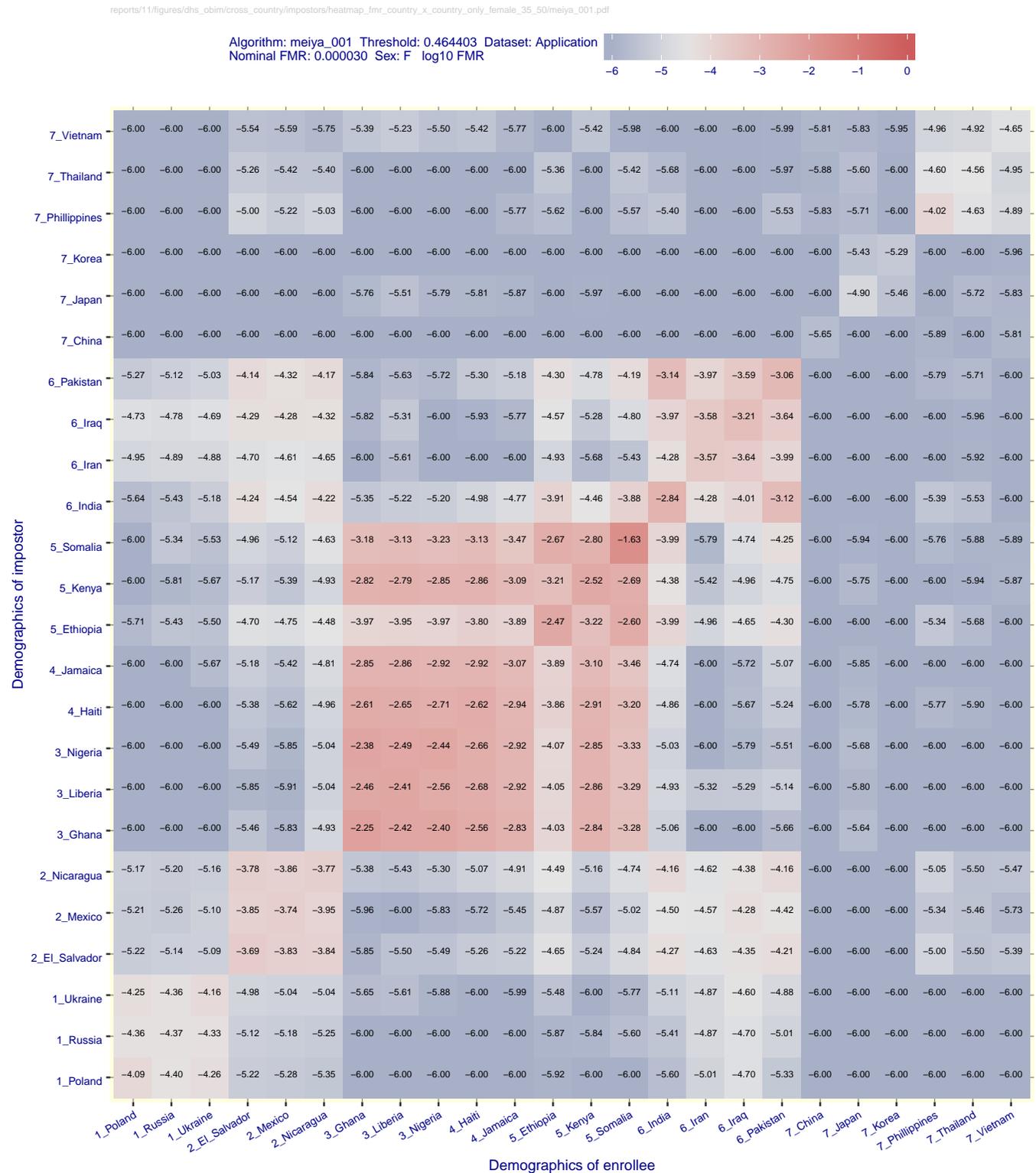


Figure 156: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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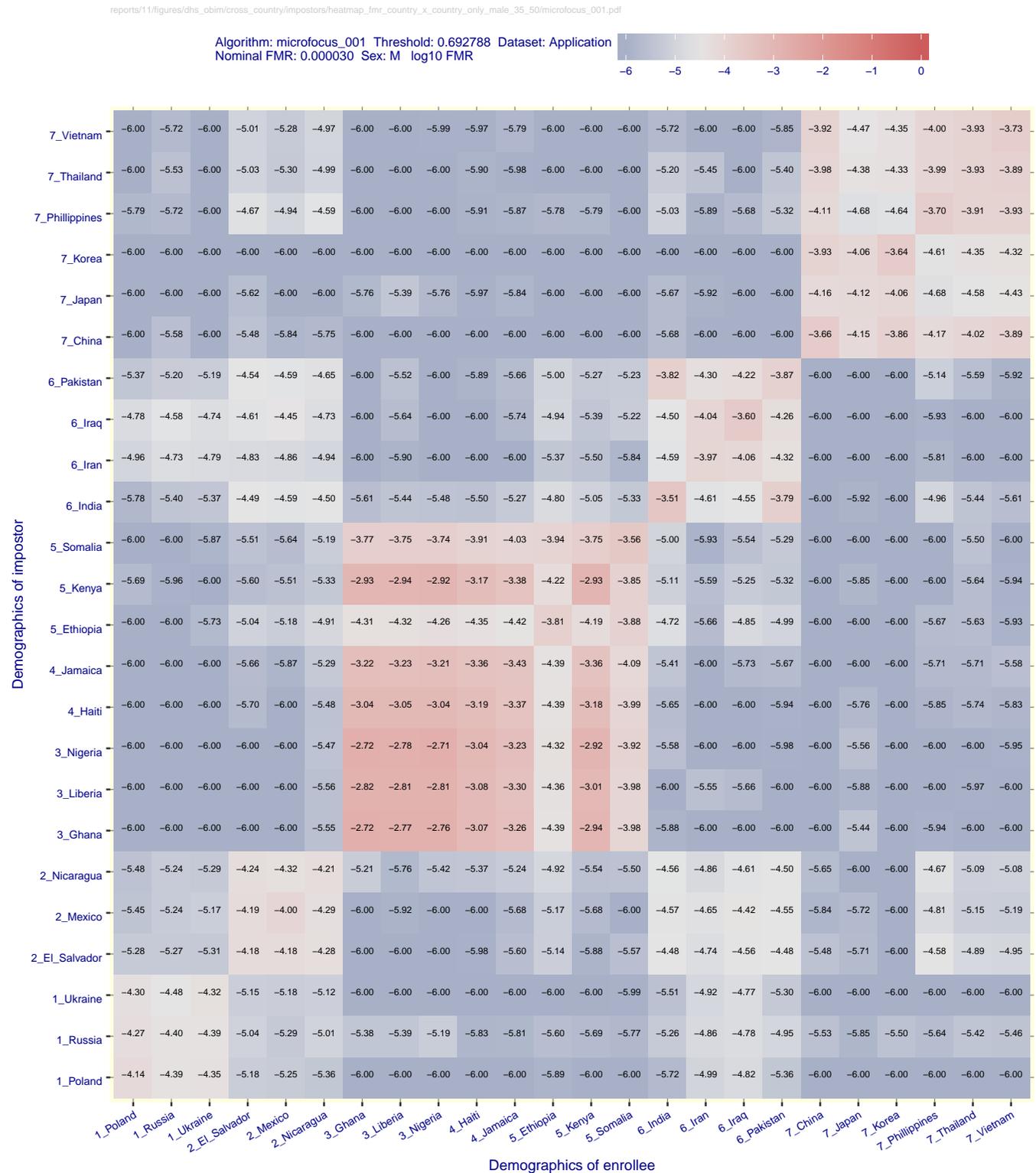


Figure 157: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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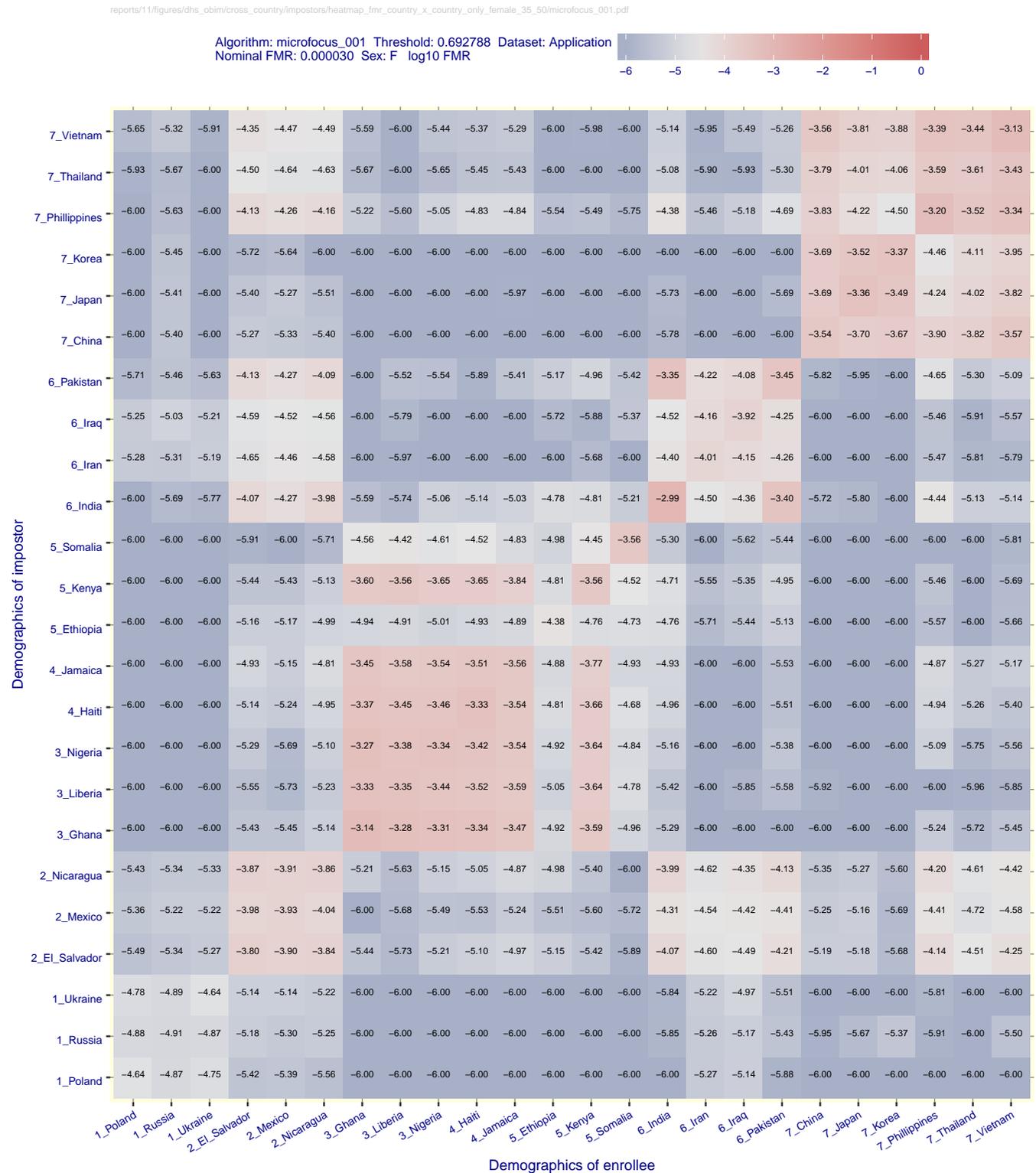


Figure 158: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/microfocus\_002.pdf

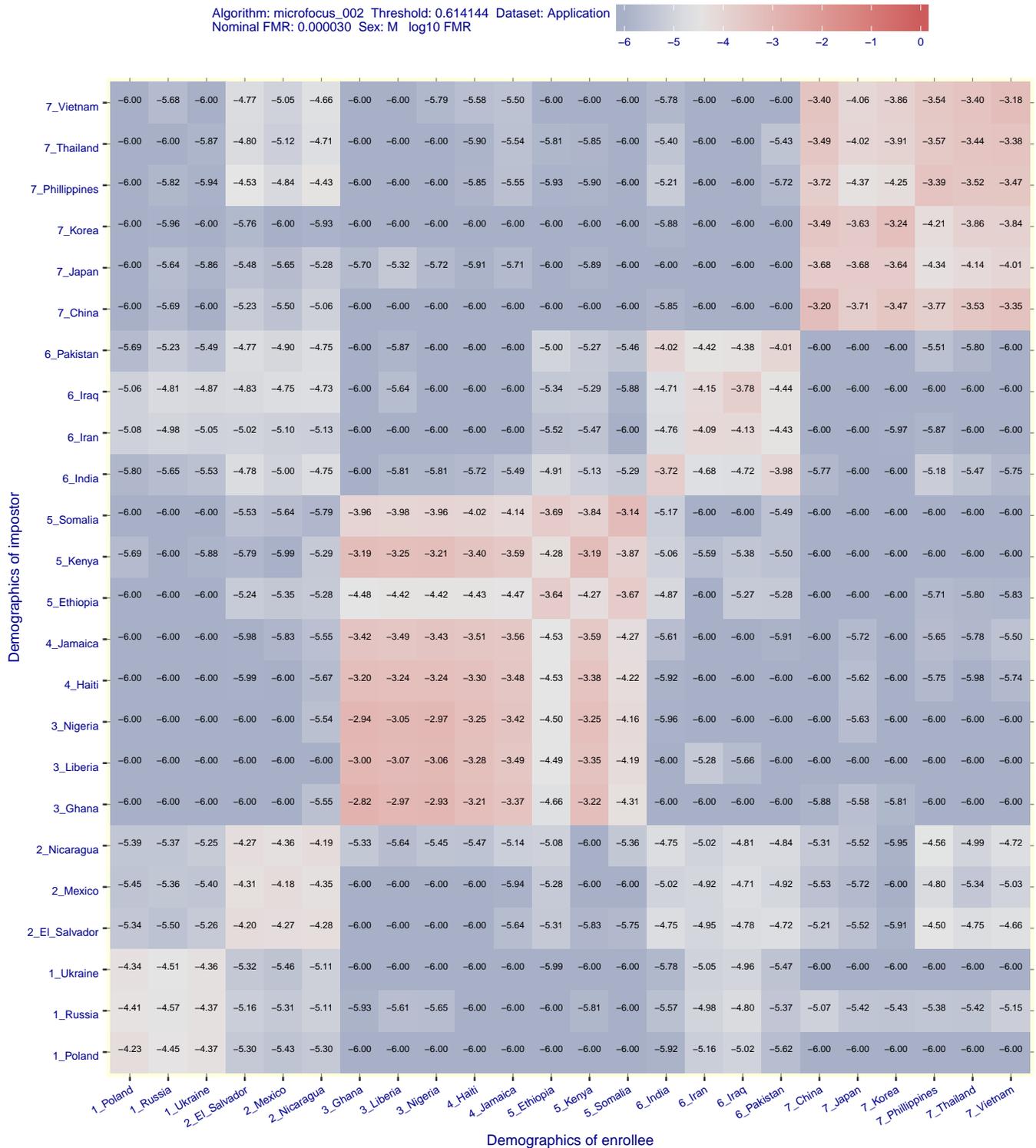


Figure 159: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/microfocus\_002.pdf

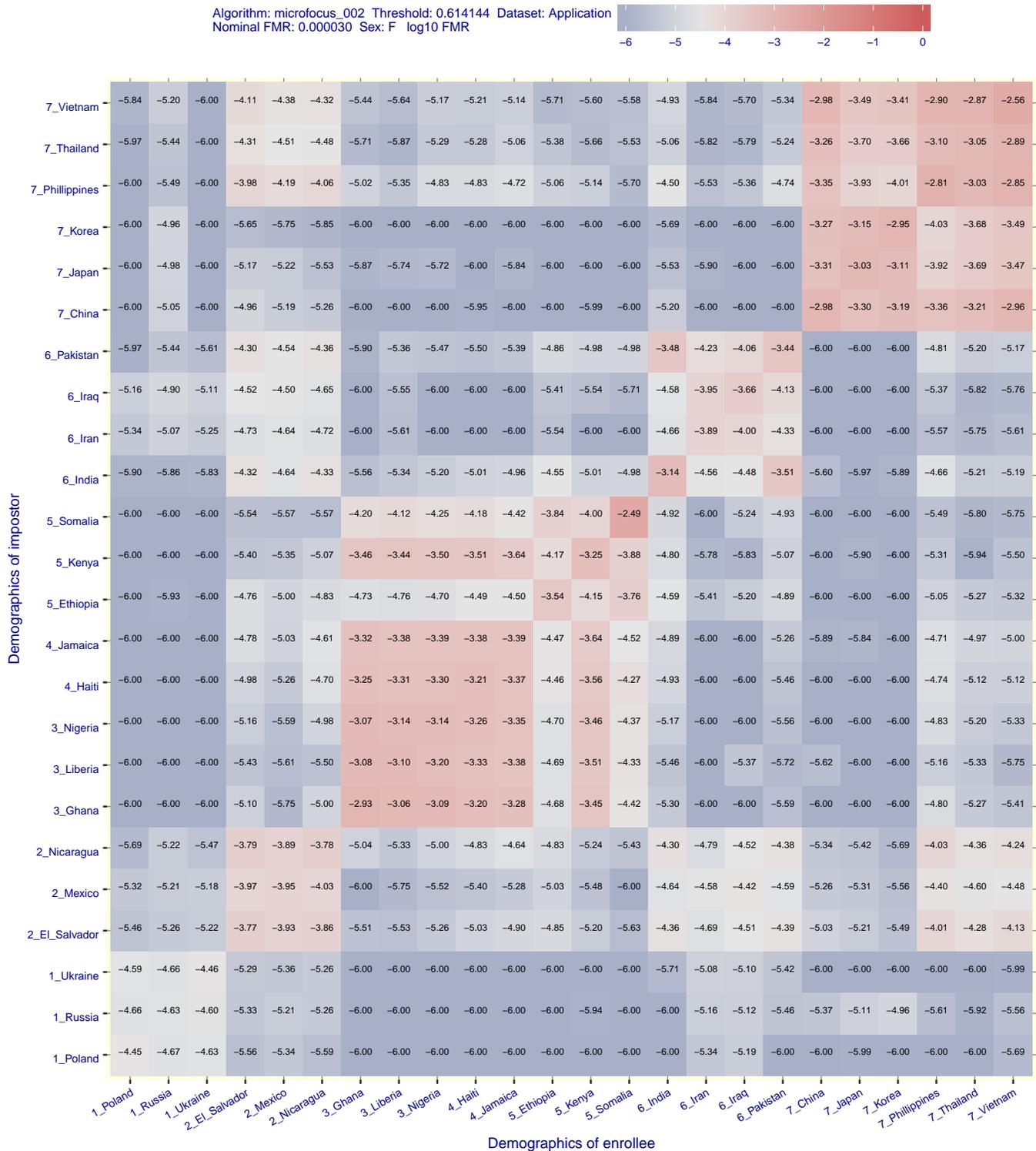


Figure 160: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

T ≥ 0 → FMR, FPIR → 0  
→ FNMR, FNIR → 1

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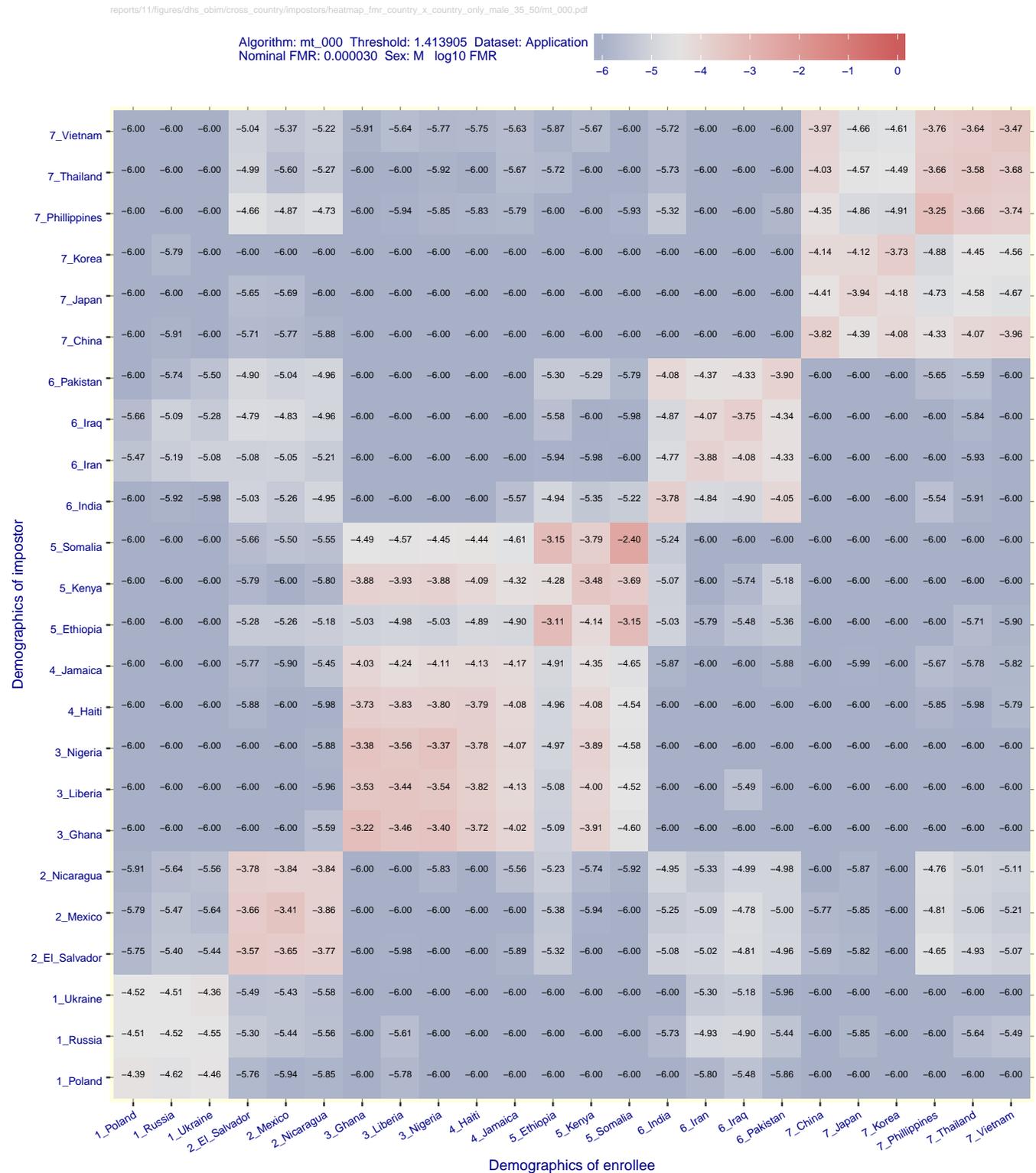


Figure 161: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/mt\_000.pdf

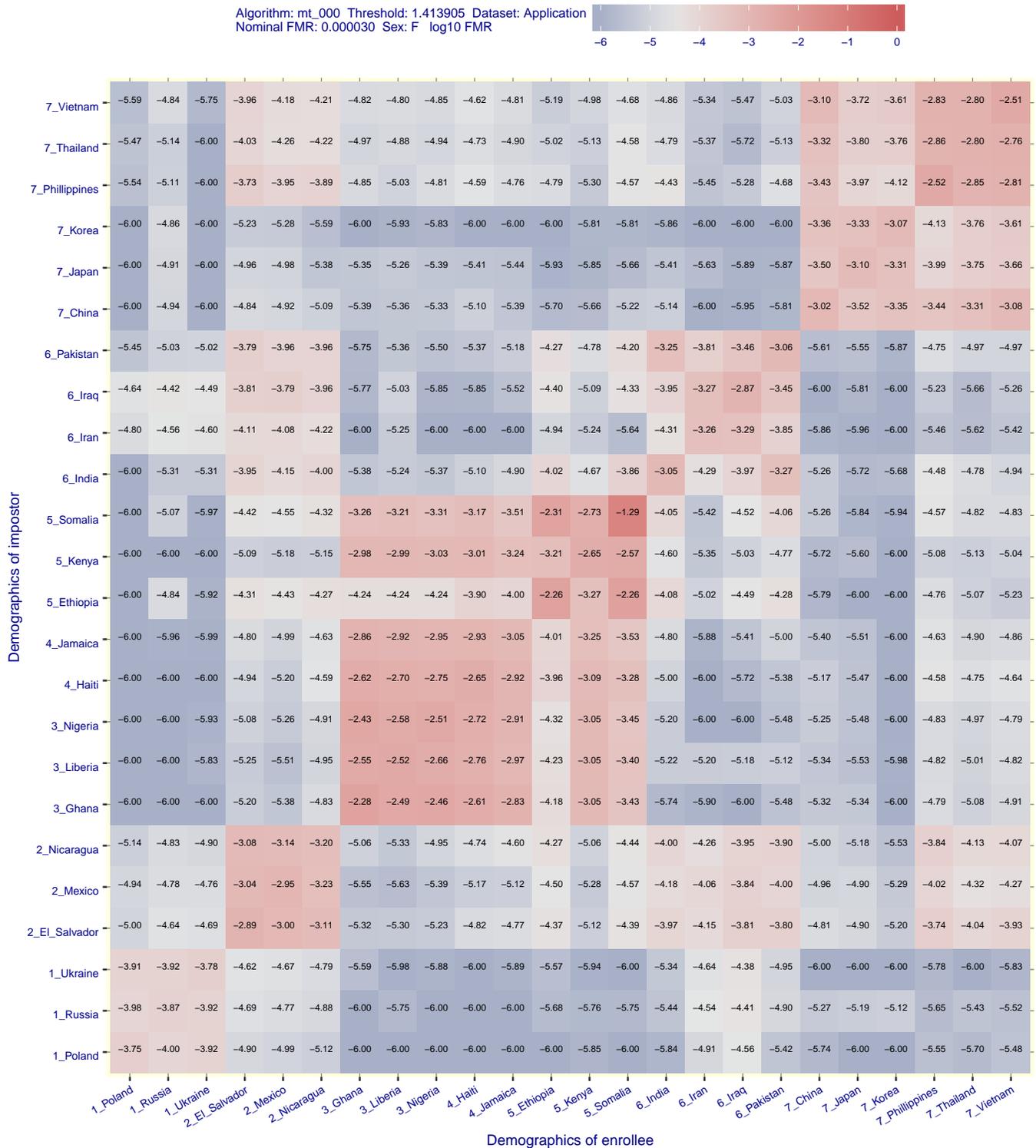


Figure 162: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR | 1:N FPIR |  $T \gg 0$   
1:1 FNMR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/neurotechnology\_005.pdf

Algorithm: neurotechnology\_005 Threshold: 47.666700 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

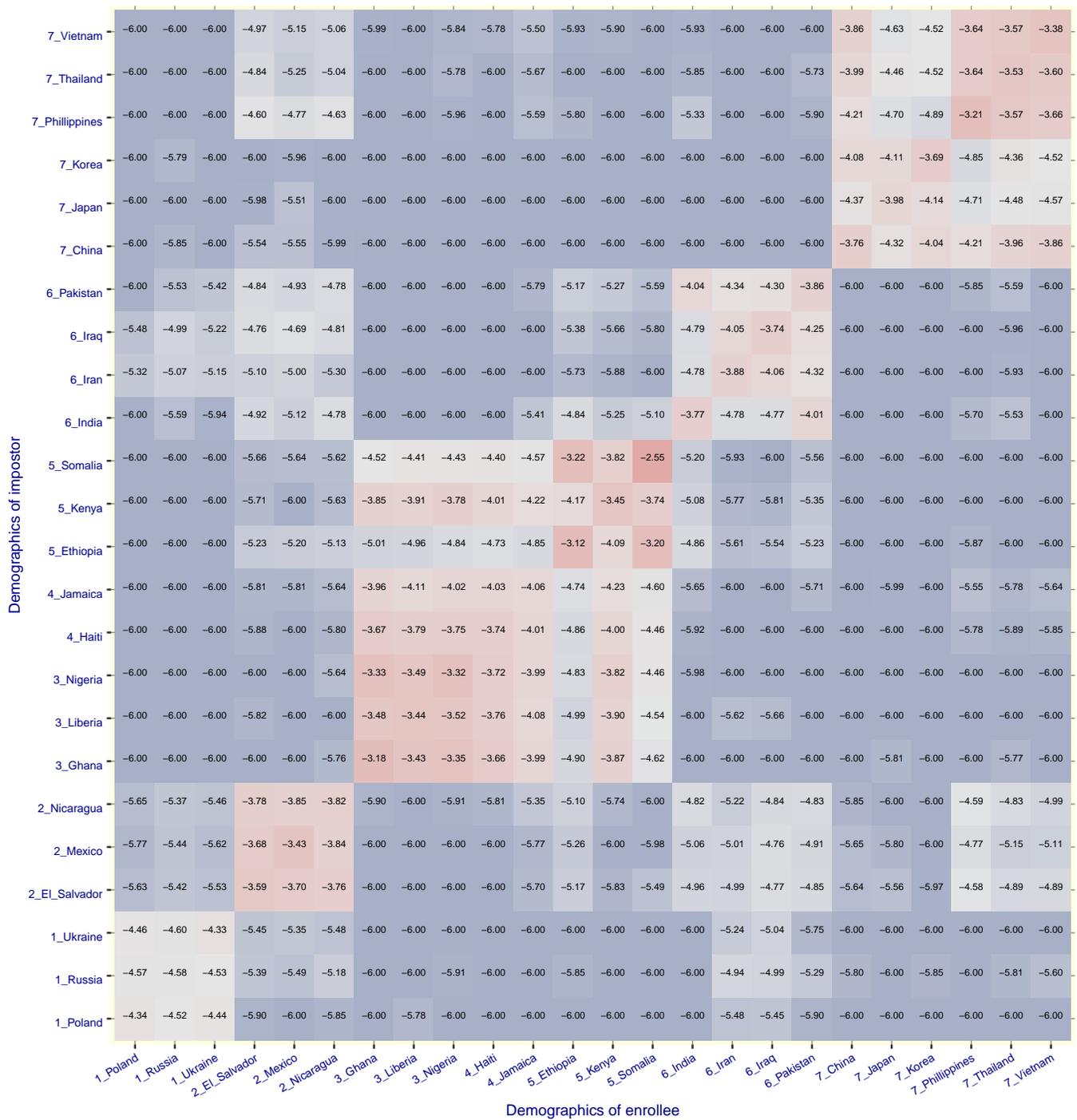


Figure 163: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR | 1:N FPIR |  $T \gg 0$   
 1:1 FNMR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/neurotechnology\_005.pdf

Algorithm: neurotechnology\_005 Threshold: 47.666700 Dataset: Application  
Nominal FMR: 0.000030 Sex: F log10 FMR

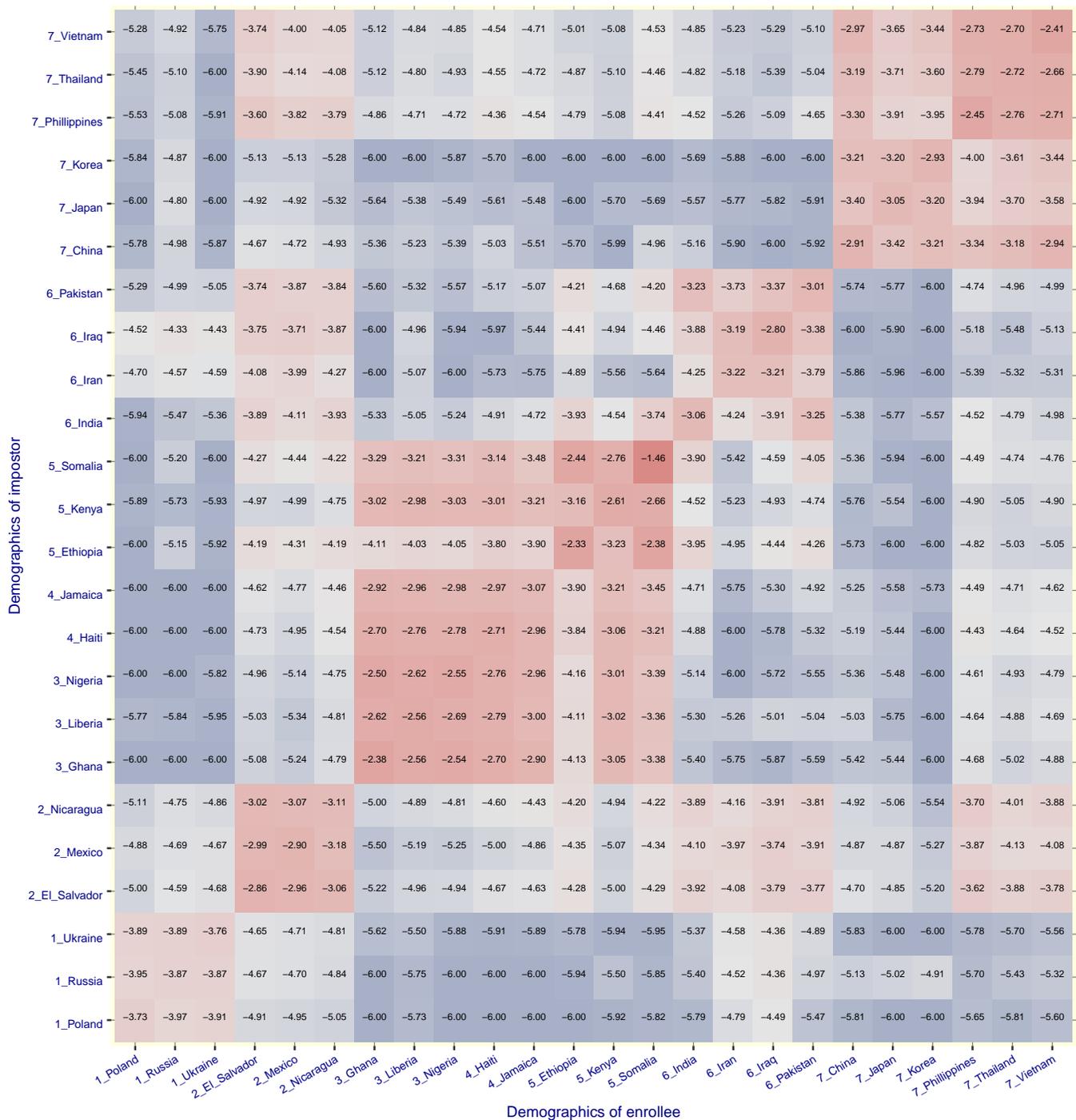
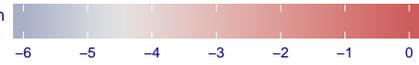


Figure 164: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/neurotechnology\_006.pdf

Algorithm: neurotechnology\_006 Threshold: 2163.314510 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

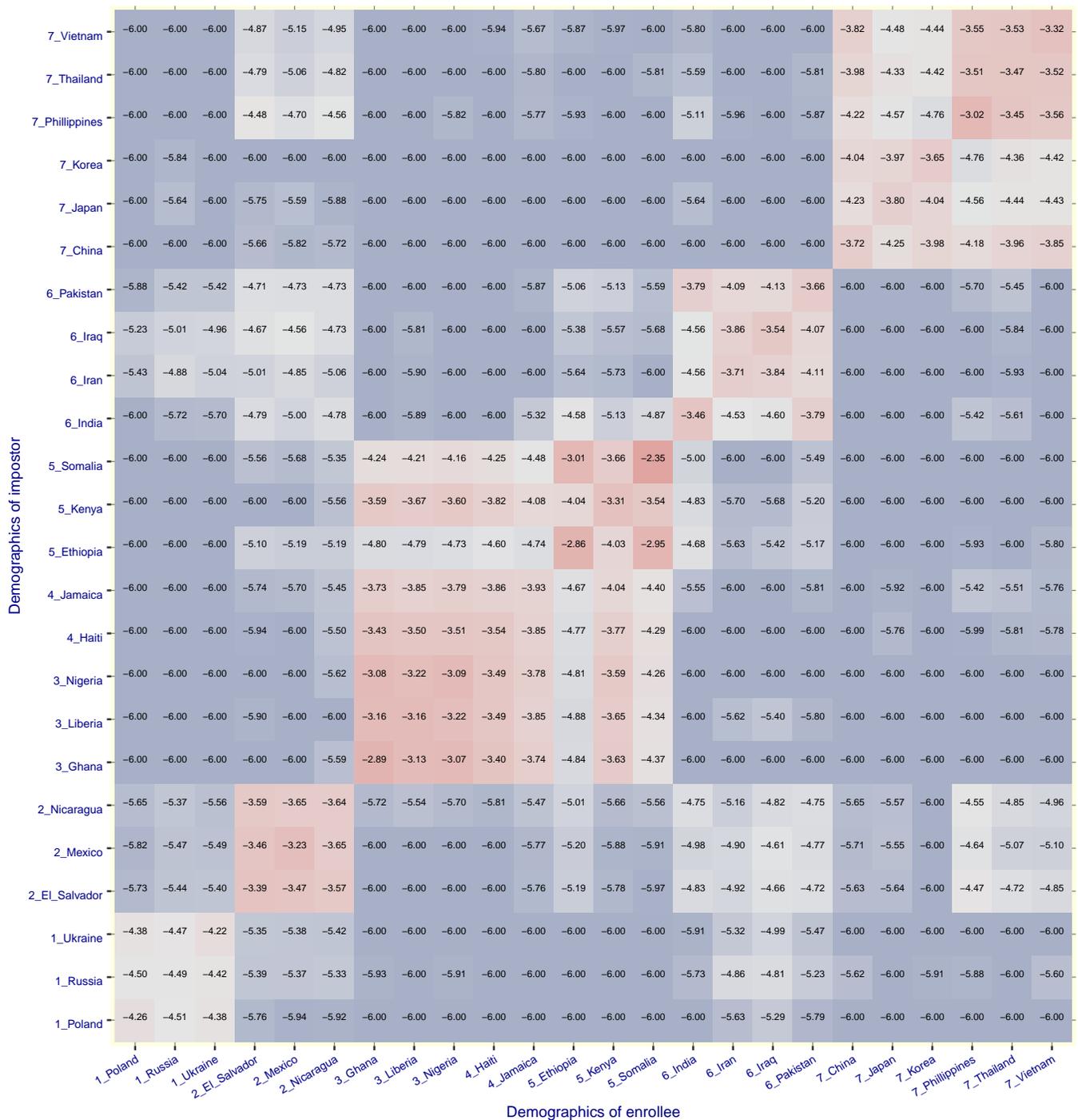


Figure 165: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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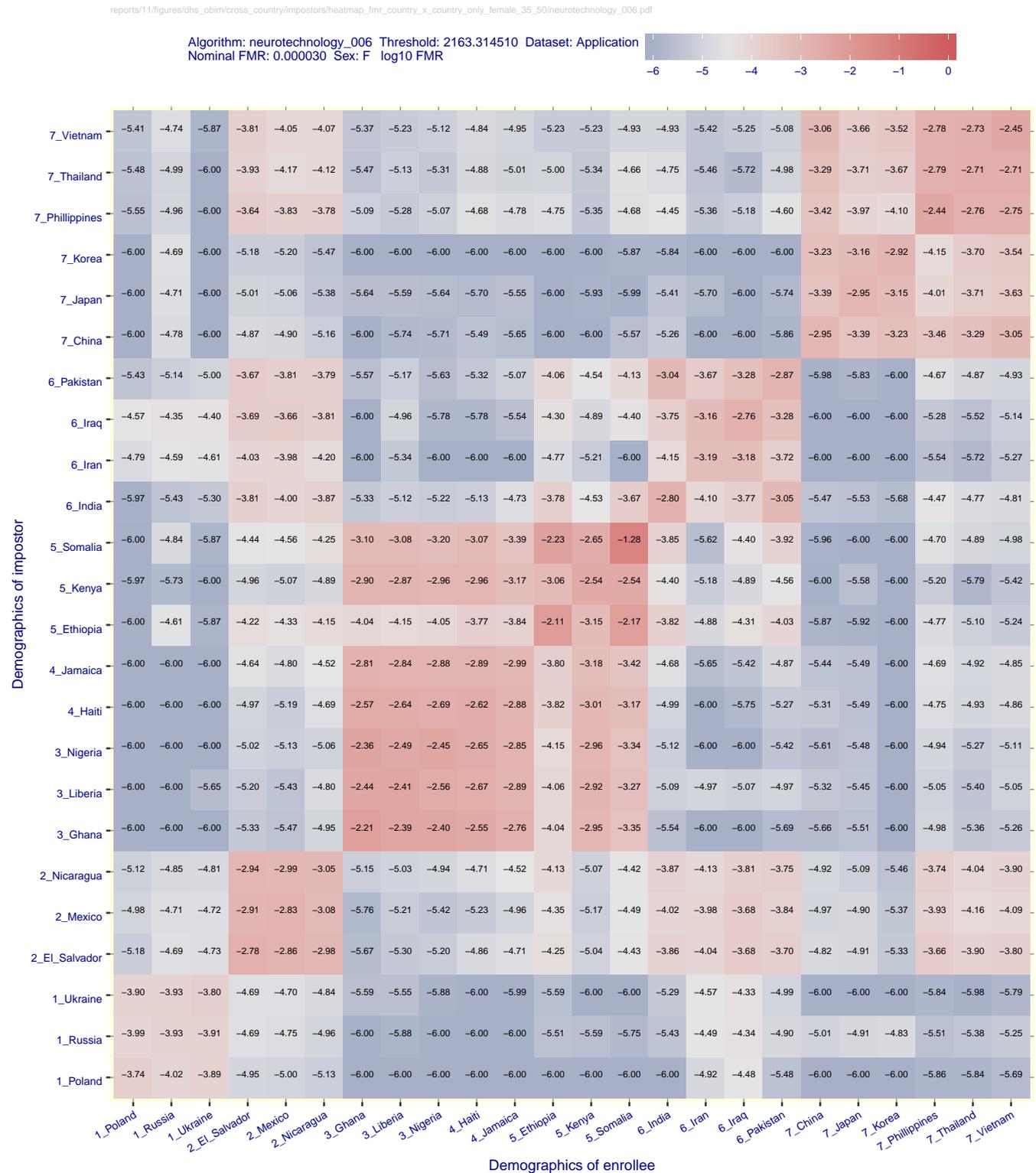


Figure 166: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/nodeflux\_001.pdf

Algorithm: nodeflux\_001 Threshold: 0.571472 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

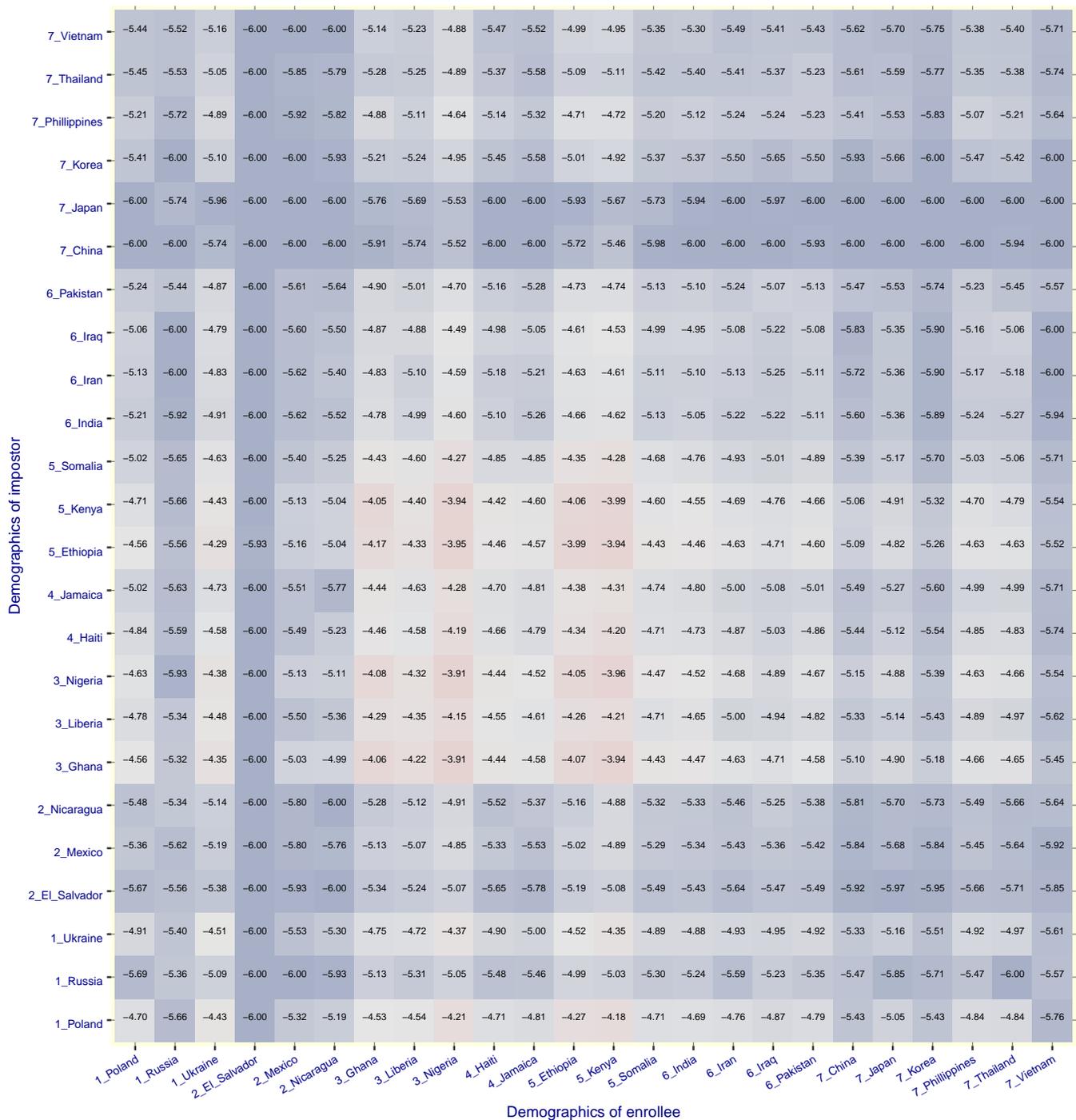
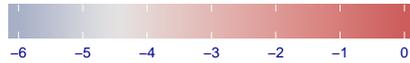


Figure 167: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/nodeflux\_001.pdf

Algorithm: nodeflux\_001 Threshold: 0.571472 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

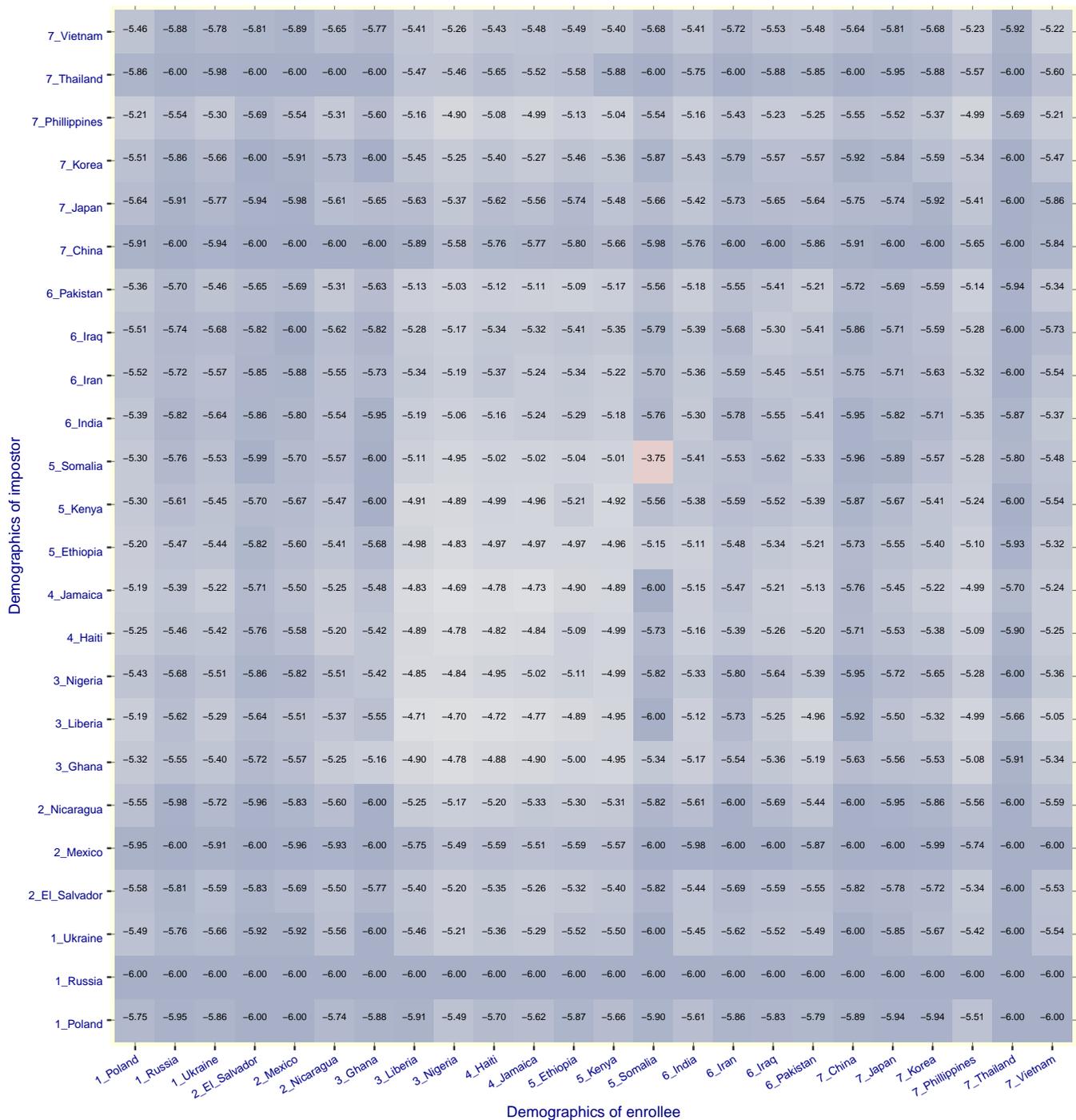
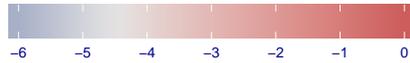


Figure 168: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/nodeflux\_002.pdf

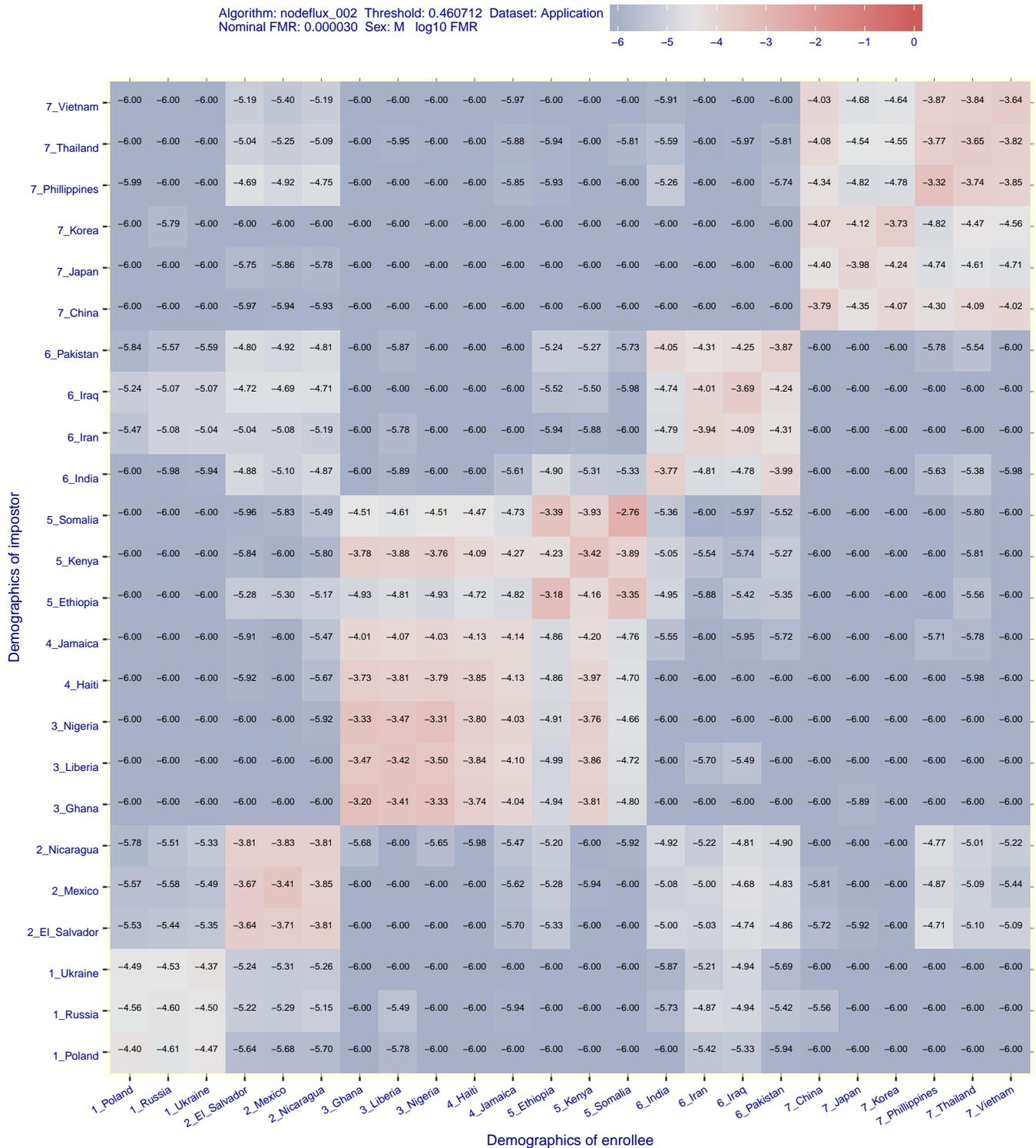


Figure 169: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≫ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/nodeflux\_002.pdf

Algorithm: nodeflux\_002 Threshold: 0.460712 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

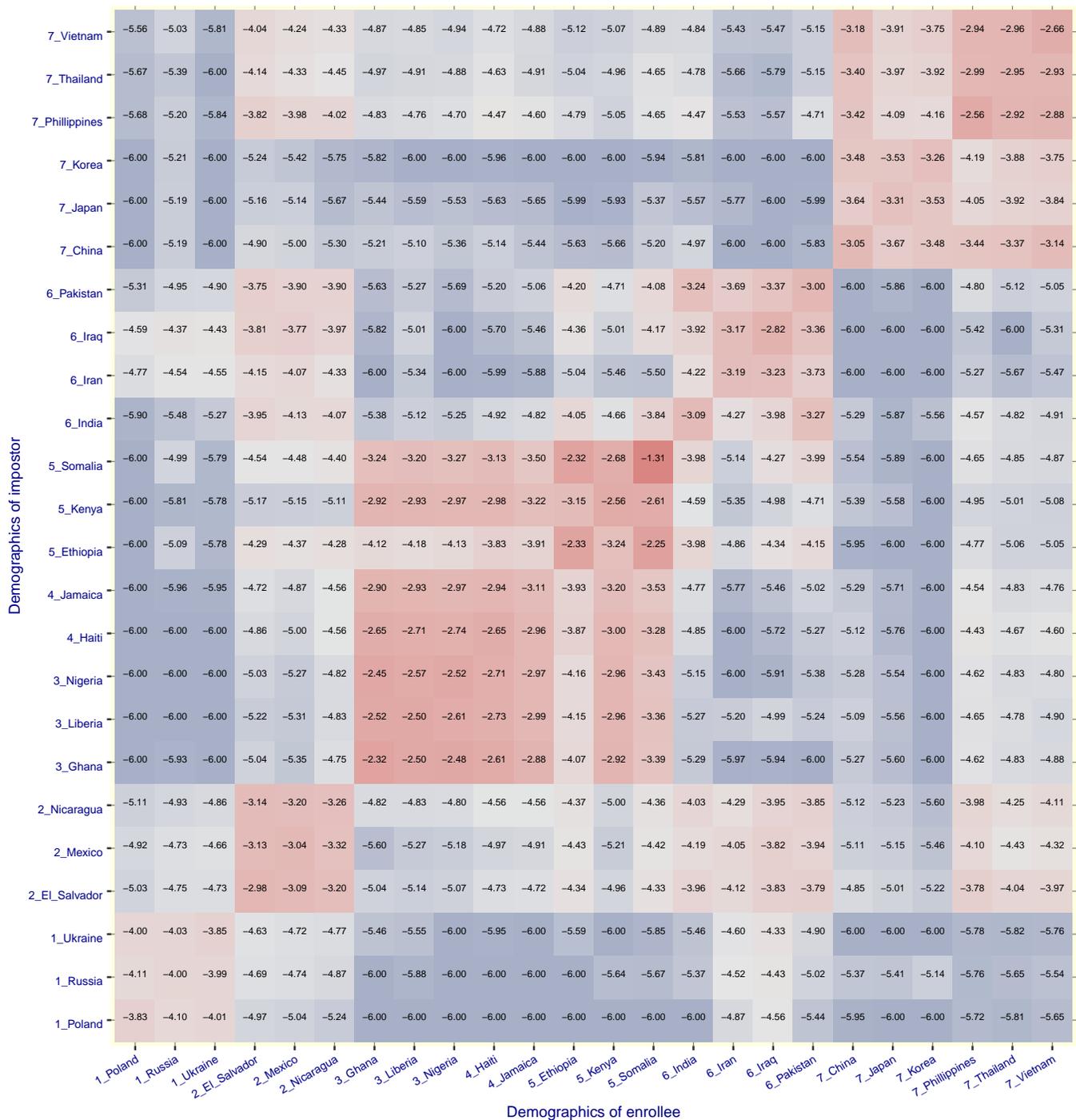


Figure 170: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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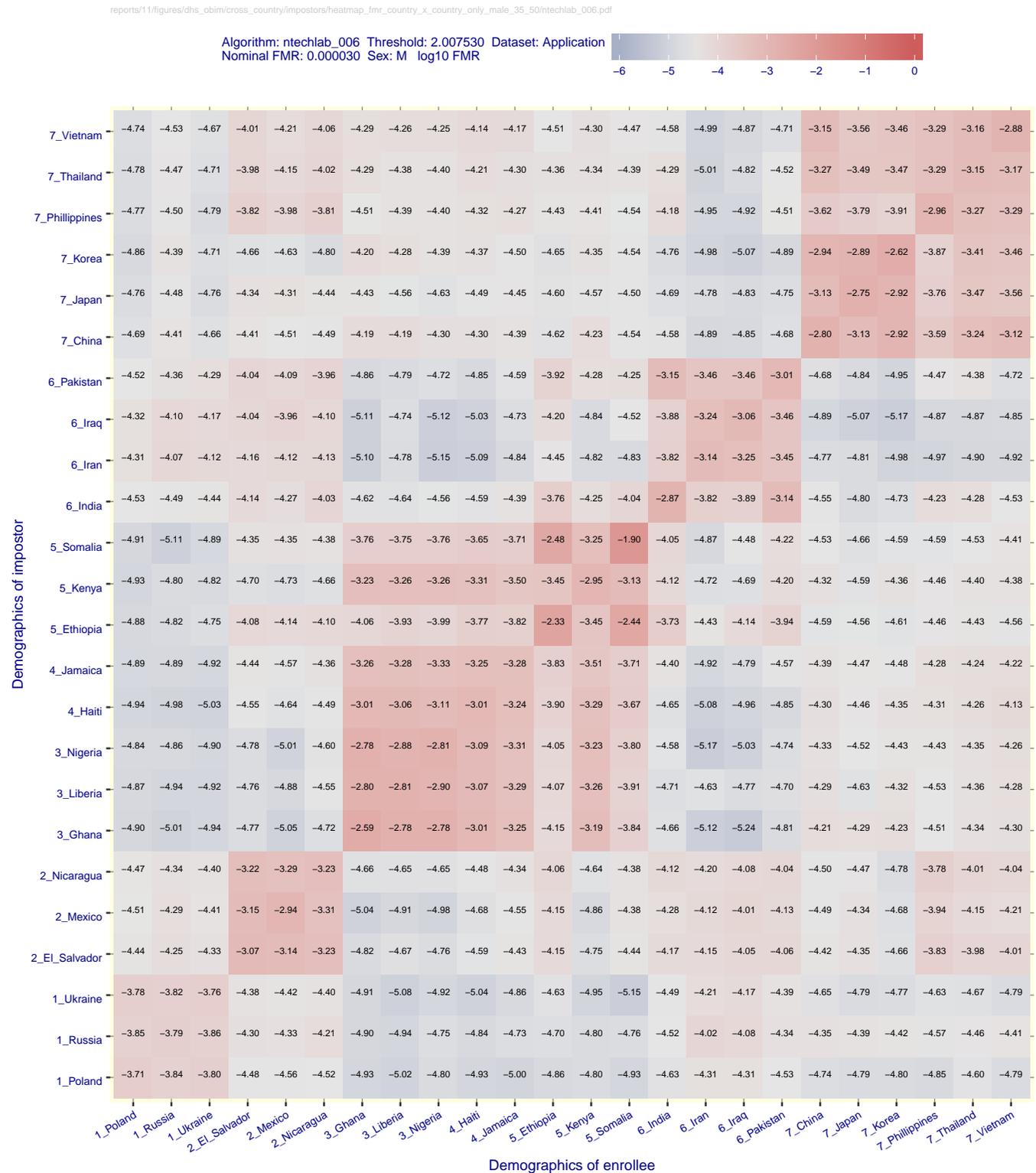


Figure 171: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/ntechlab\_006.pdf

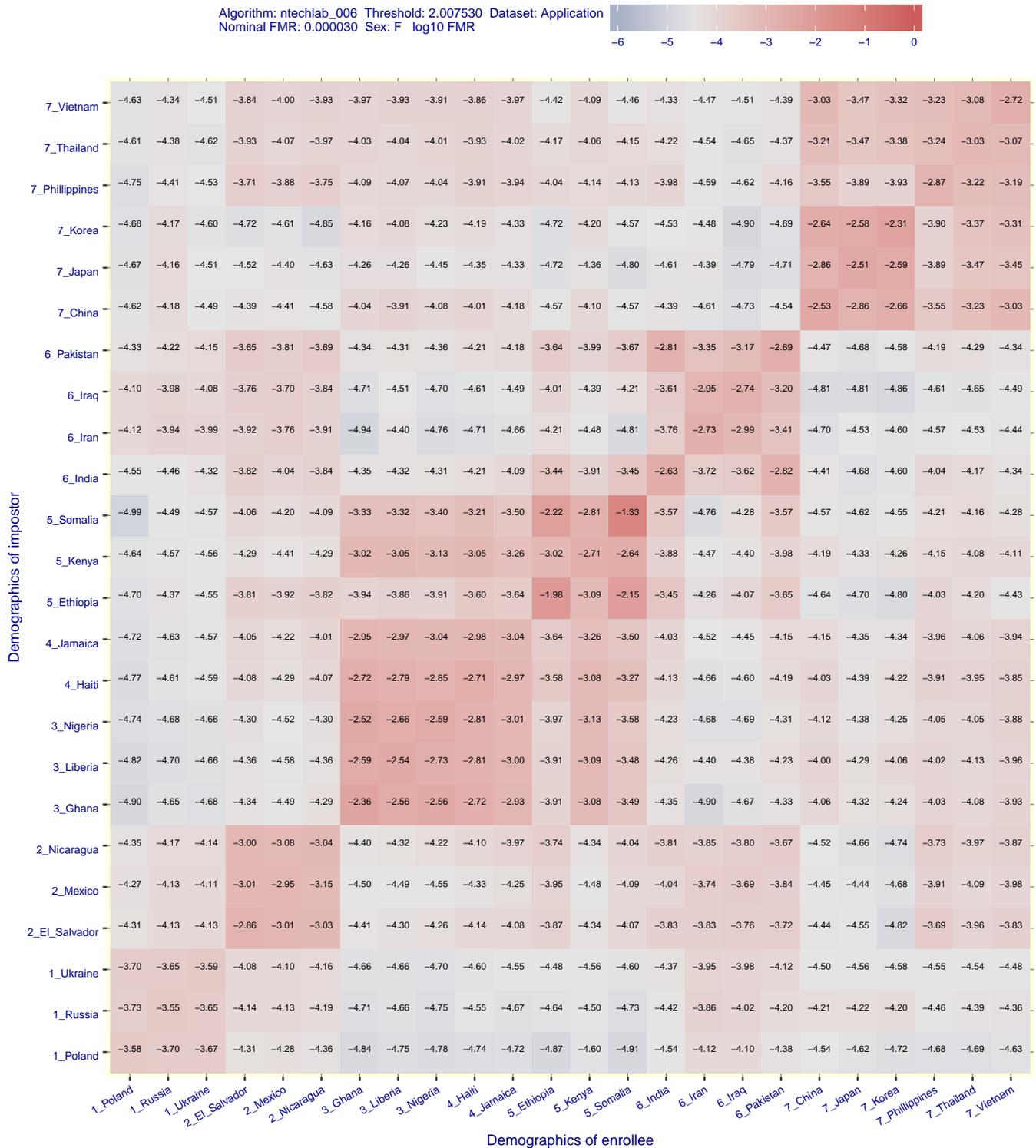


Figure 172: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/ntechlab\_007.pdf

Algorithm: ntechlab\_007 Threshold: 1.484210 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

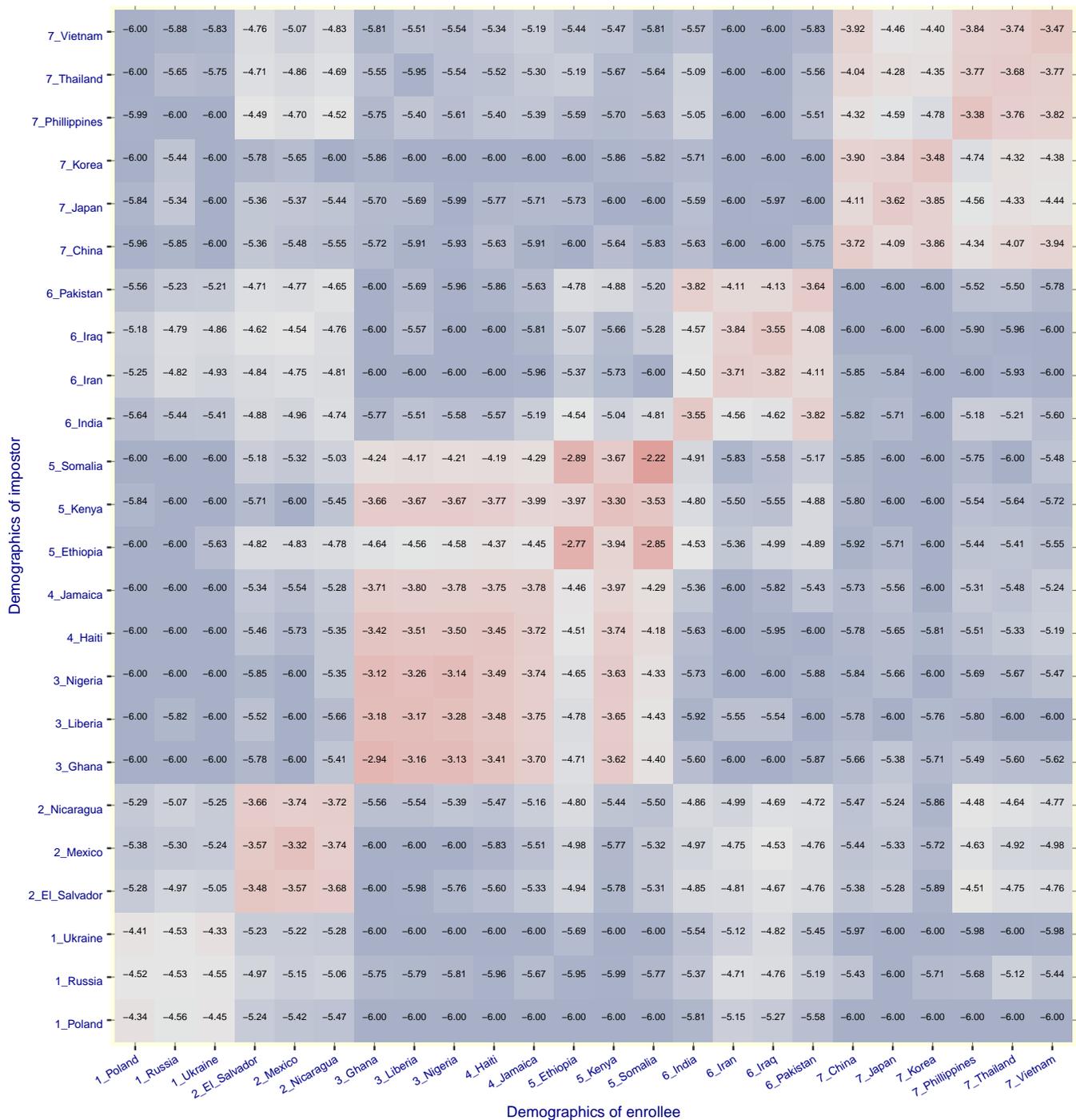
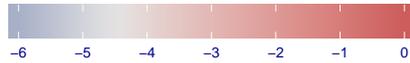


Figure 173: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0$

$\rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/ntechlab\_007.pdf

Algorithm: ntechlab\_007 Threshold: 1.484210 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

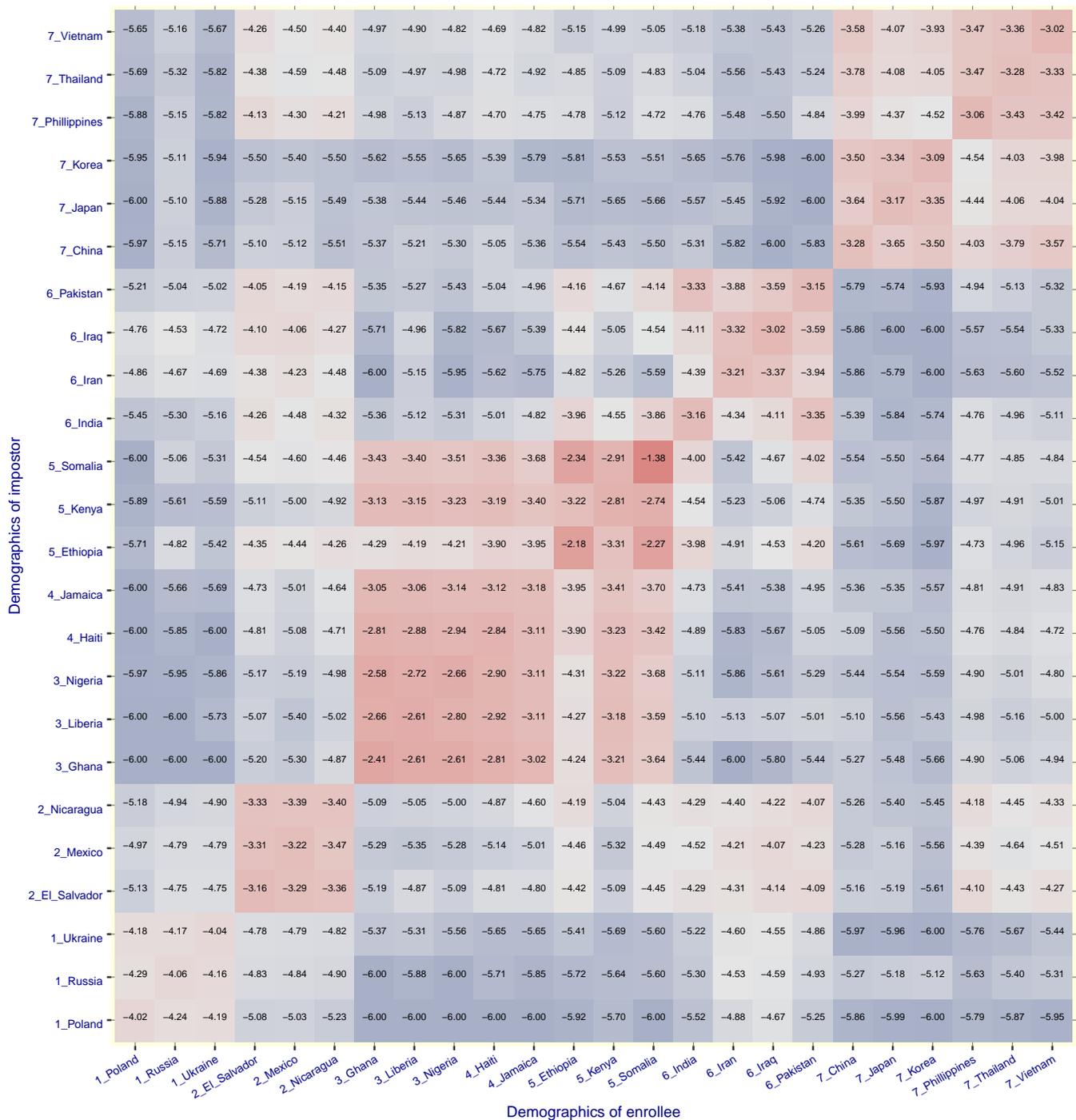


Figure 174: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≫ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/pixelall\_002.pdf

Algorithm: pixelall\_002 Threshold: 0.433355 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

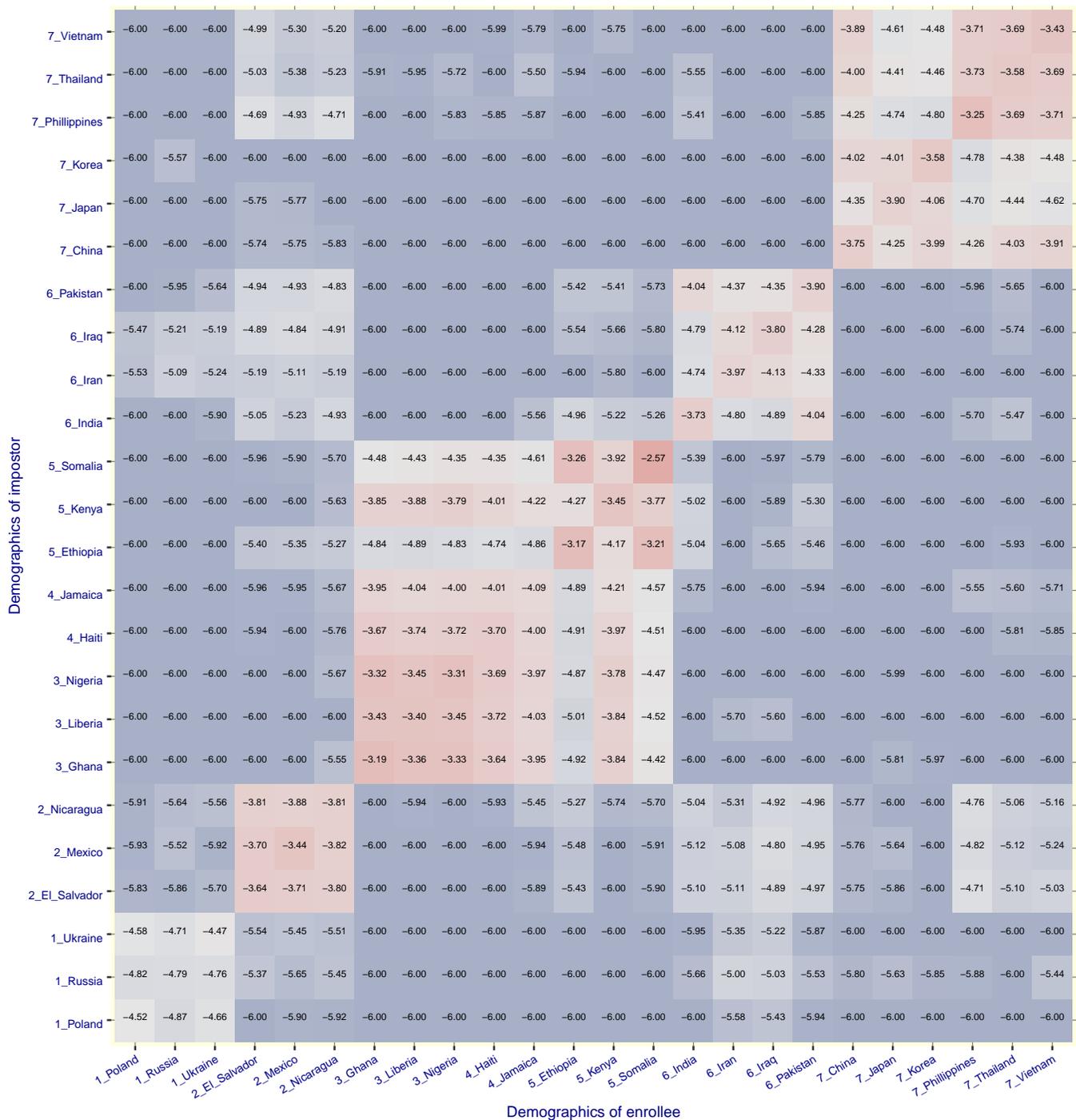
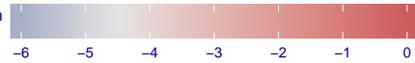


Figure 175: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR | T ≥ 0 → FMR, FPIR → 0  
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR | → FNMR, FNIR → 1

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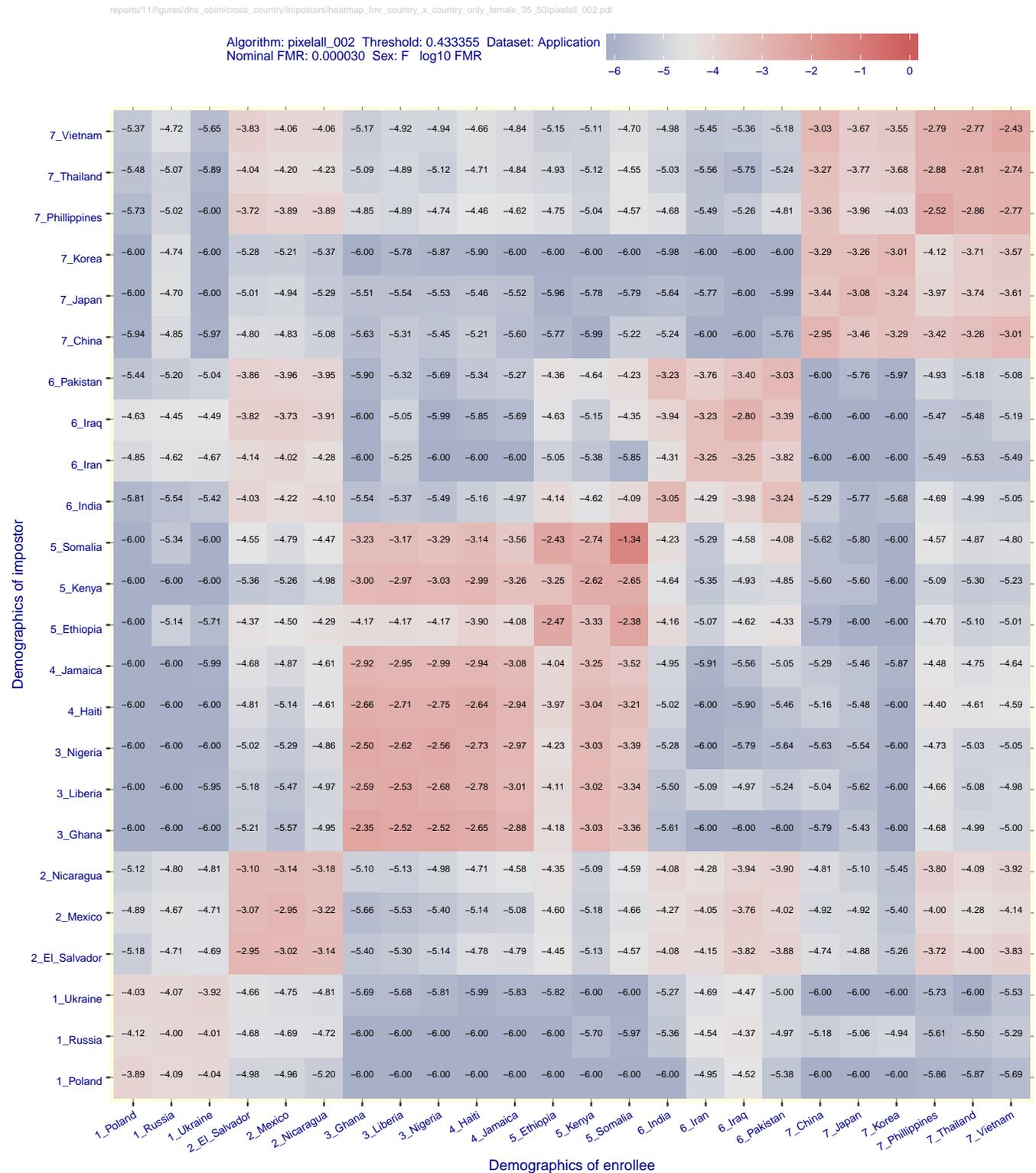


Figure 176: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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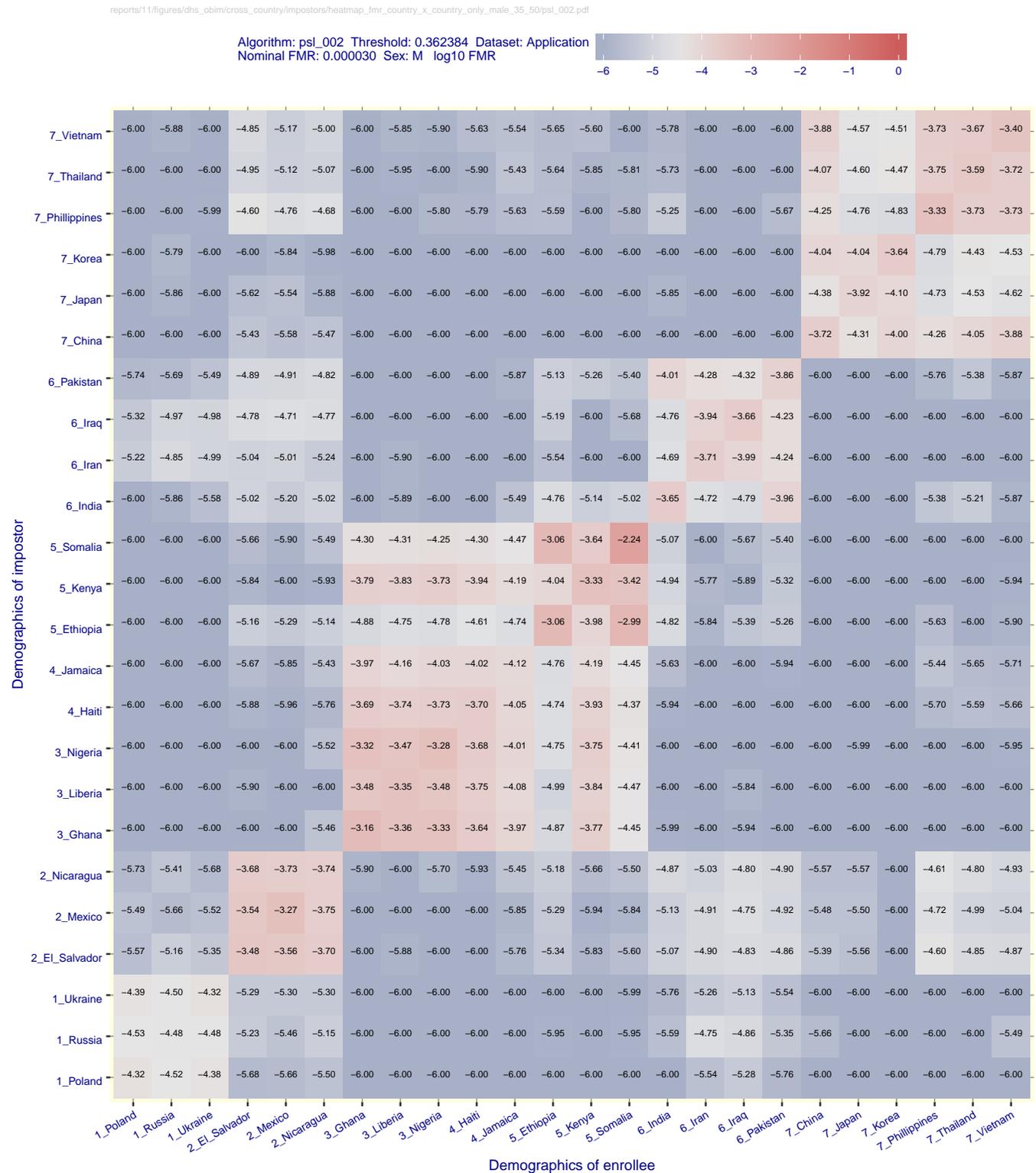


Figure 177: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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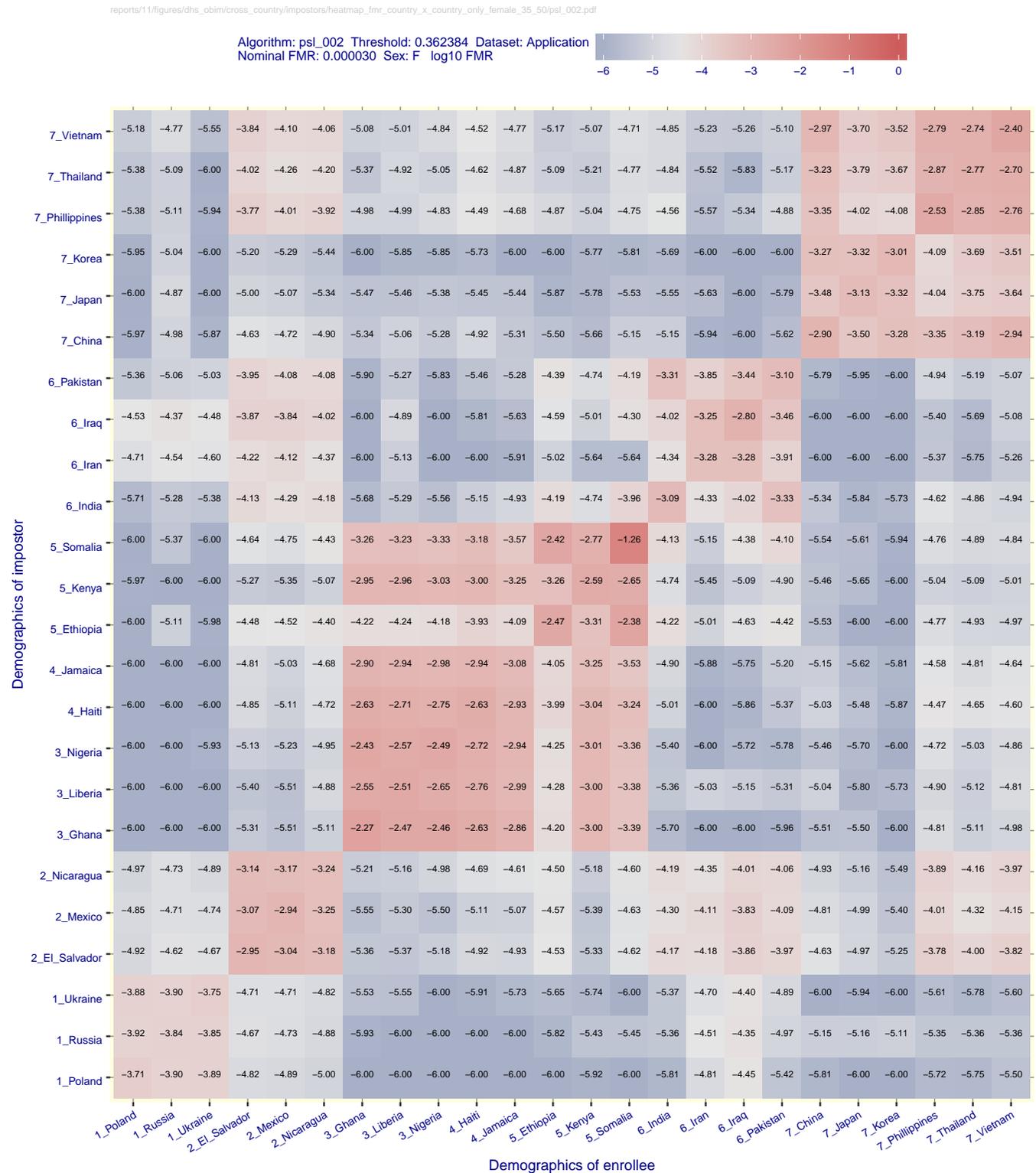


Figure 178: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/psl\_003.pdf

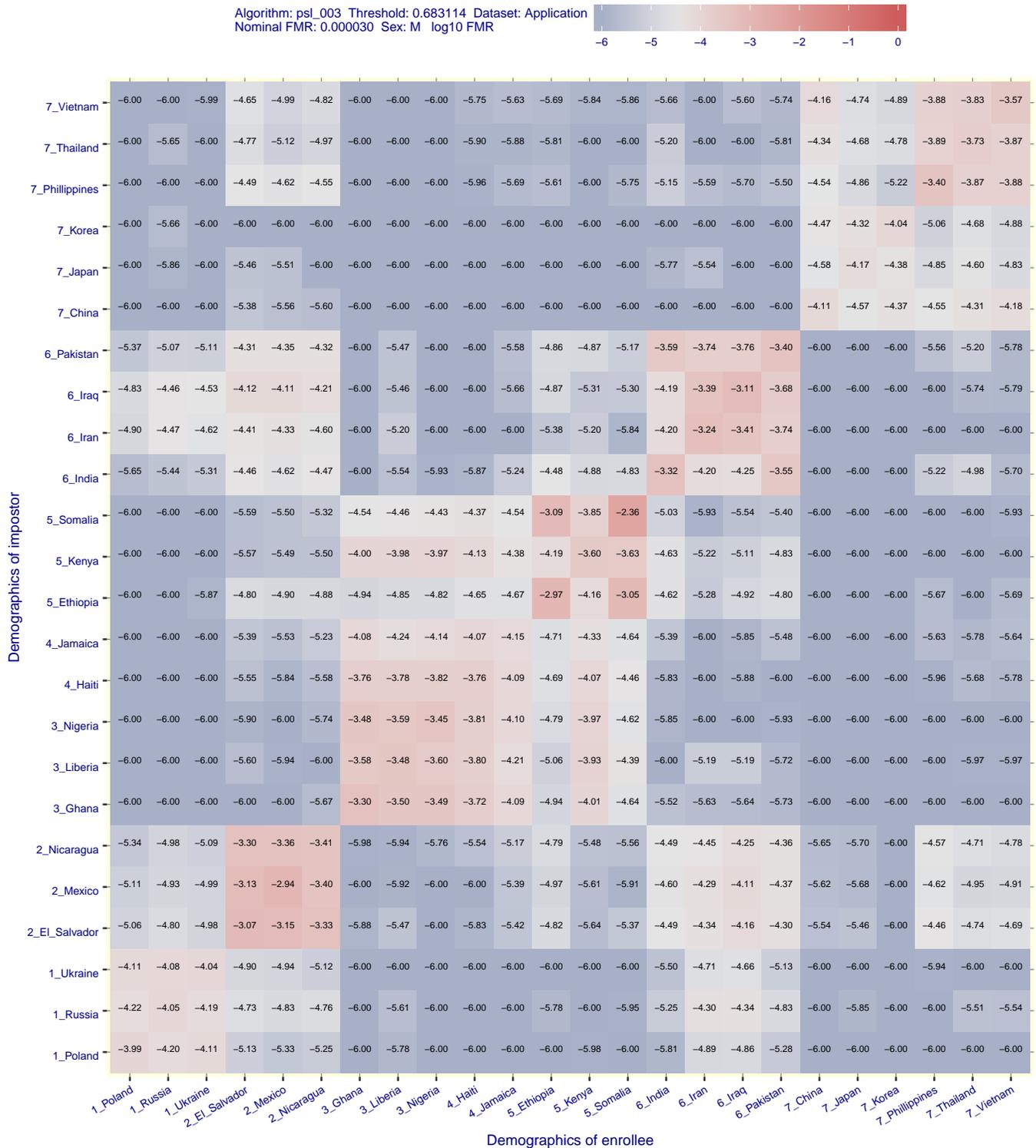


Figure 179: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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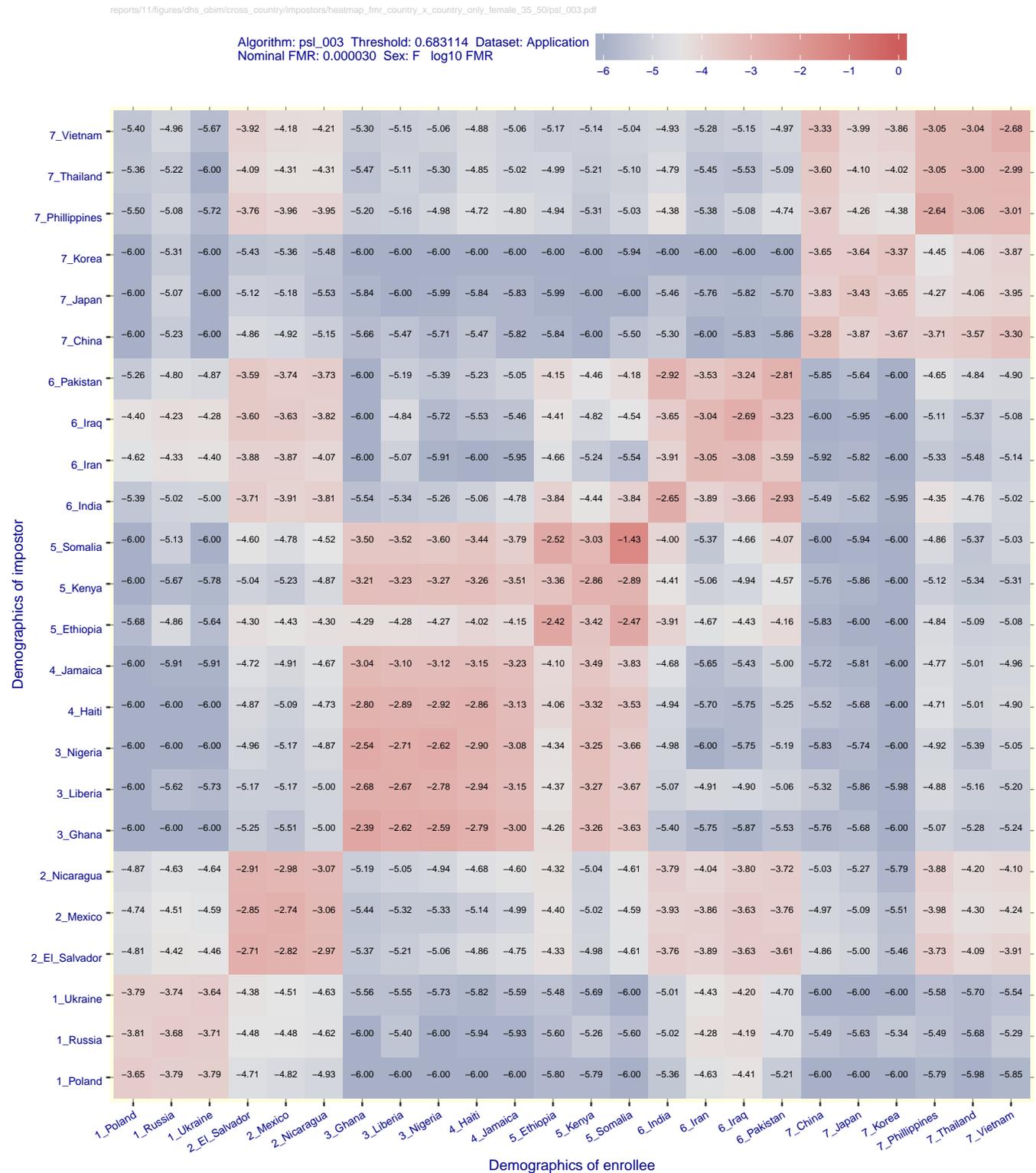


Figure 180: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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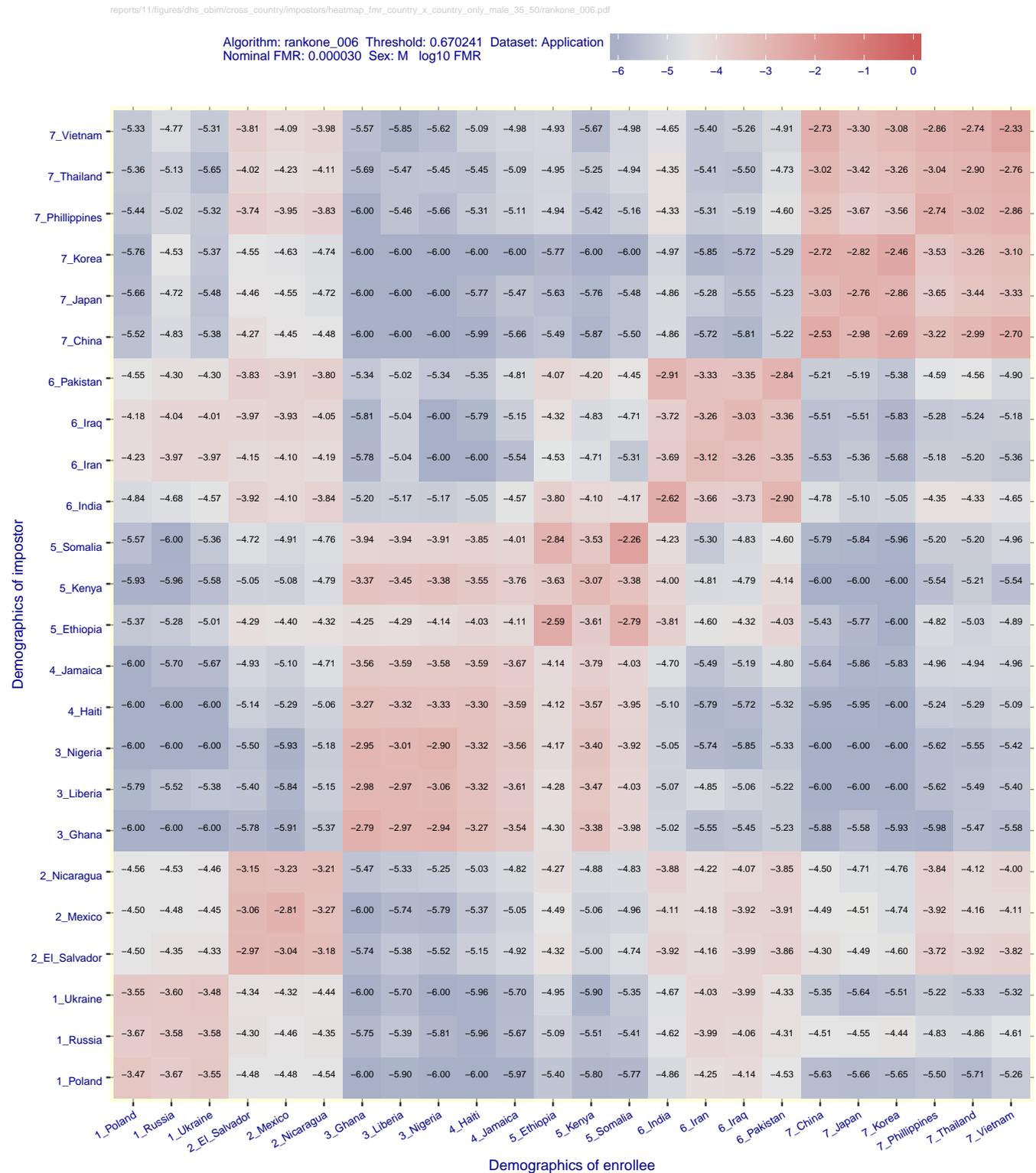


Figure 181: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/rankone\_006.pdf

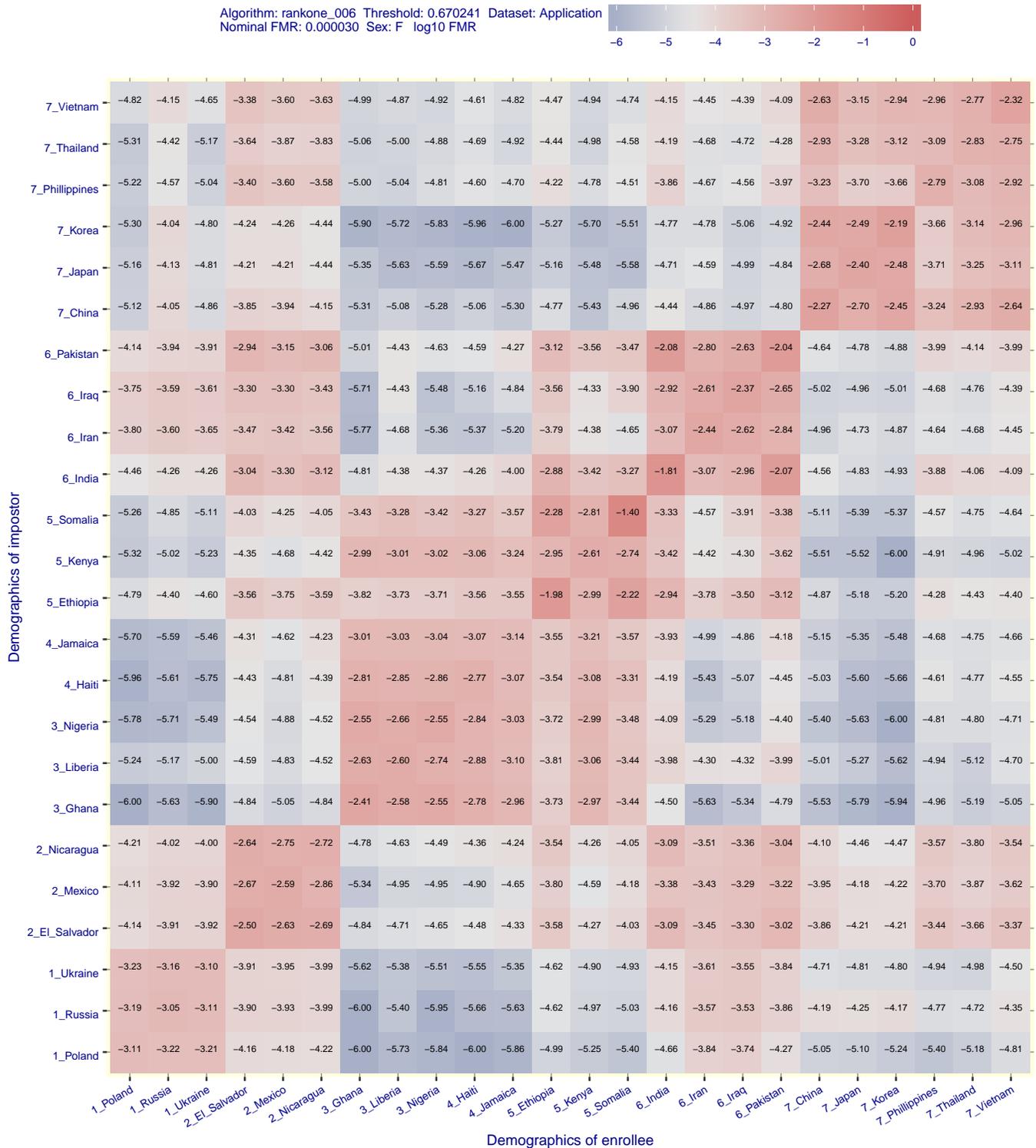


Figure 182: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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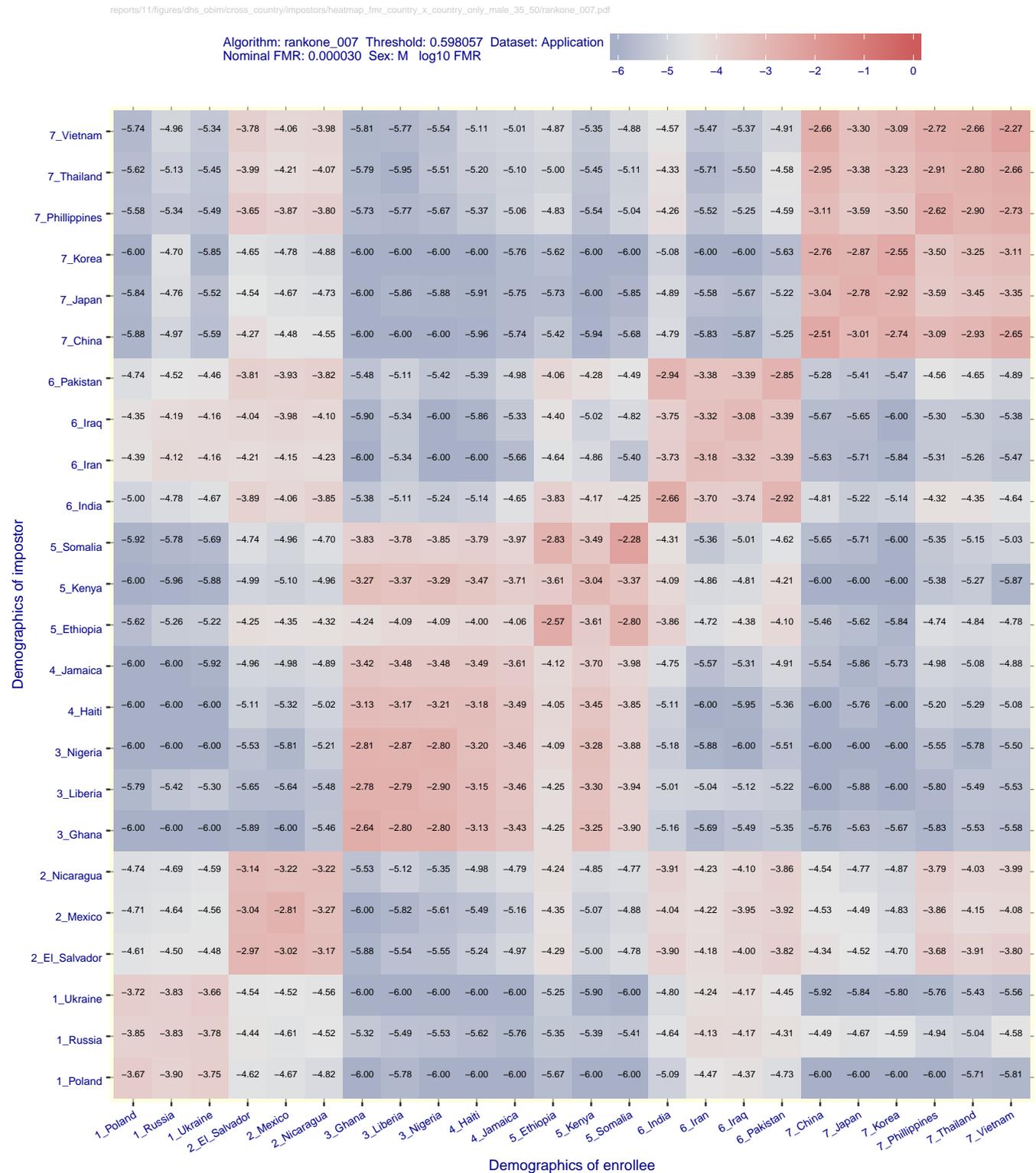


Figure 183: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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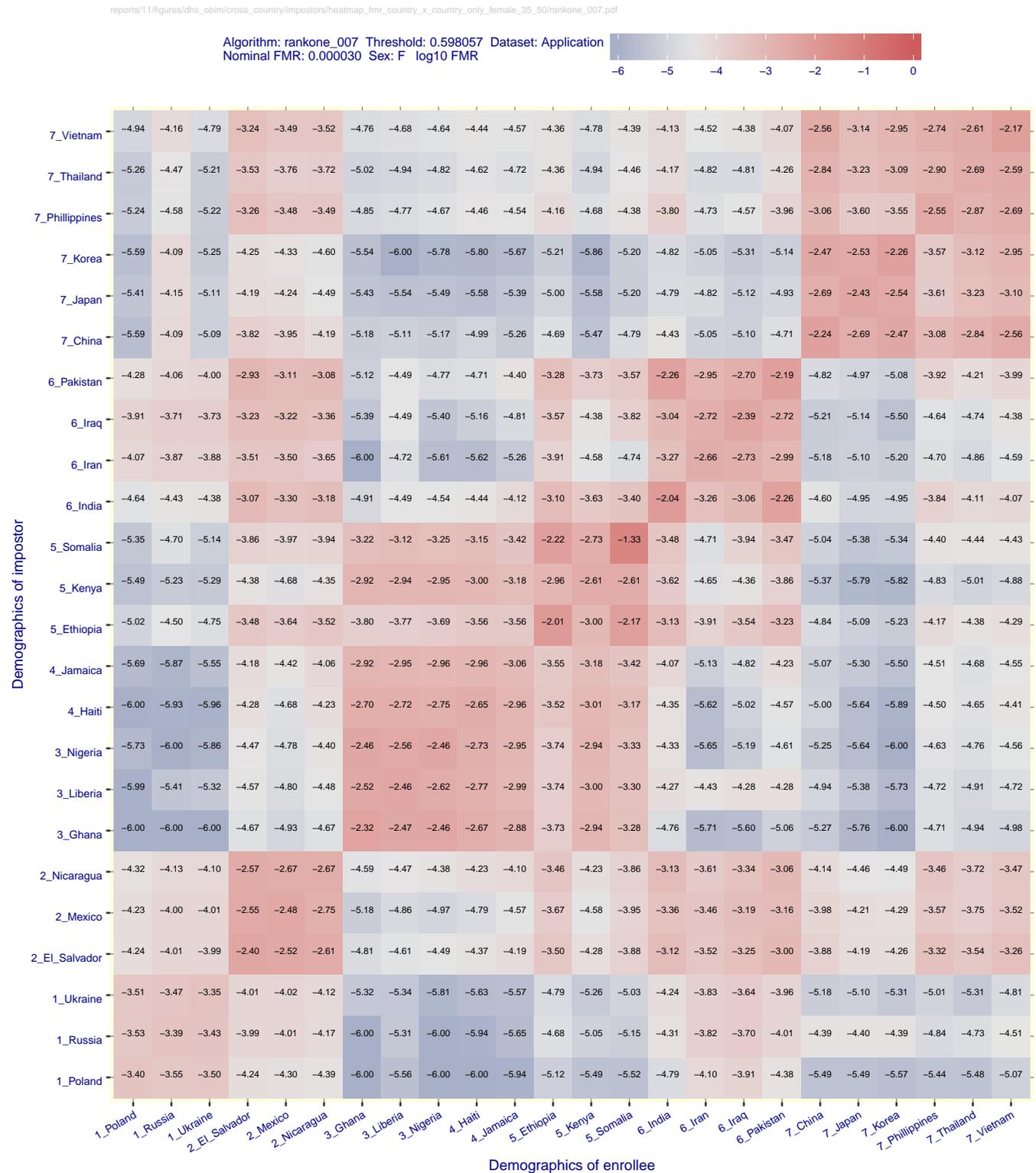


Figure 184: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/realnetworks\_002.pdf

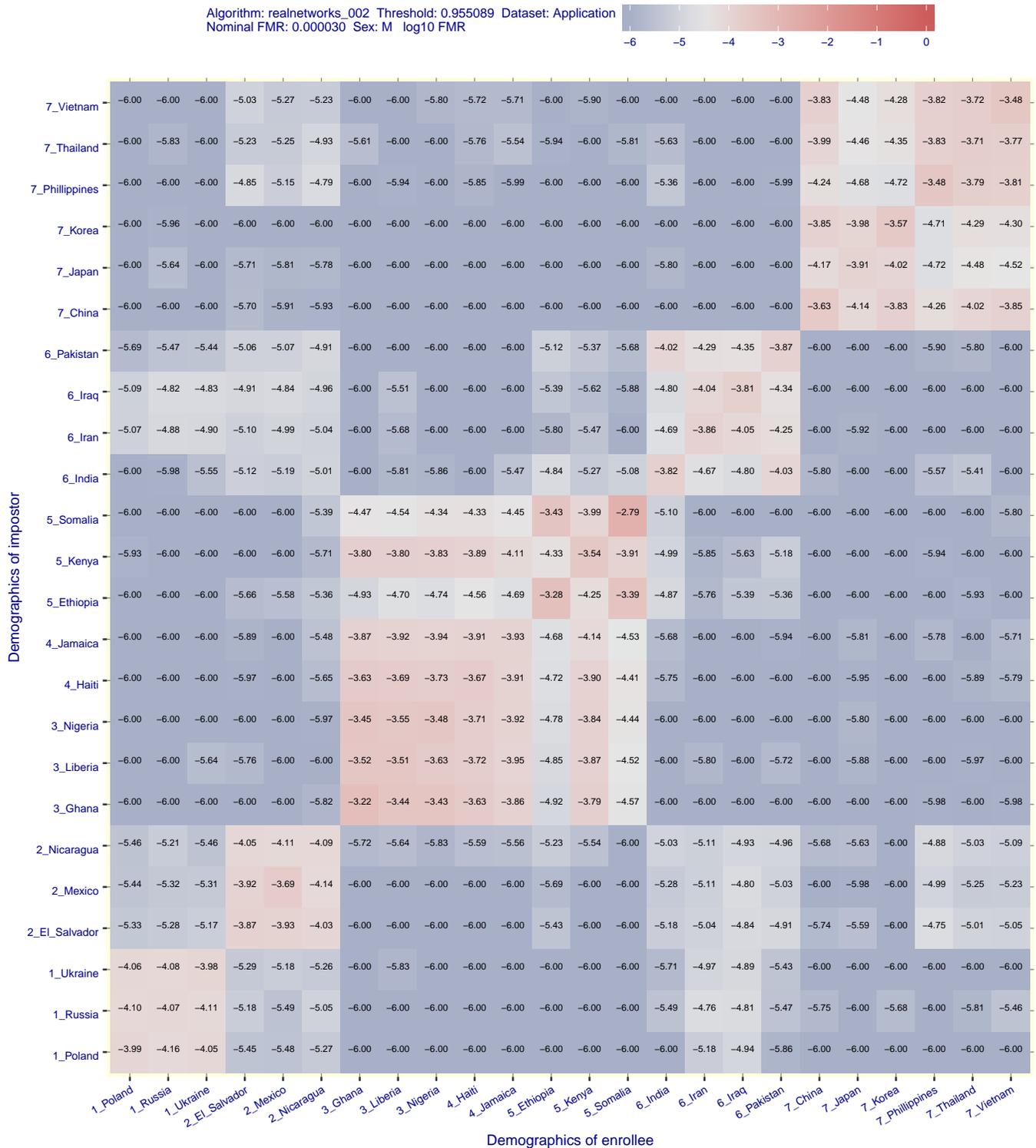


Figure 185: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0$

$\rightarrow$  FMR, FPIR  $\rightarrow$  0  
 $\rightarrow$  FNMR, FNIR  $\rightarrow$  1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/realnetworks\_002.pdf

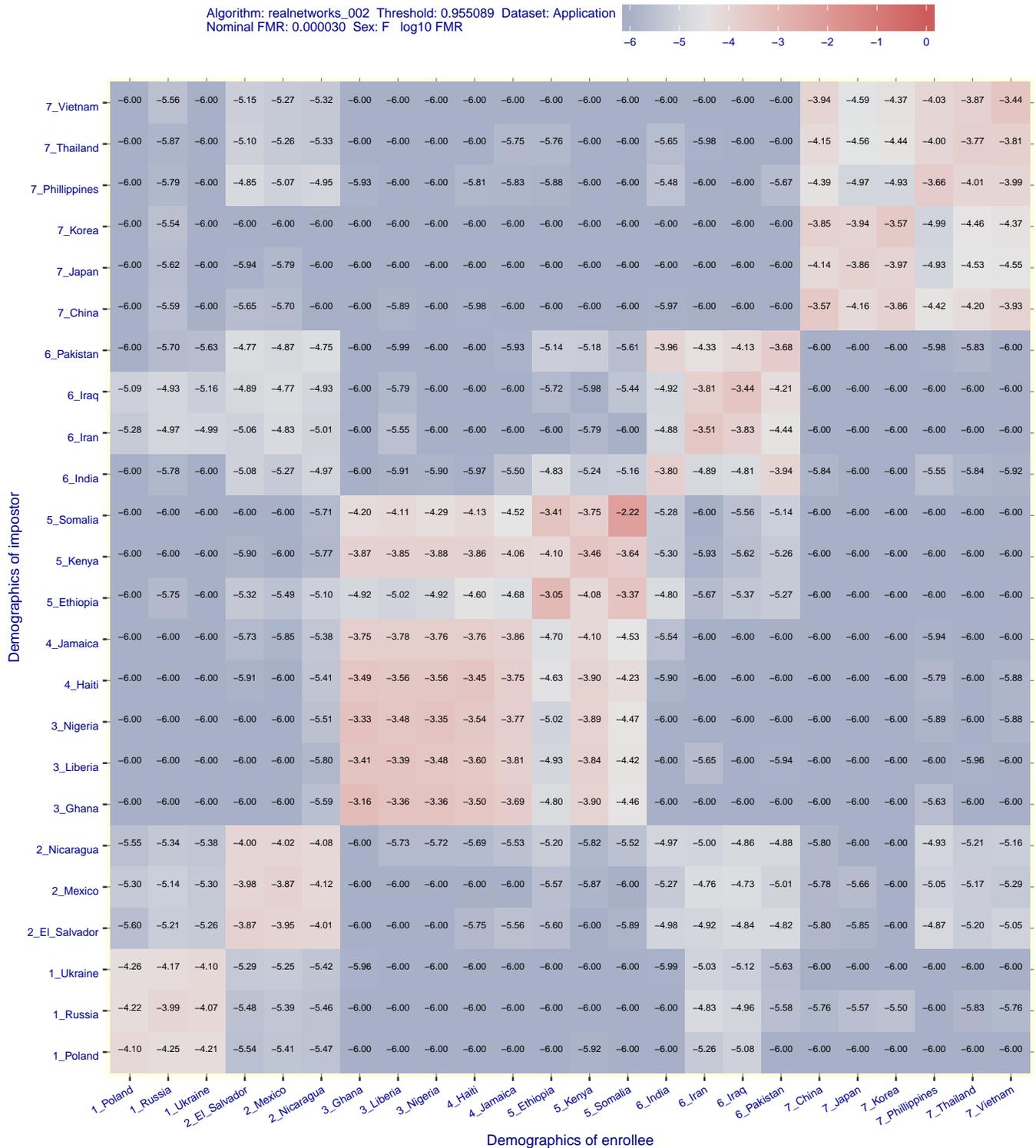


Figure 186: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/realnetworks\_003.pdf

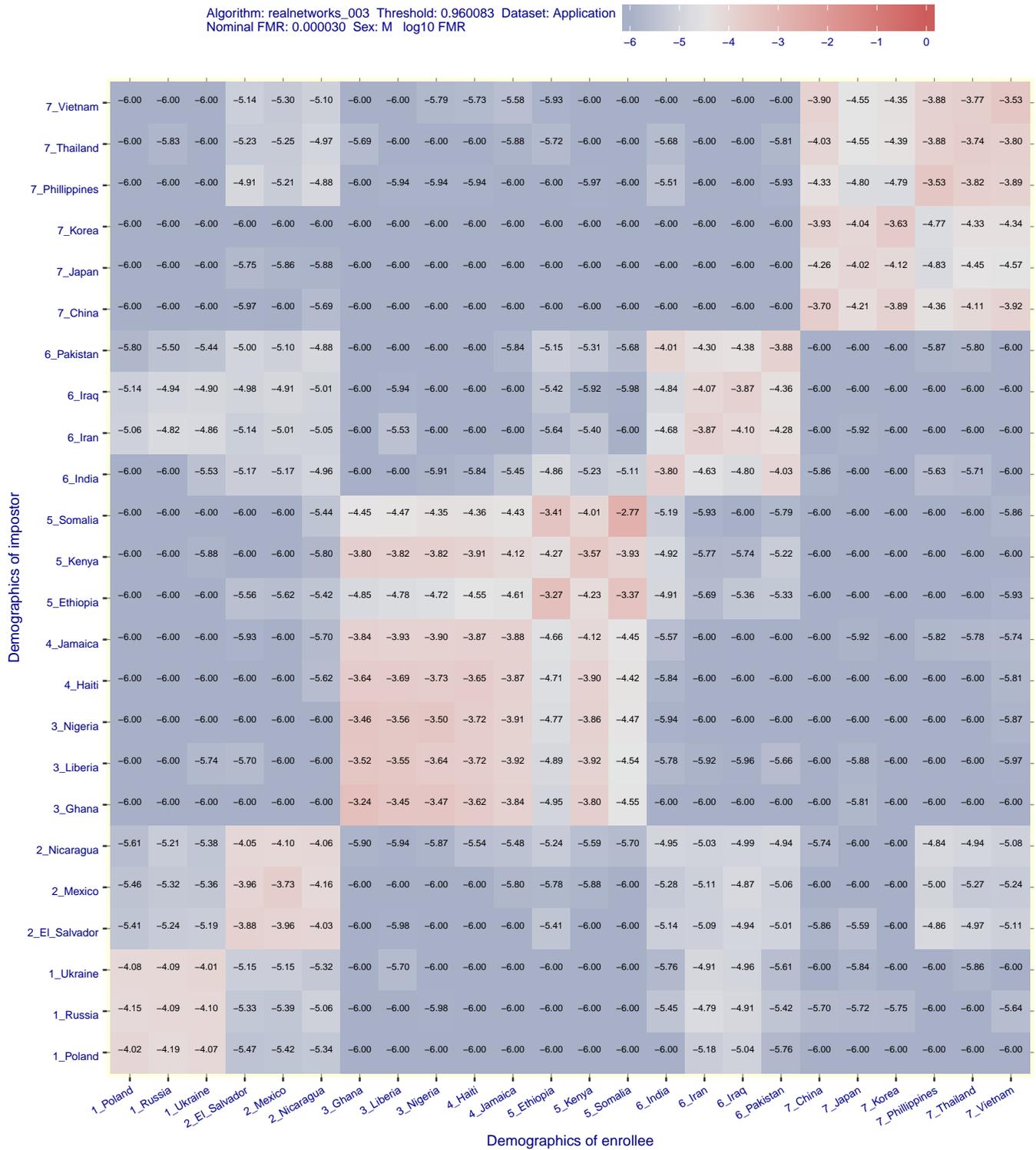


Figure 187: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T ≫ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/realnetworks\_003.pdf

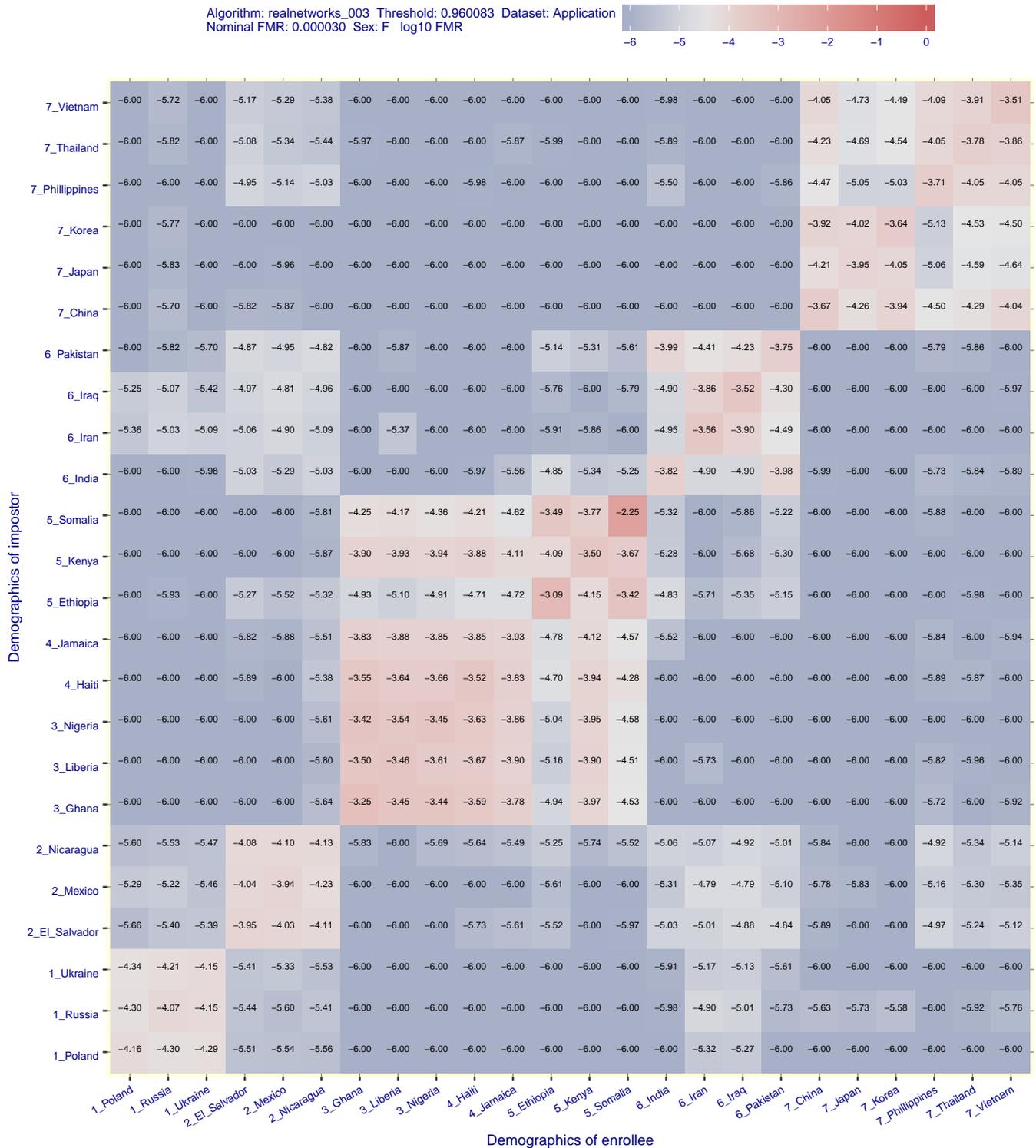


Figure 188: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/remarkai\_000.pdf

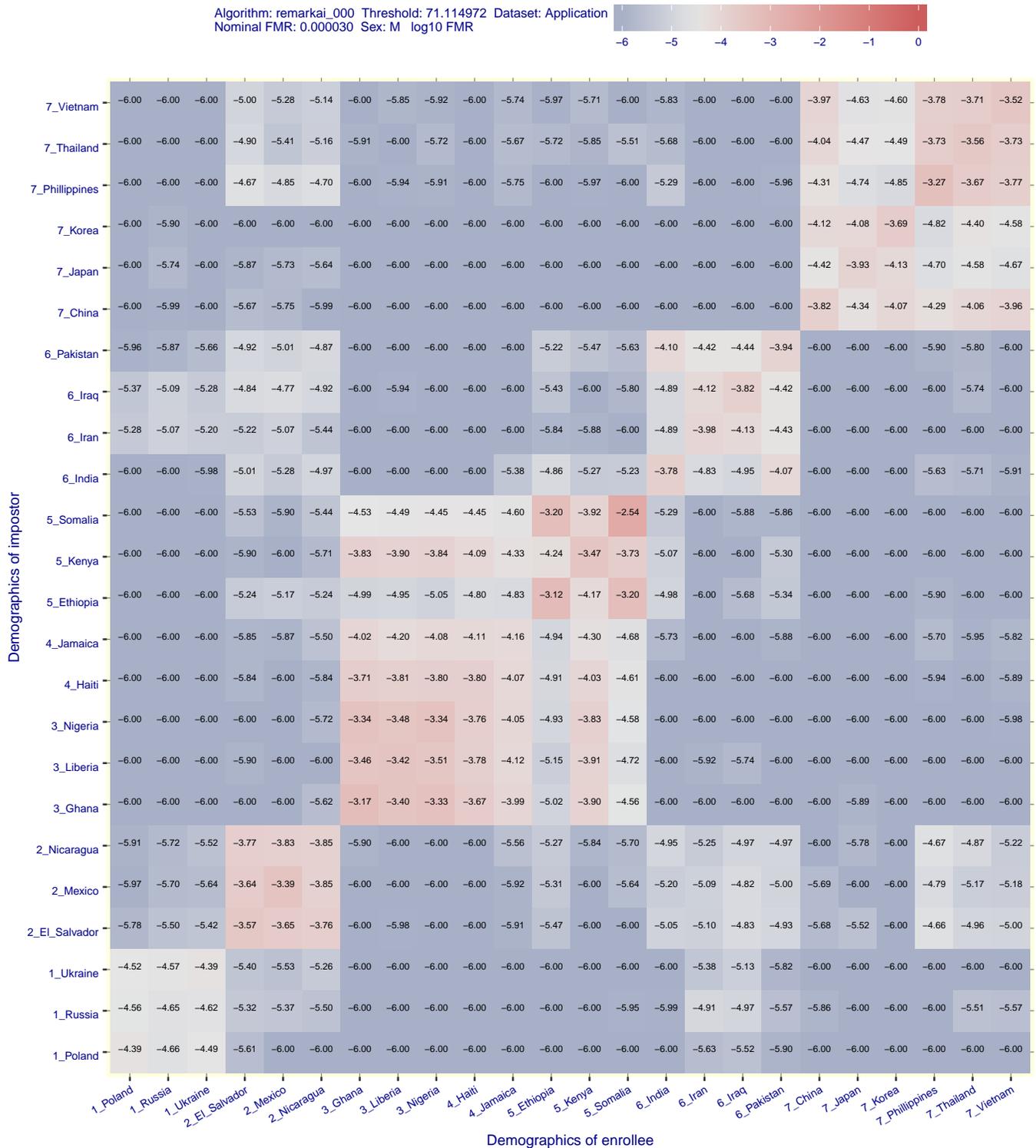


Figure 189: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/remarkai\_000.pdf

Algorithm: remarkai\_000 Threshold: 71.114972 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

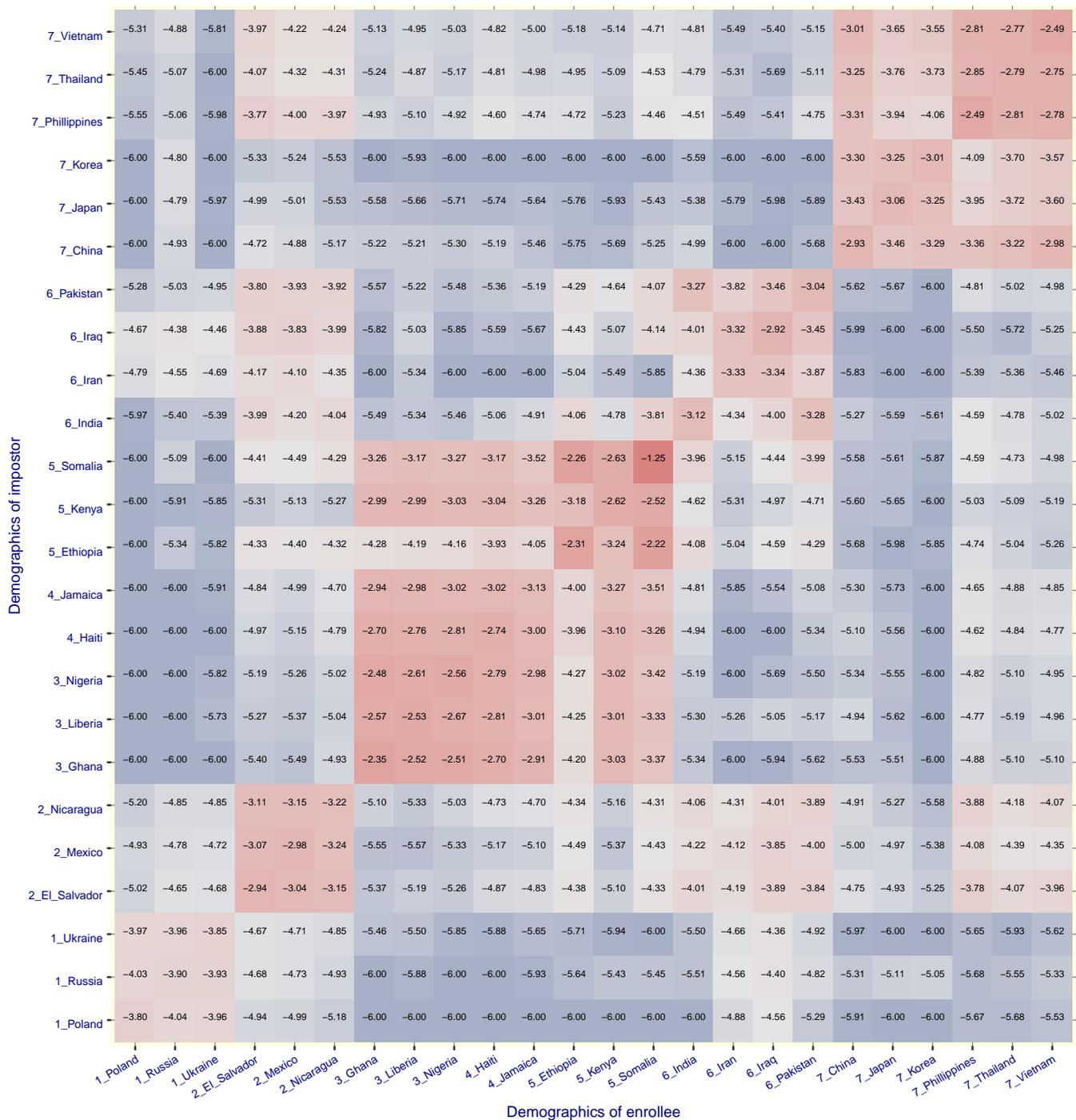


Figure 190: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects | 1:1 FMR | 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject | 1:1 FNMR | 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/remarkai\_001.pdf

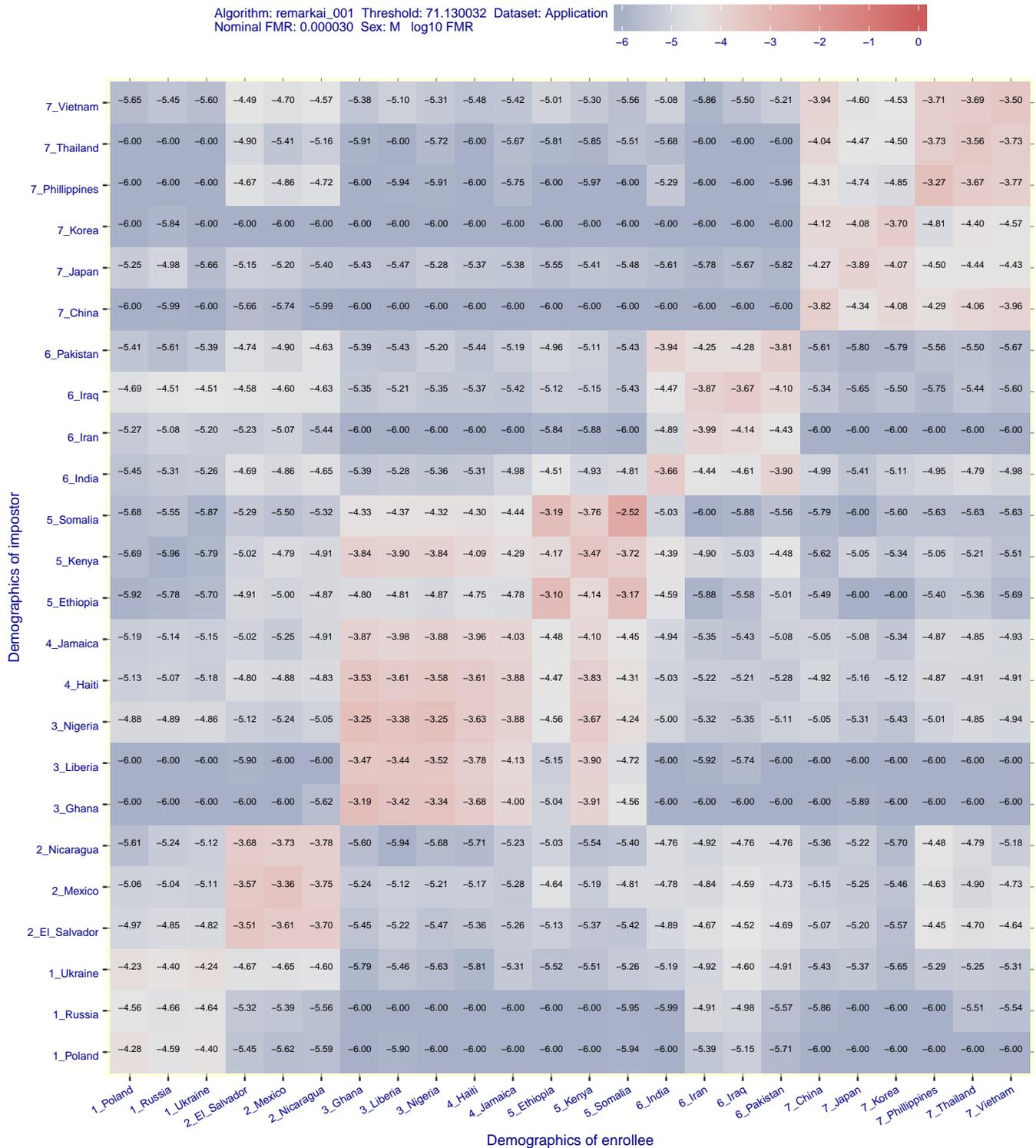


Figure 191: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/remarkai\_001.pdf

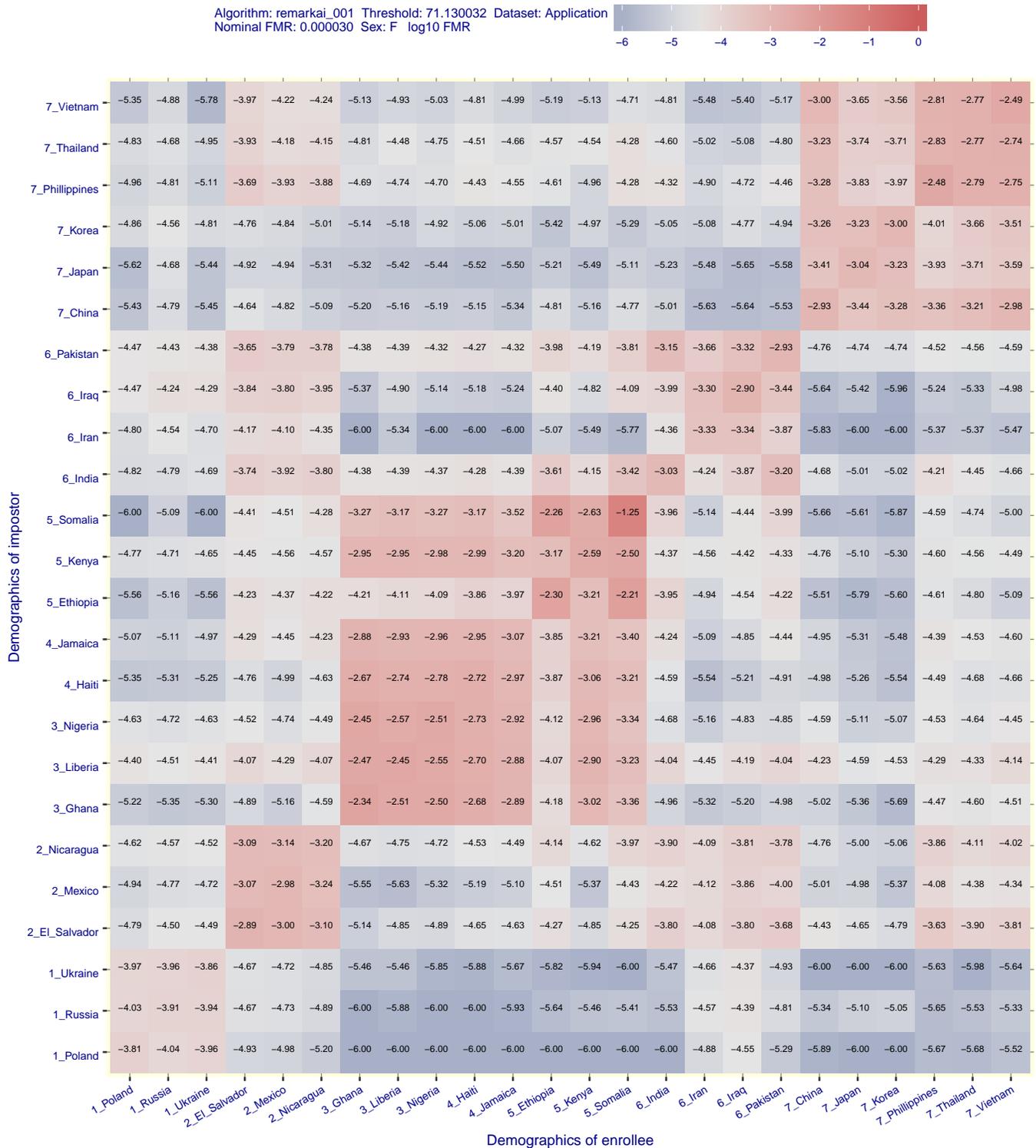


Figure 192: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/rokid\_000.pdf

Algorithm: rokid\_000 Threshold: 0.679306 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

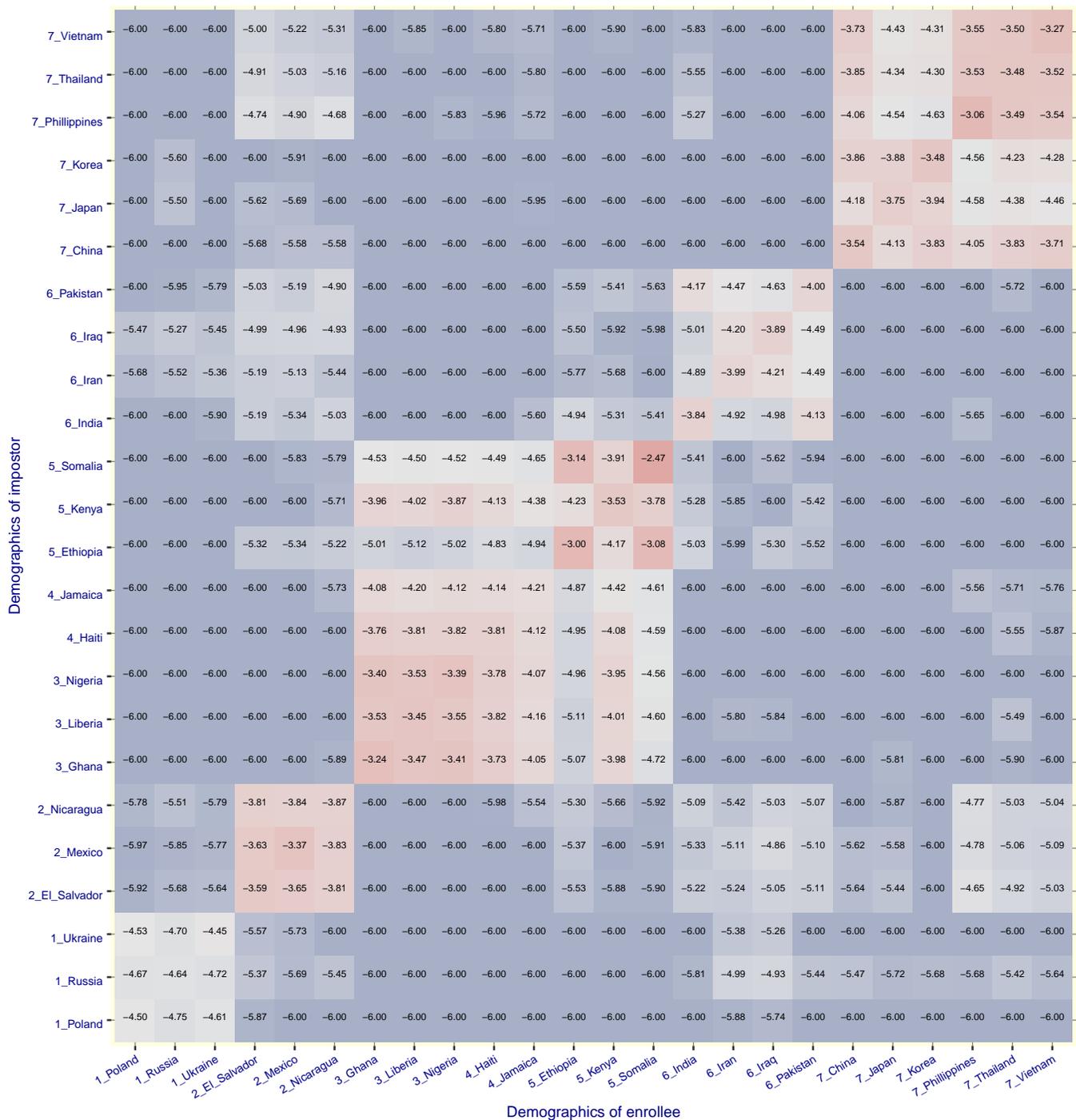
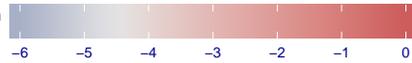


Figure 193: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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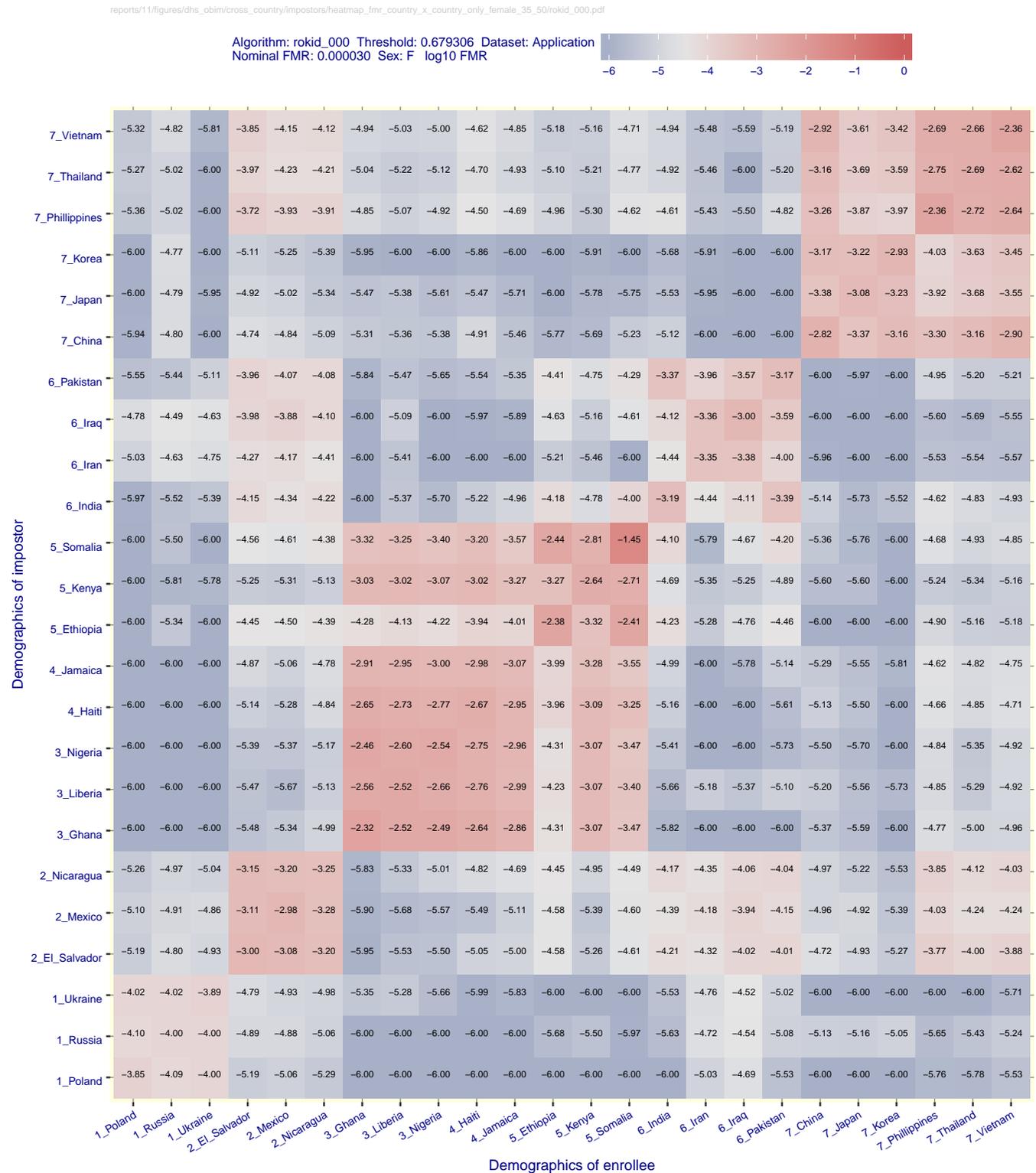


Figure 194: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/saffe\_001.pdf

Algorithm: saffe\_001 Threshold: 0.690624 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

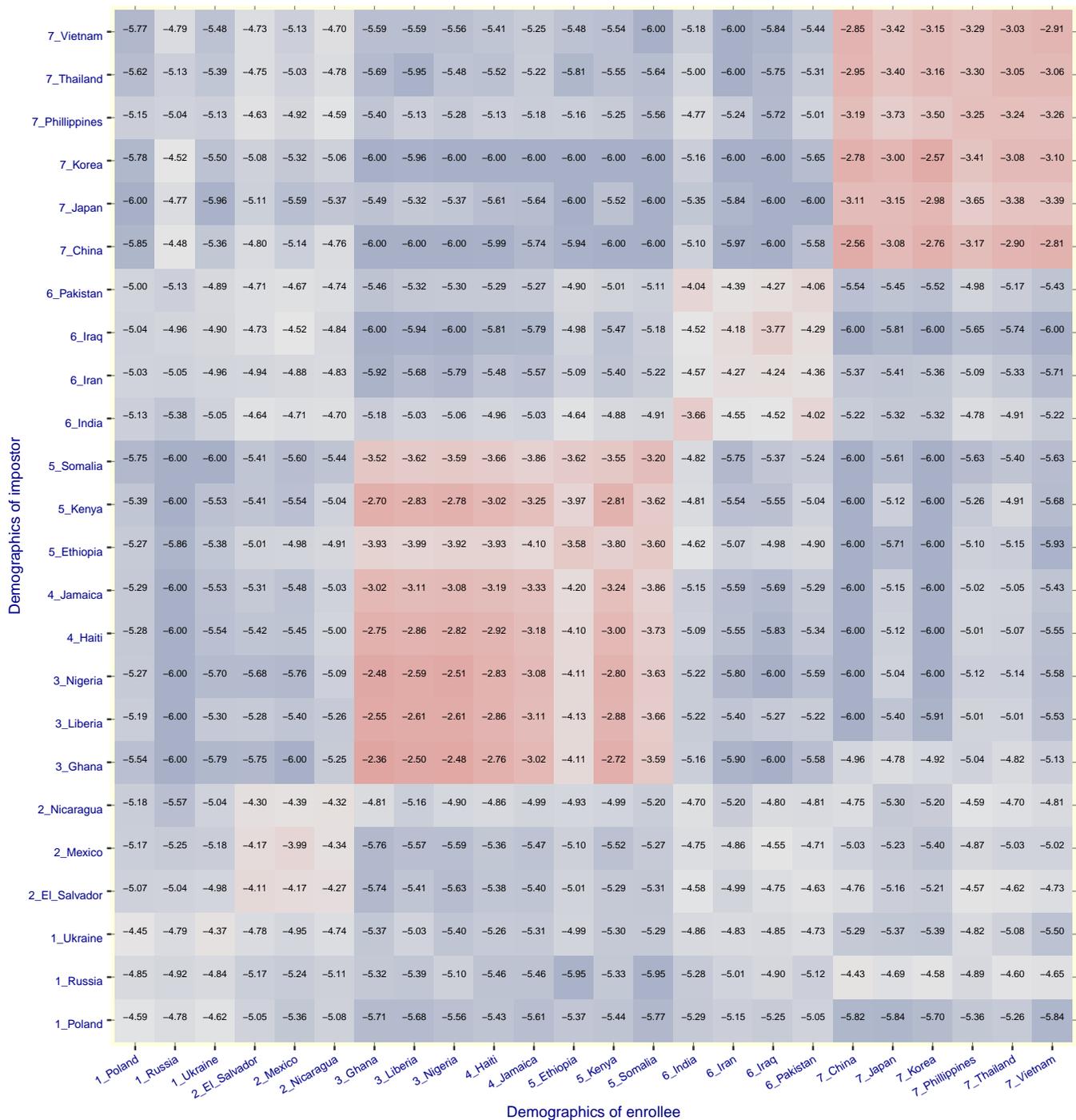


Figure 195: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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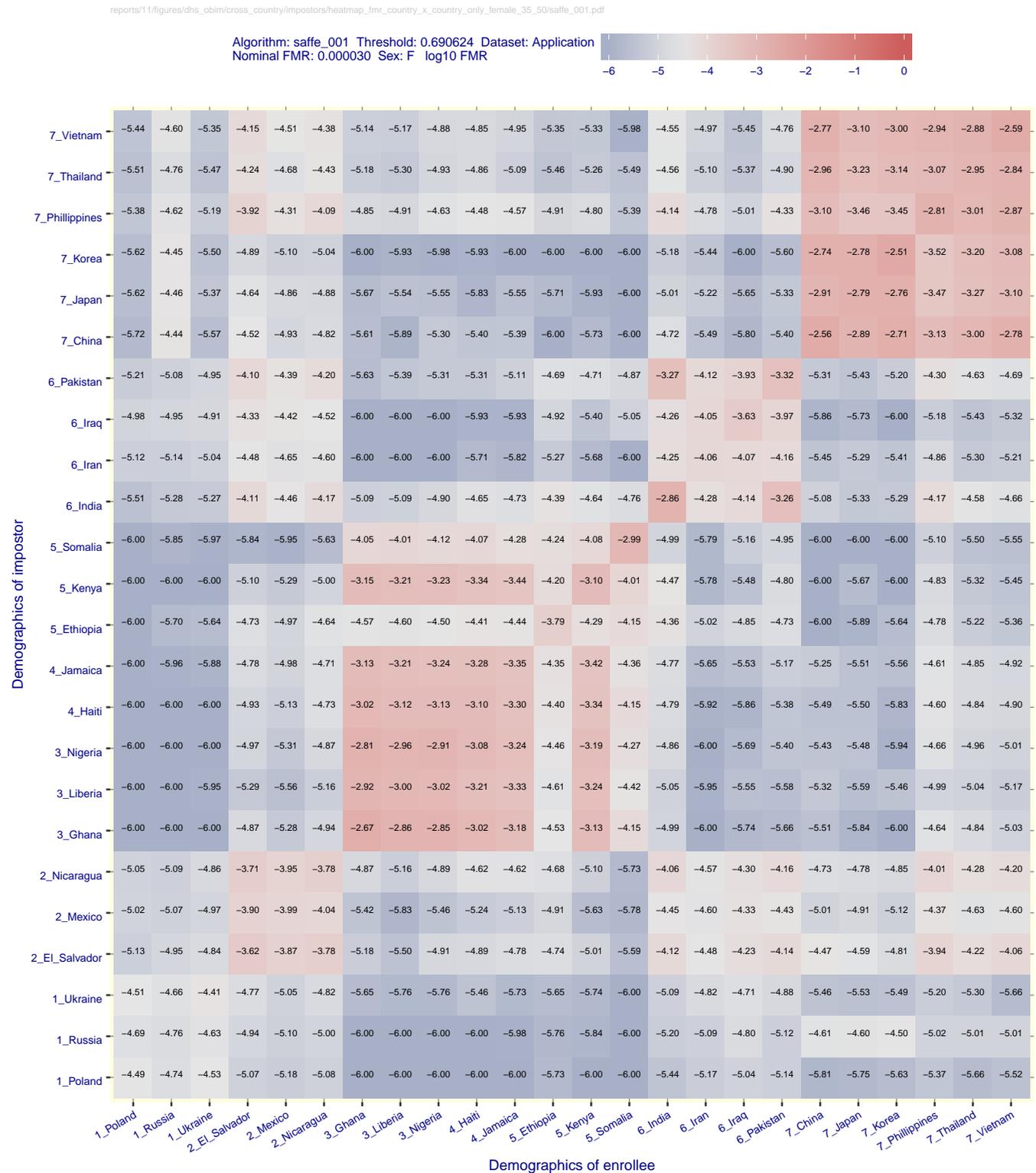


Figure 196: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/saffe\_002.pdf

Algorithm: saffe\_002 Threshold: 0.399964 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

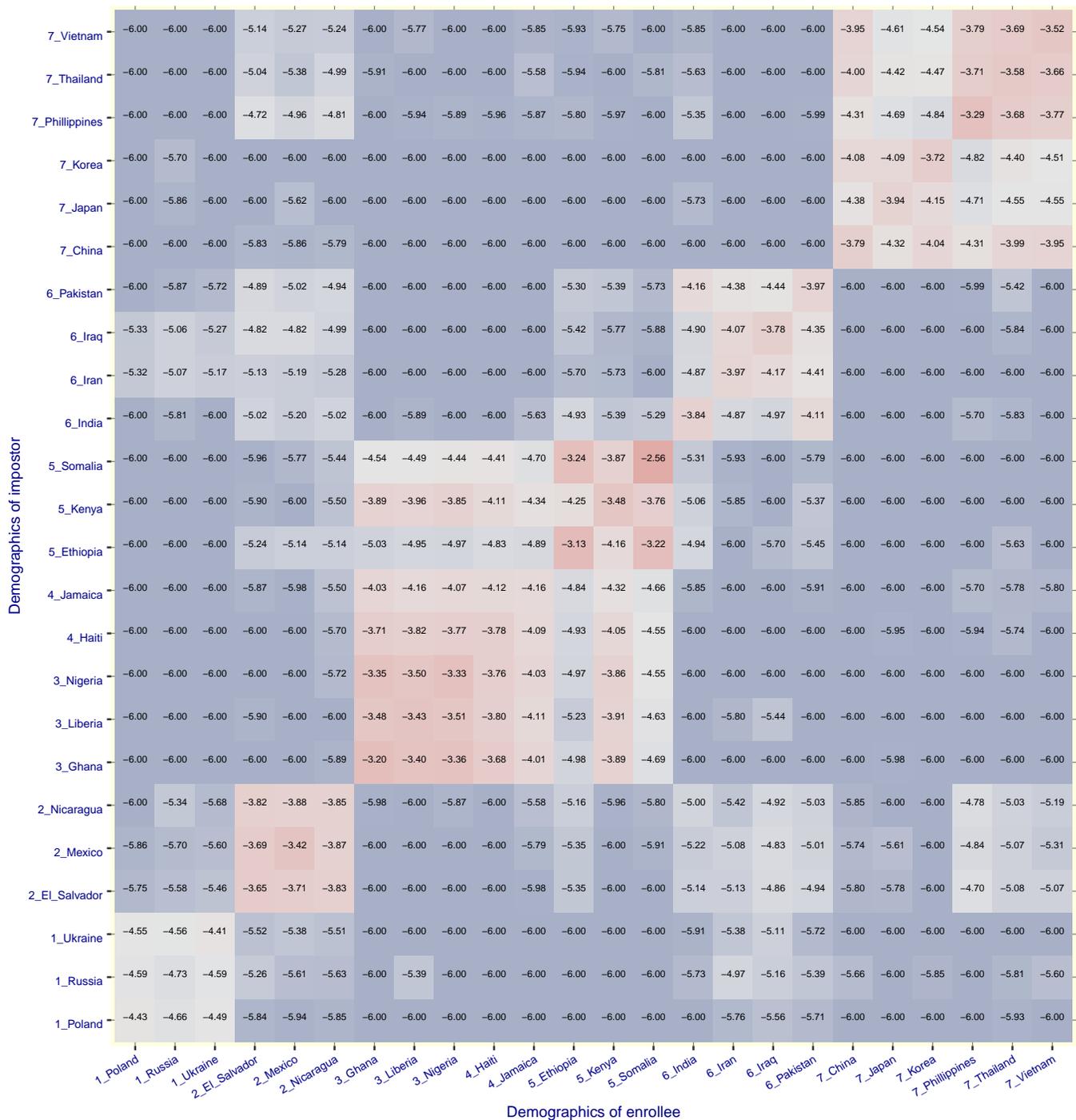


Figure 197: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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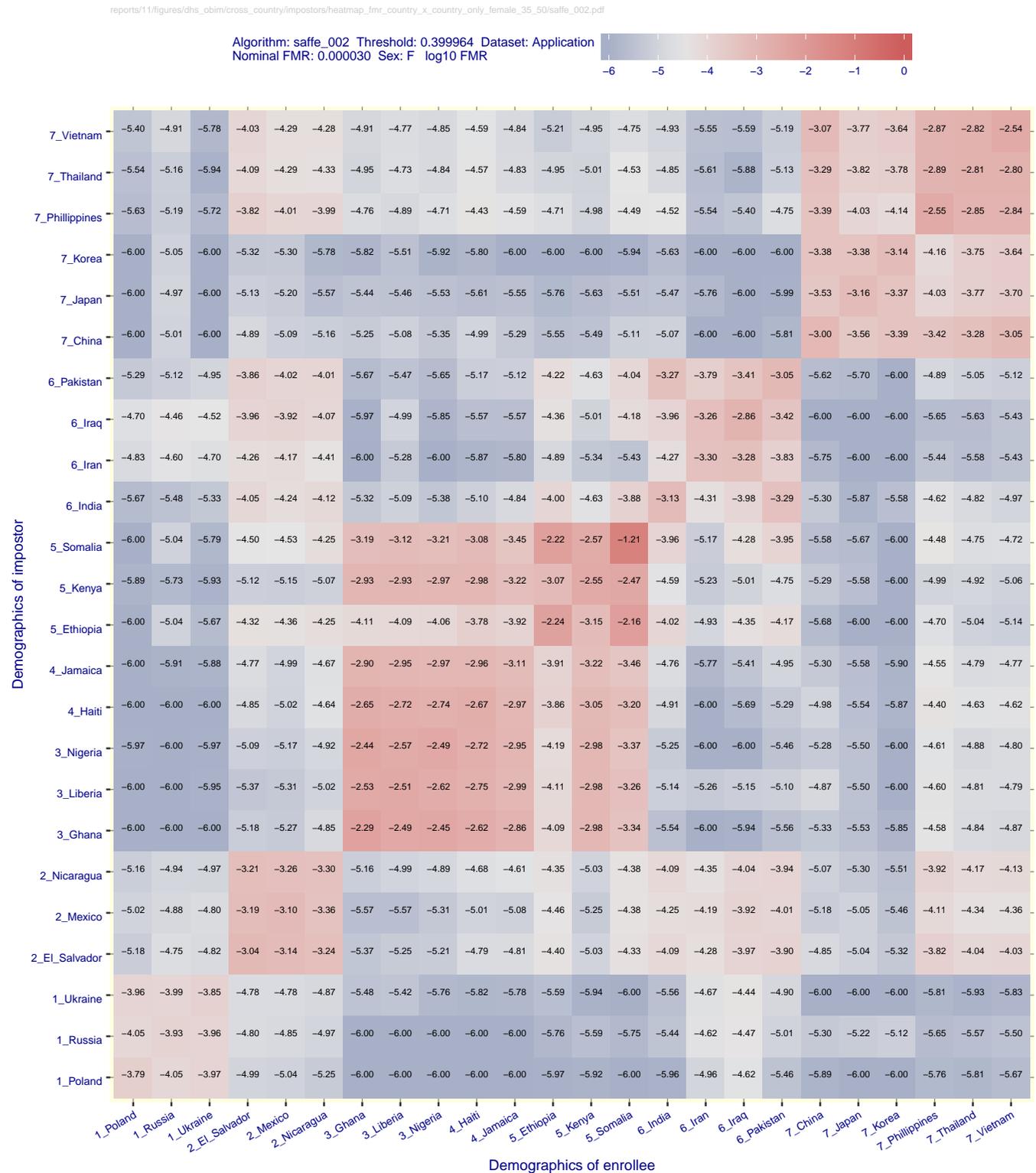


Figure 198: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/sensetime\_001.pdf

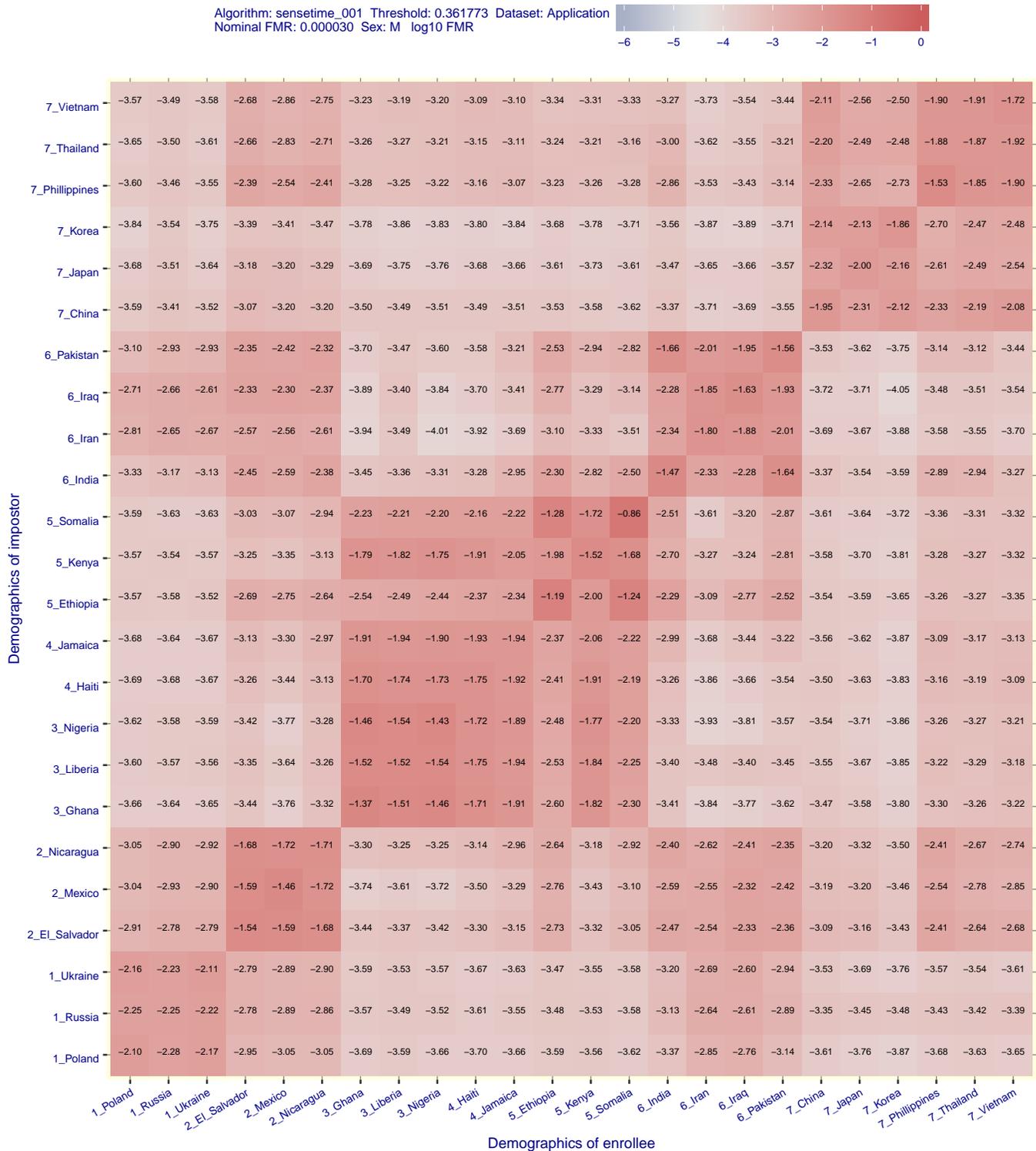


Figure 199: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/sensetime\_001.pdf

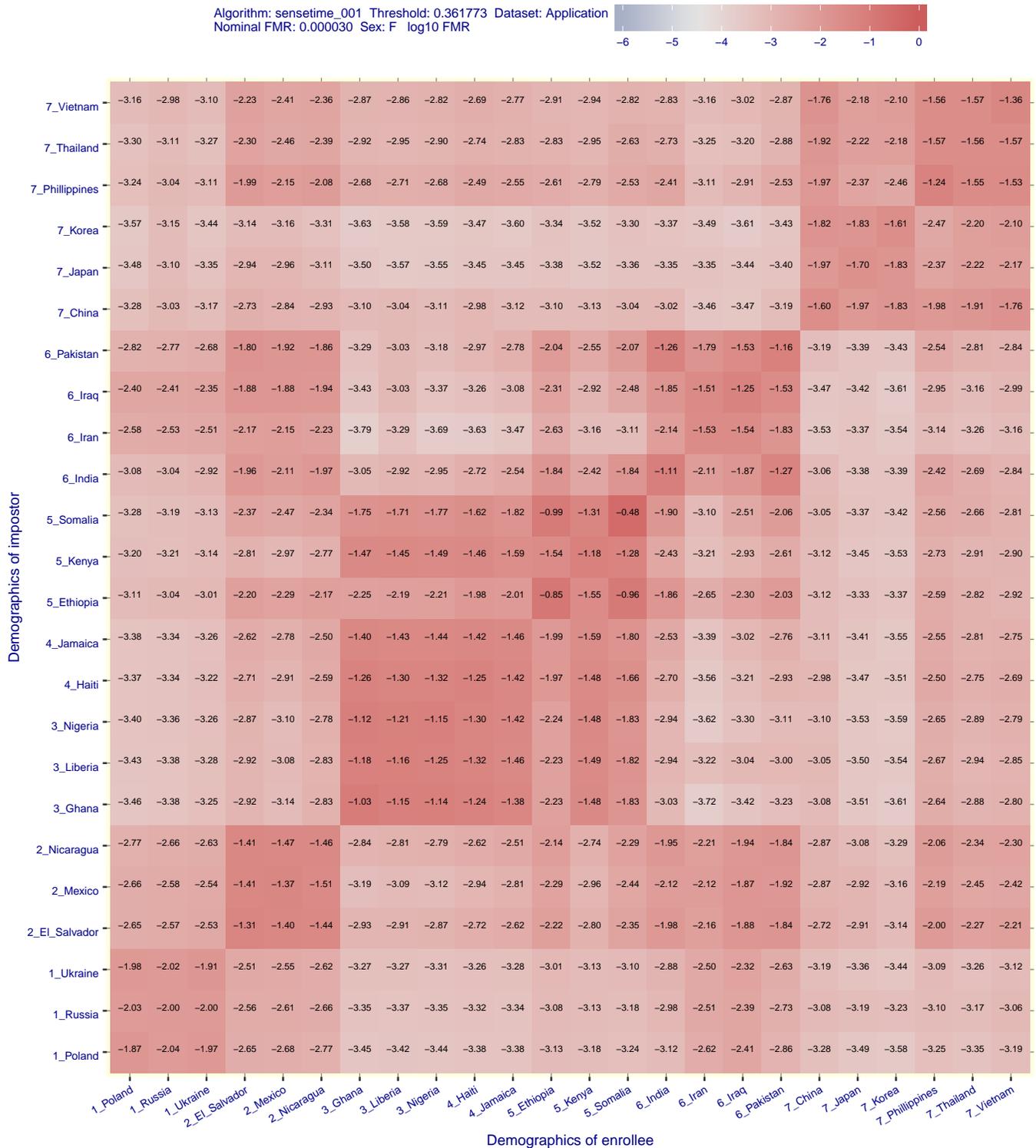


Figure 200: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/sensetime\_002.pdf

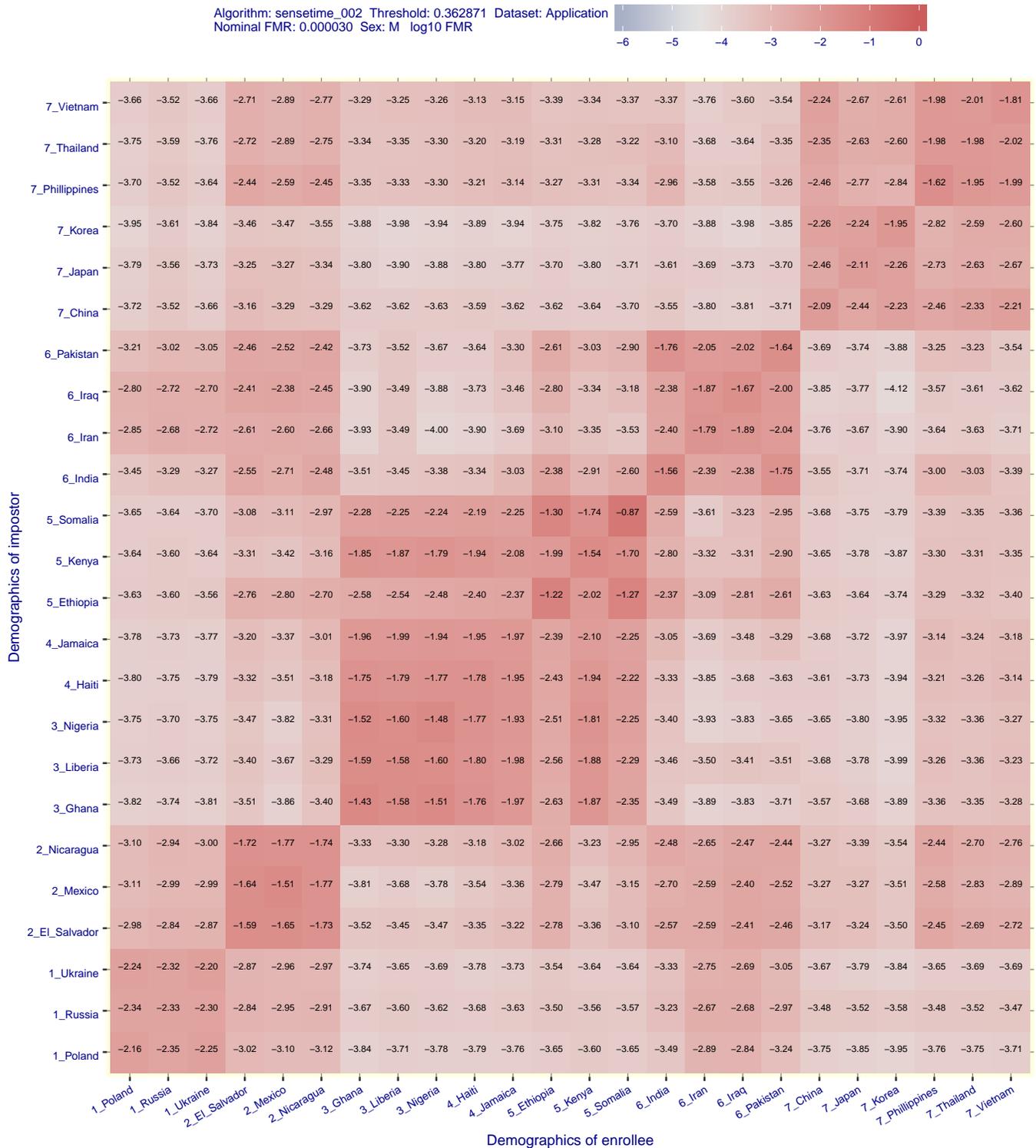


Figure 201: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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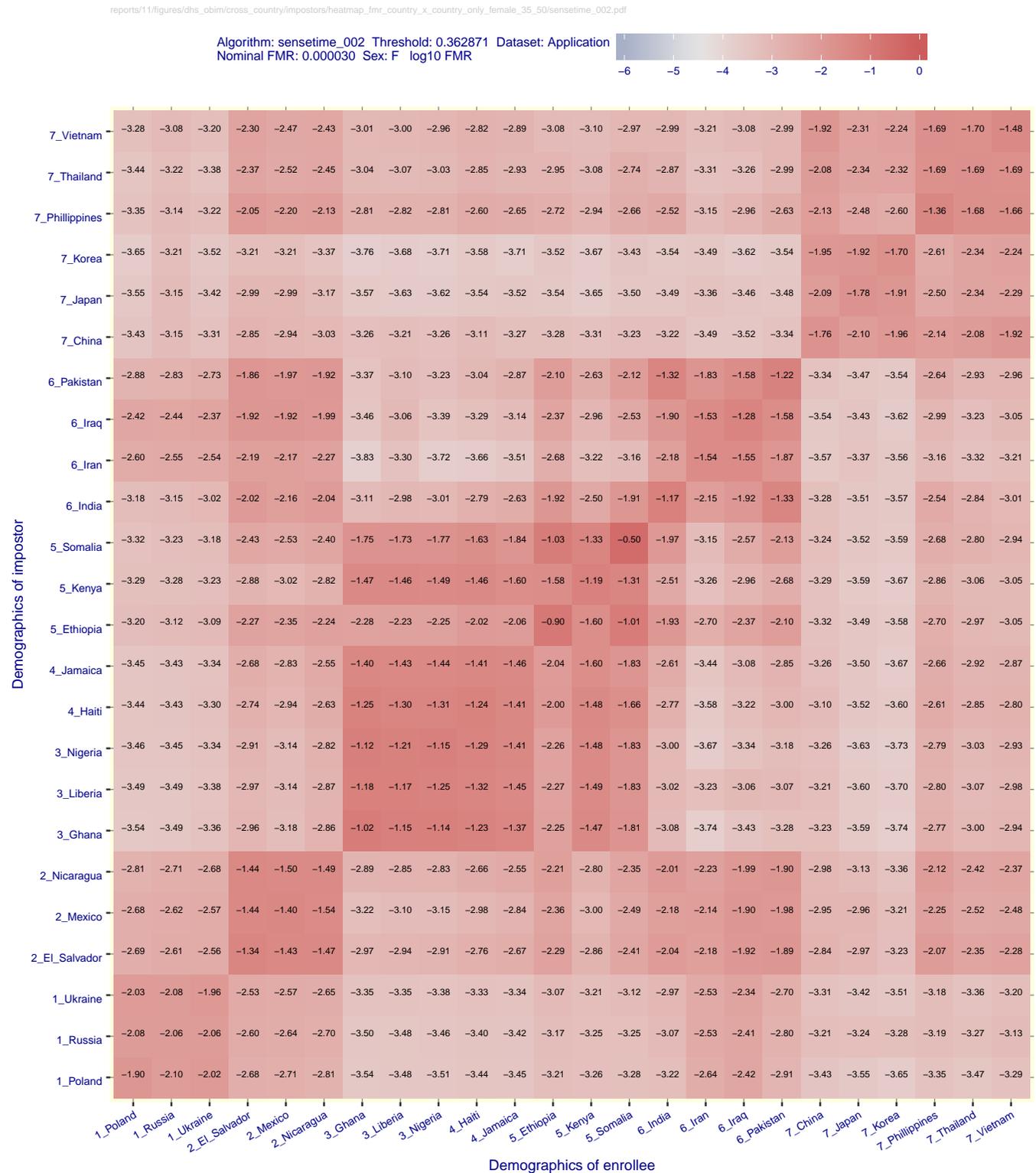


Figure 202: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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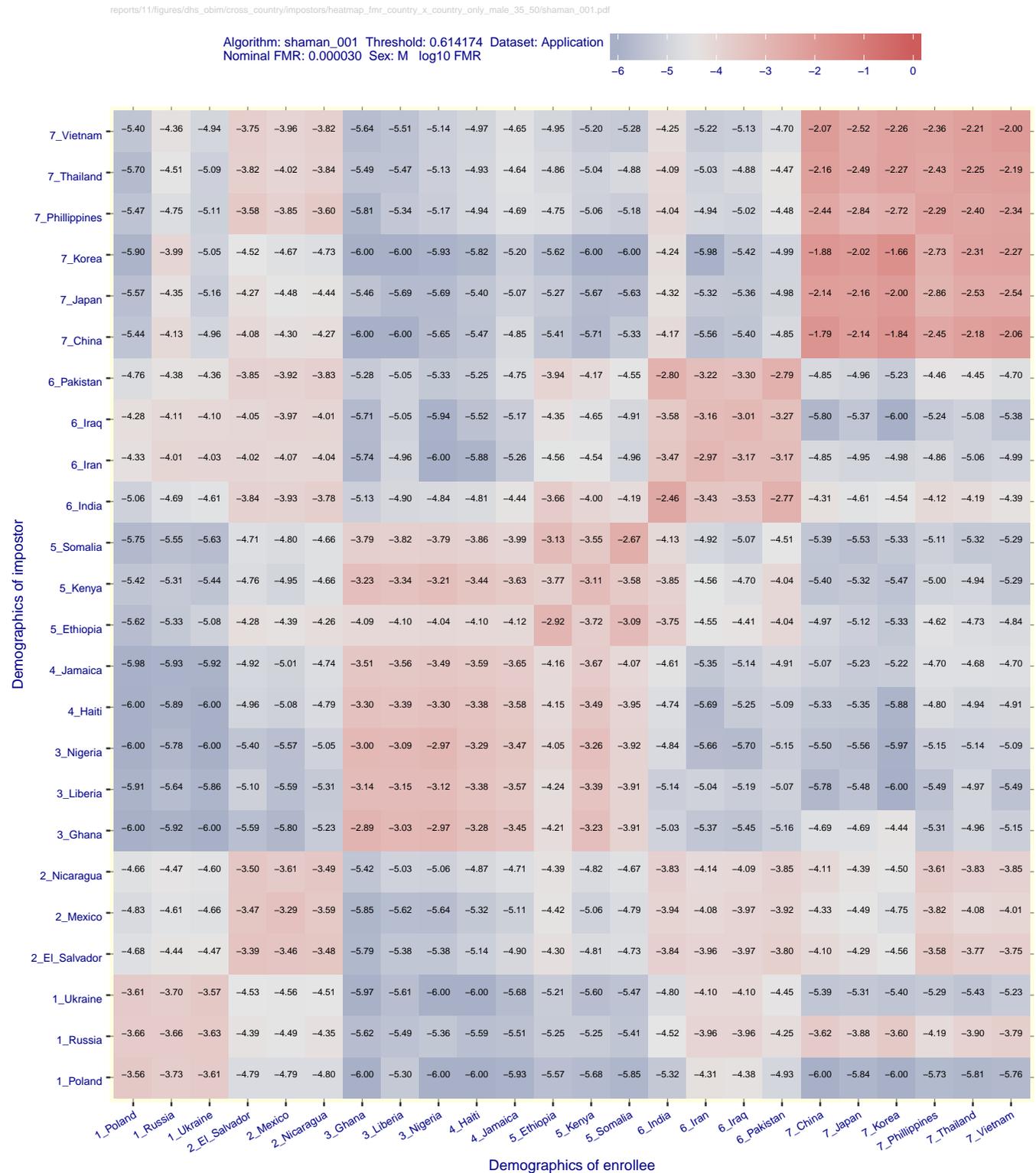


Figure 203: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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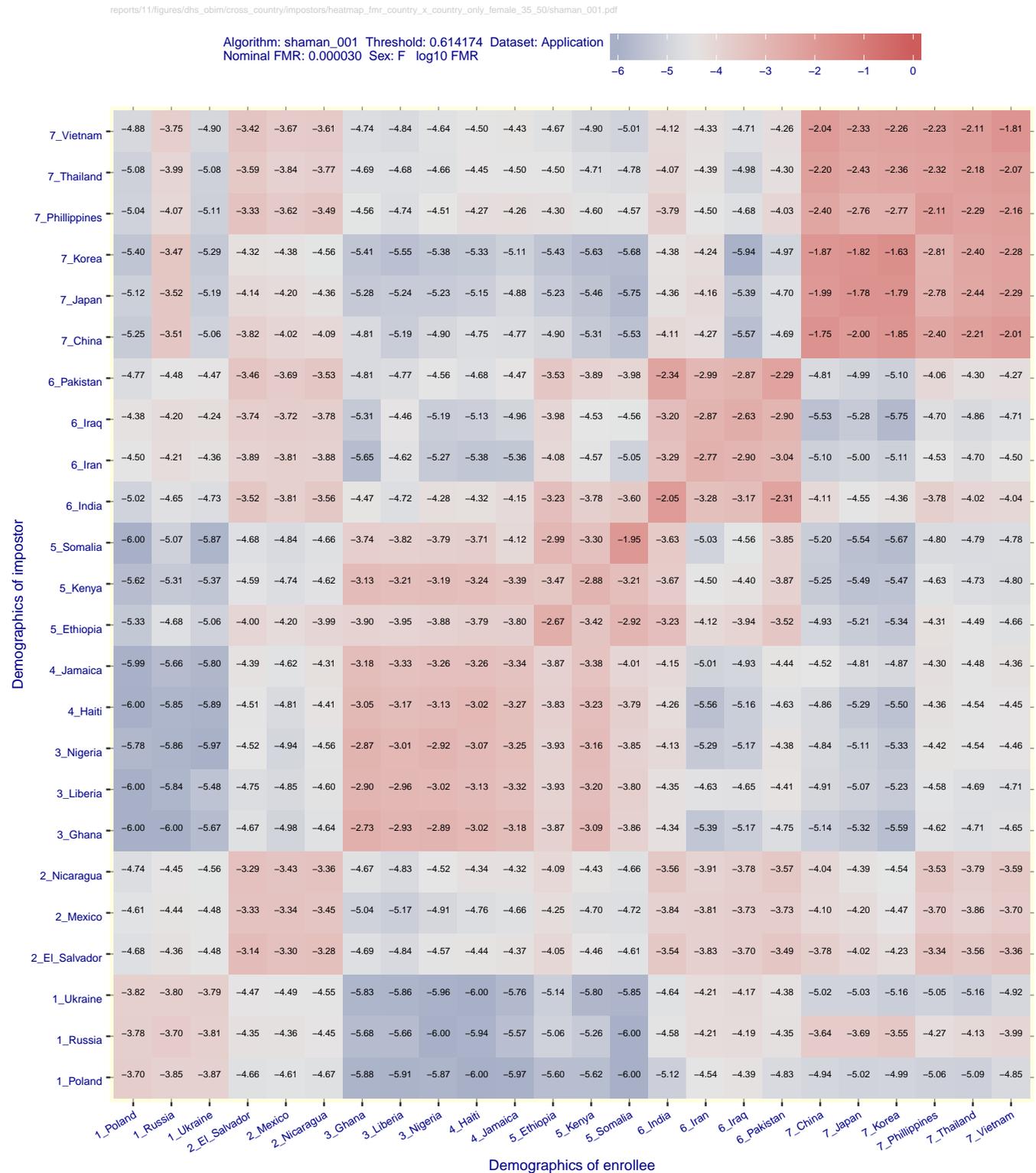


Figure 204: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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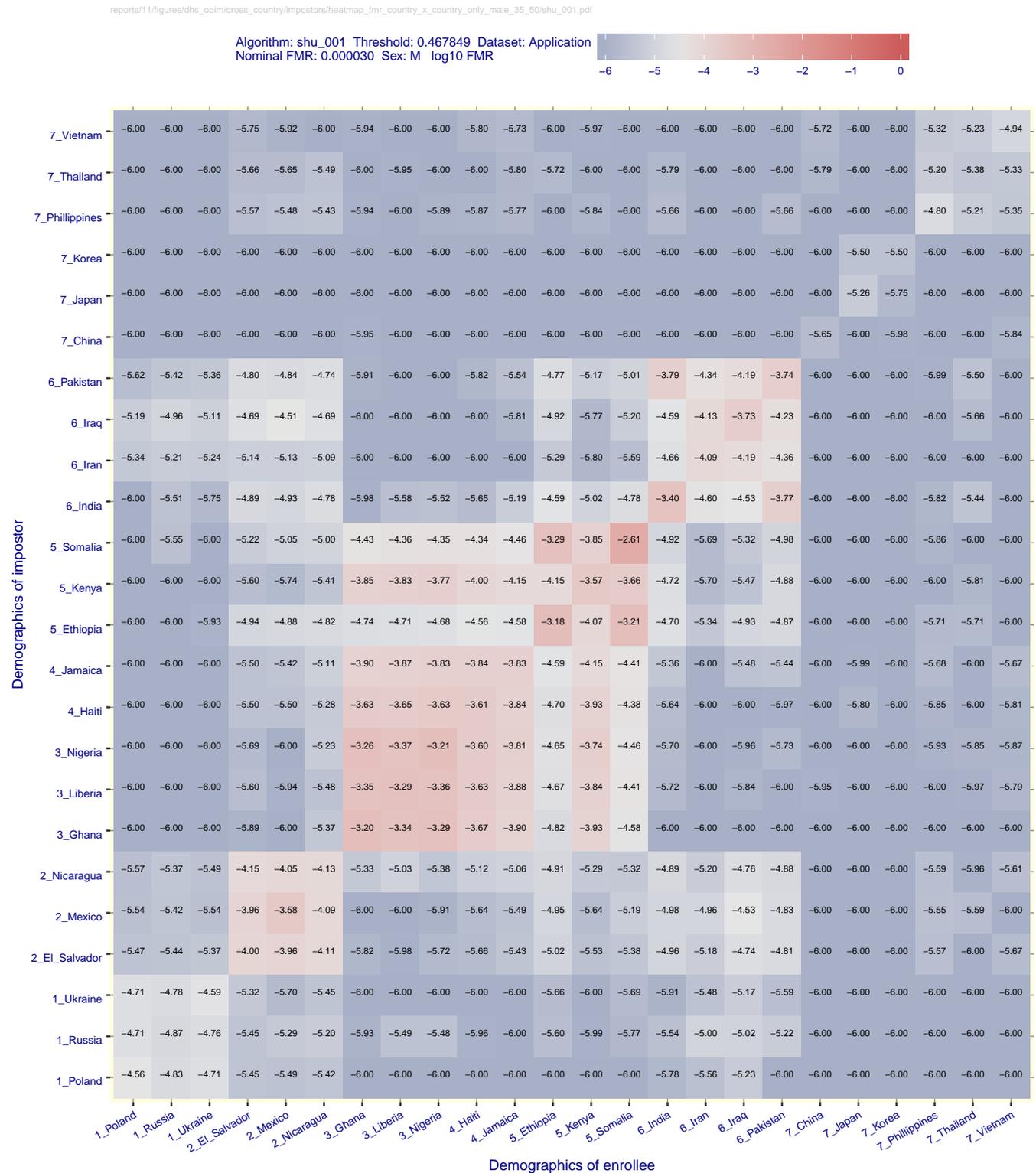


Figure 205: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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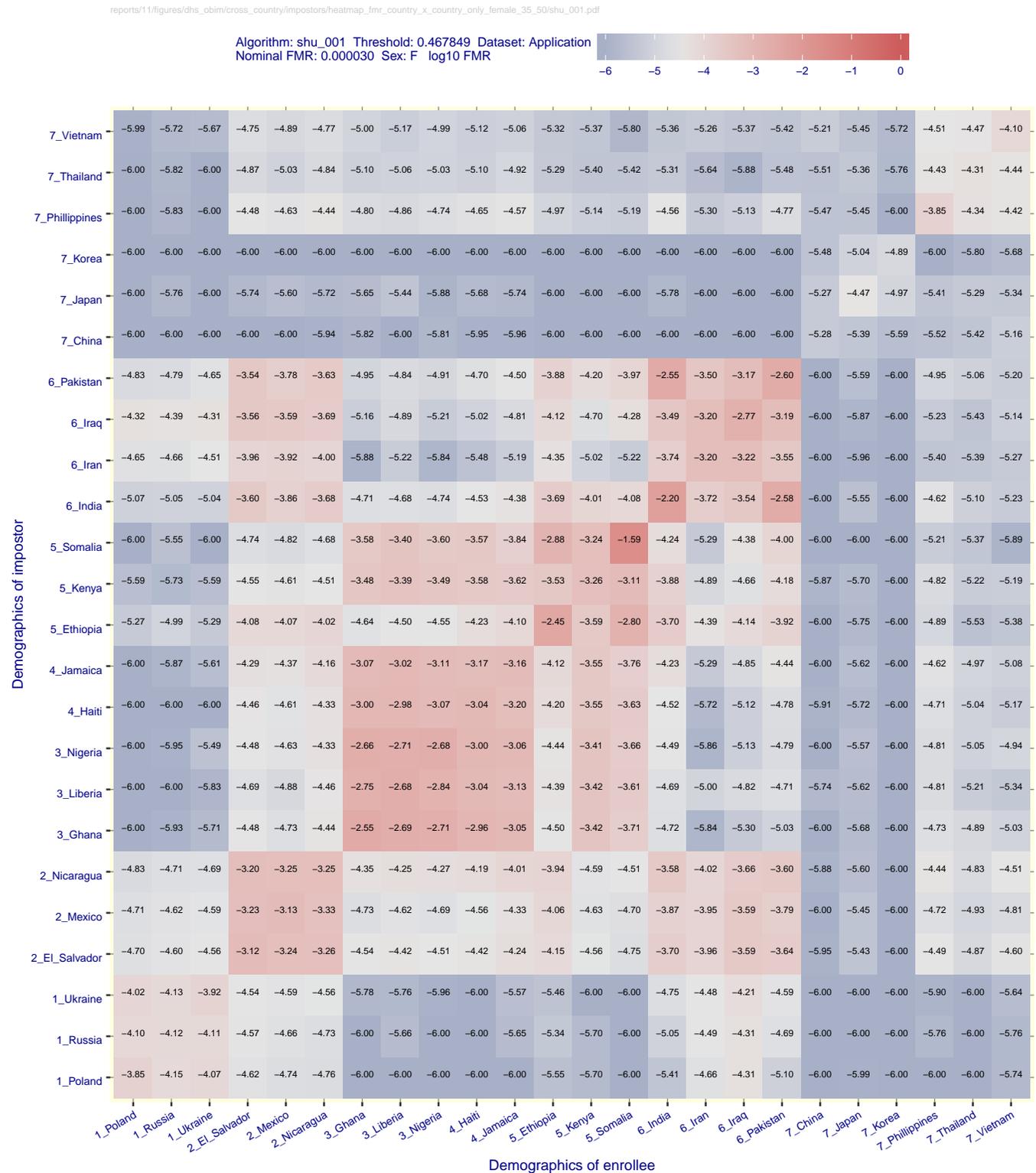


Figure 206: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/siat\_002.pdf

Algorithm: siat\_002 Threshold: 0.450193 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

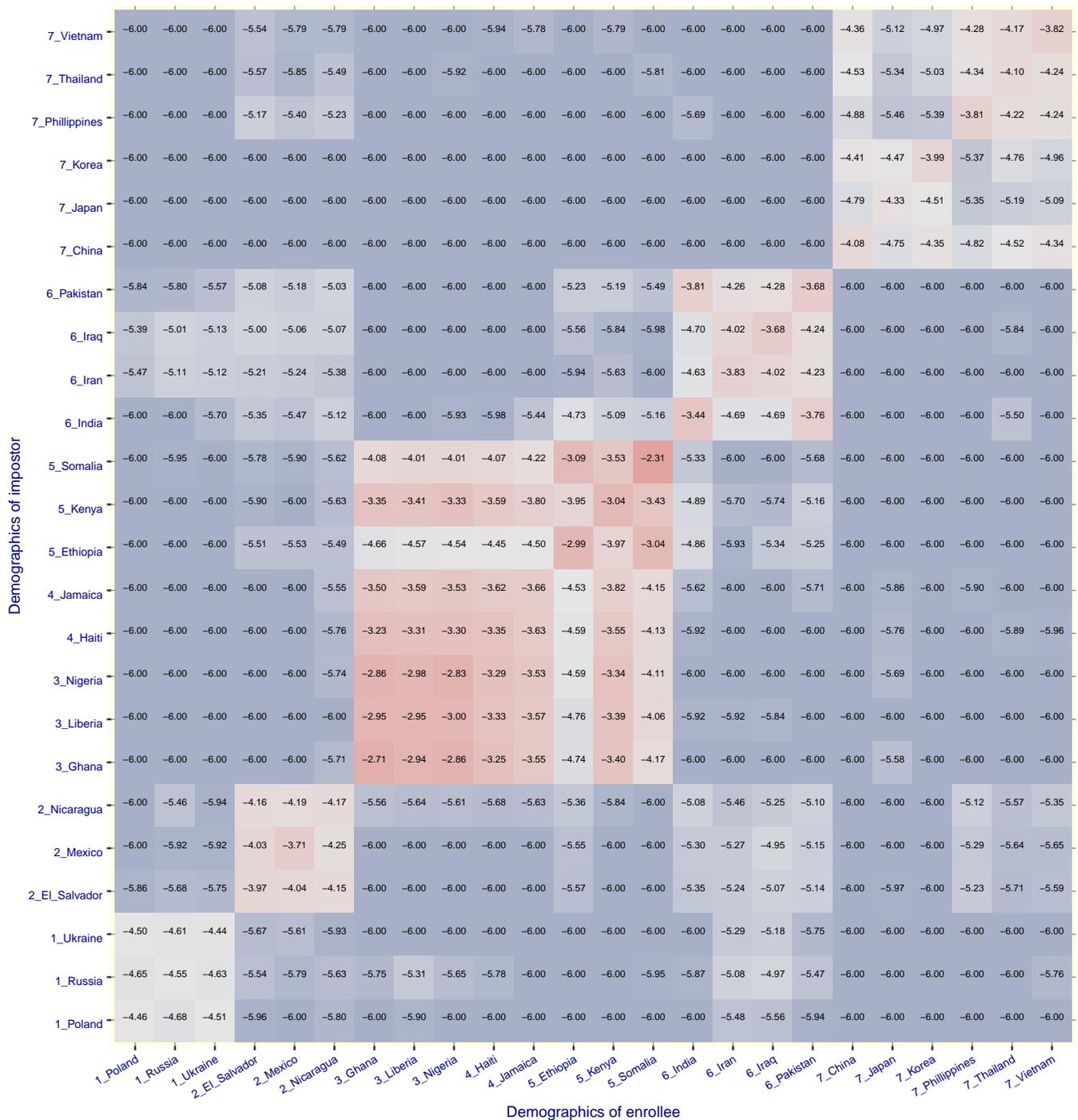
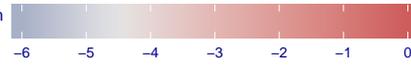


Figure 207: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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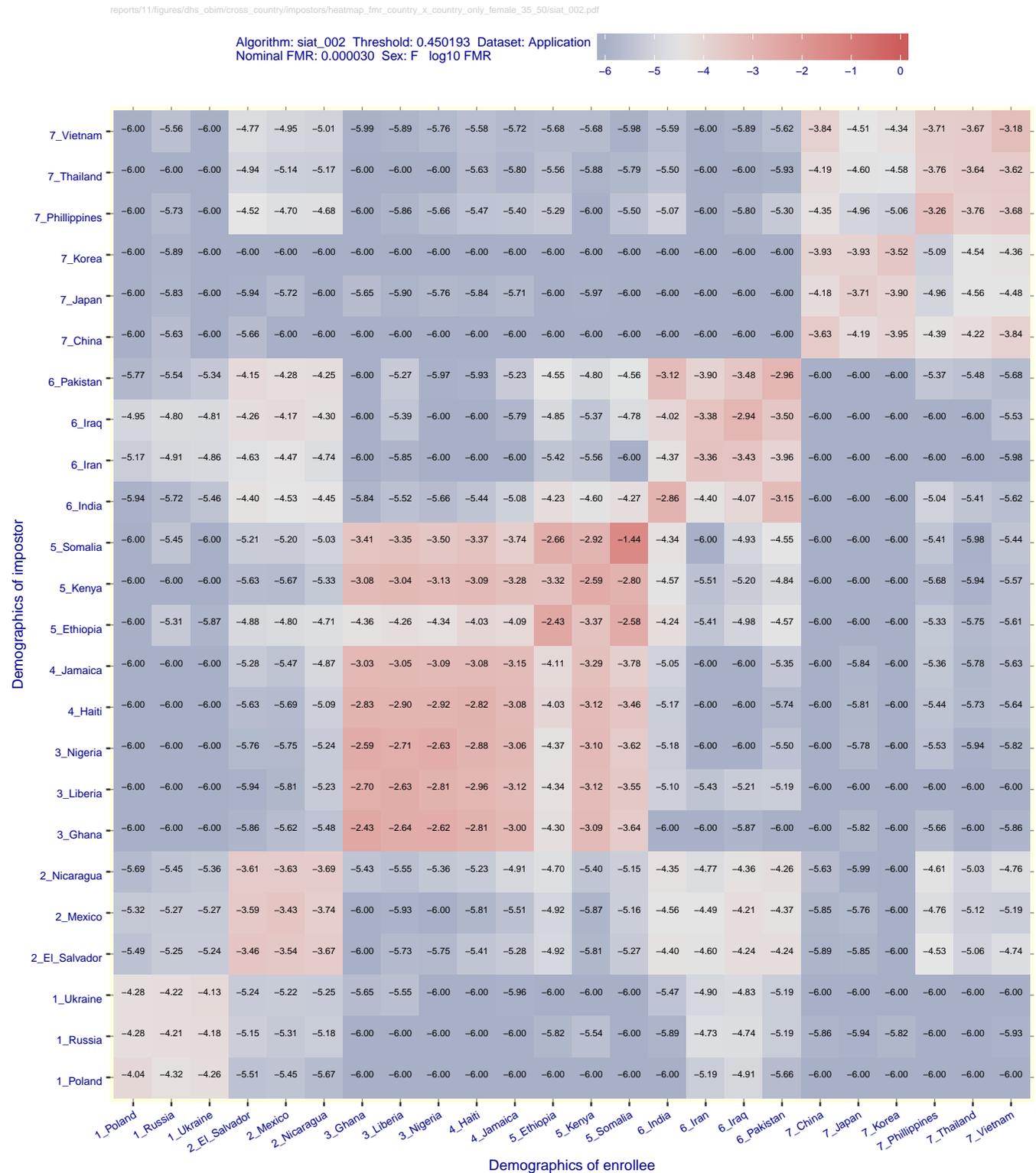


Figure 208: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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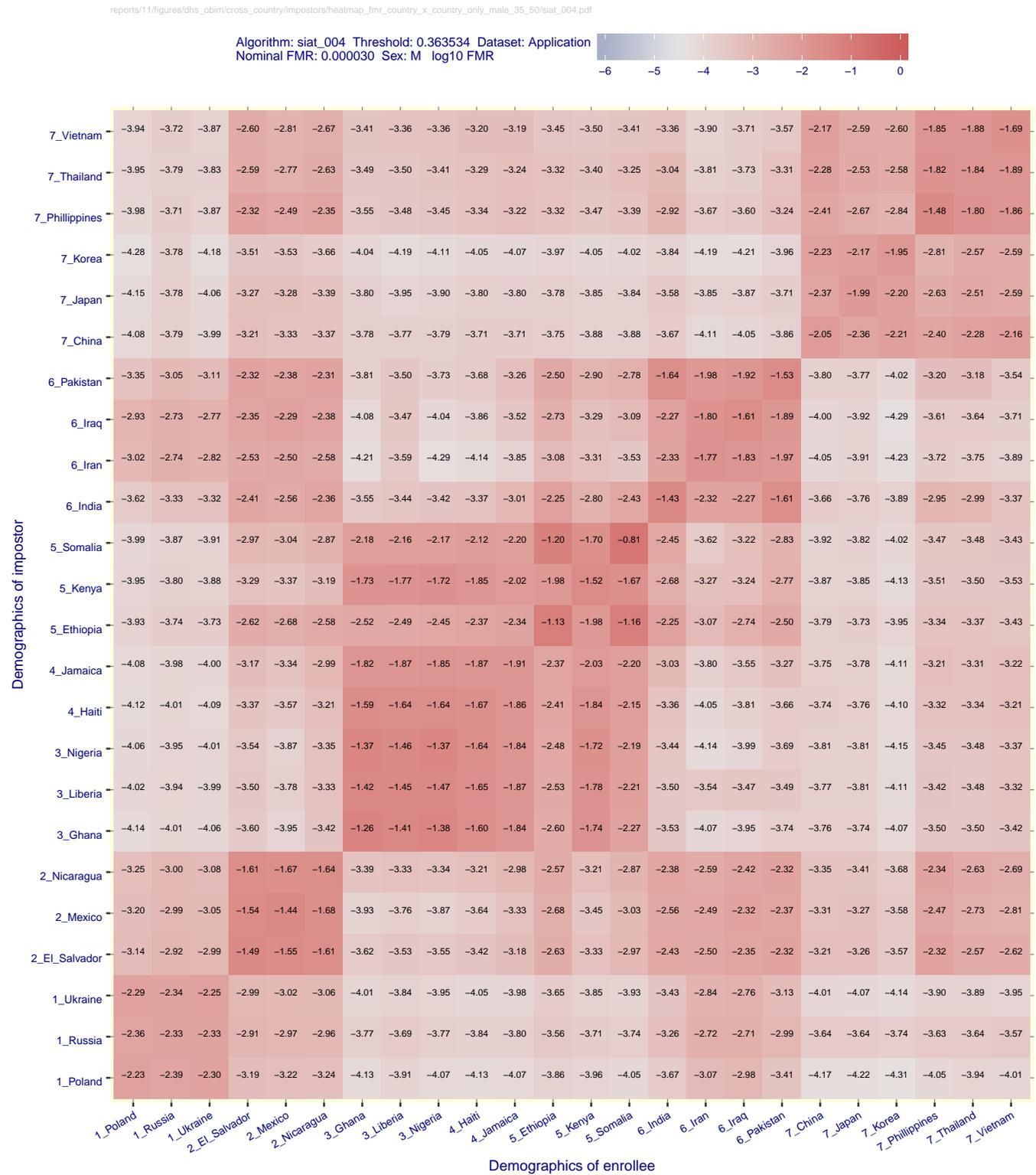


Figure 209: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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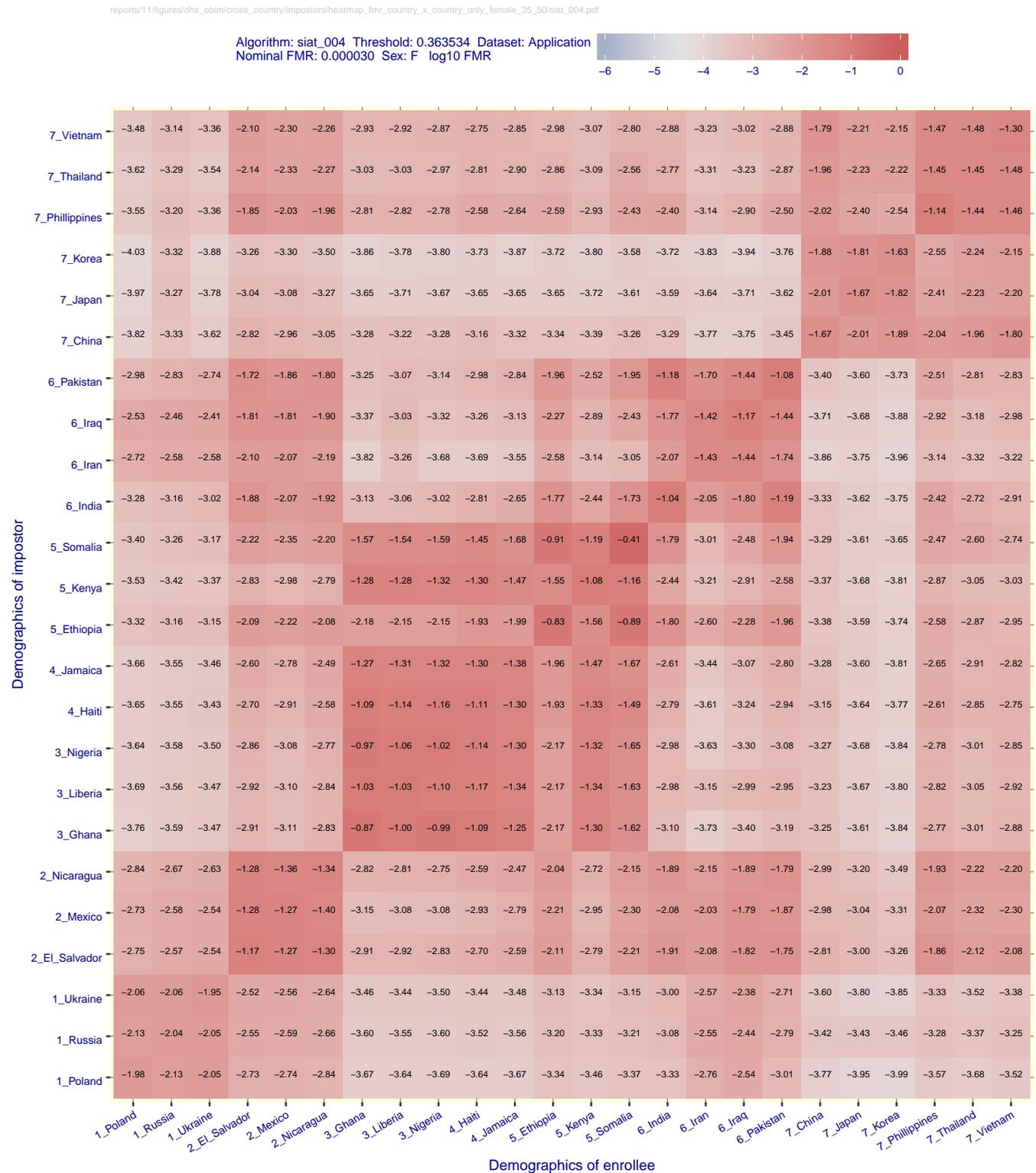


Figure 210: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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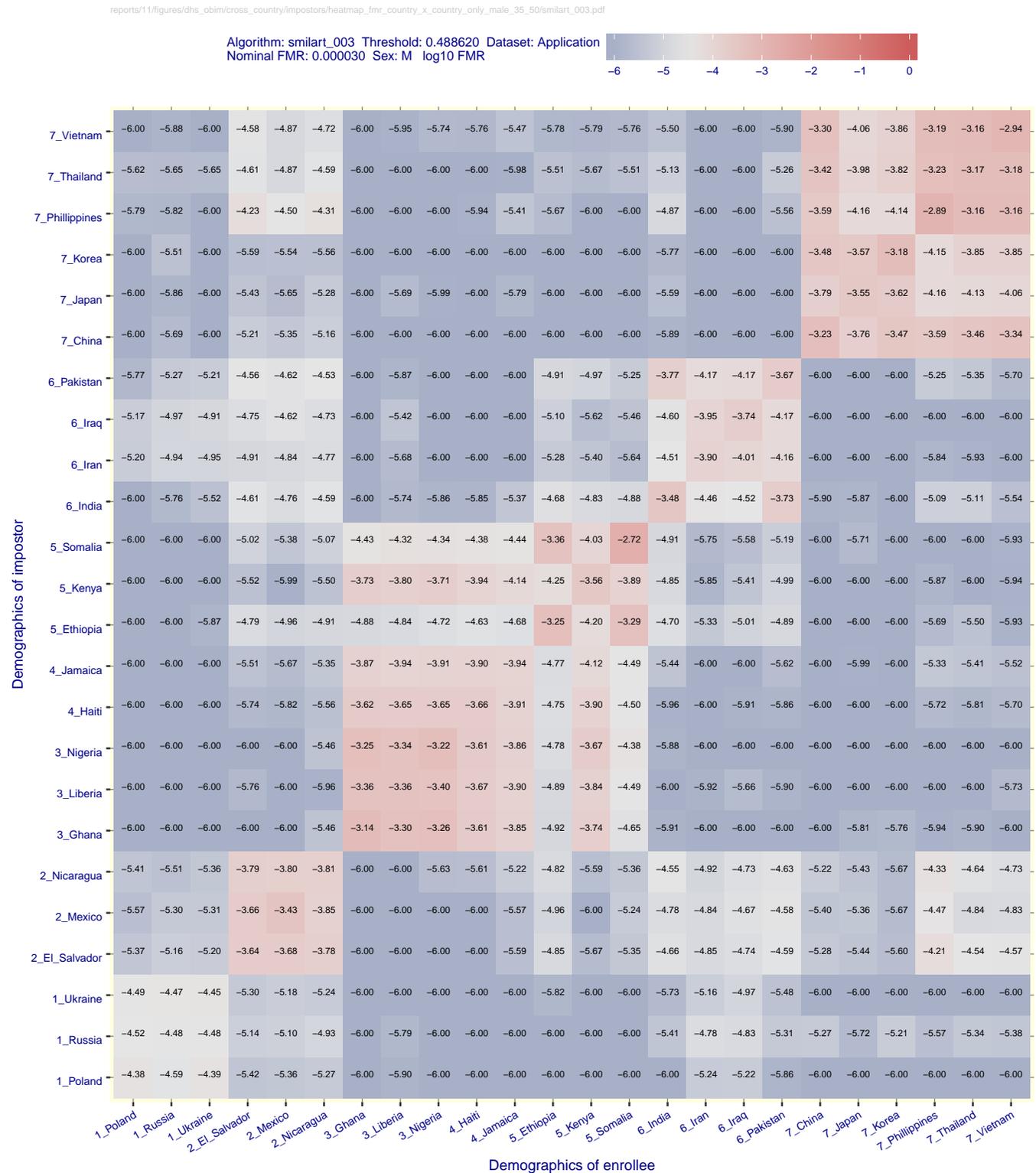


Figure 211: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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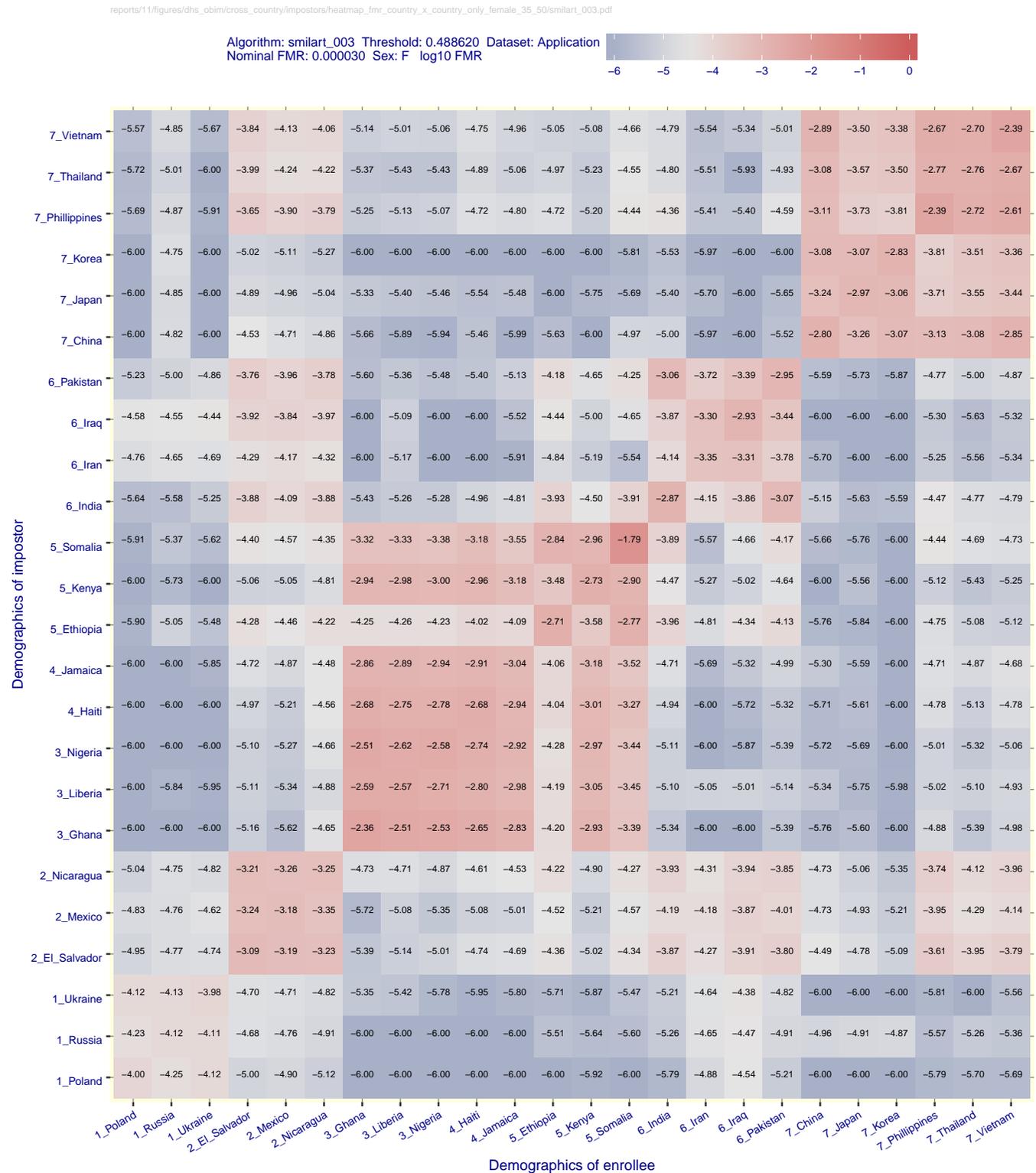


Figure 212: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/starhybrid\_001.pdf

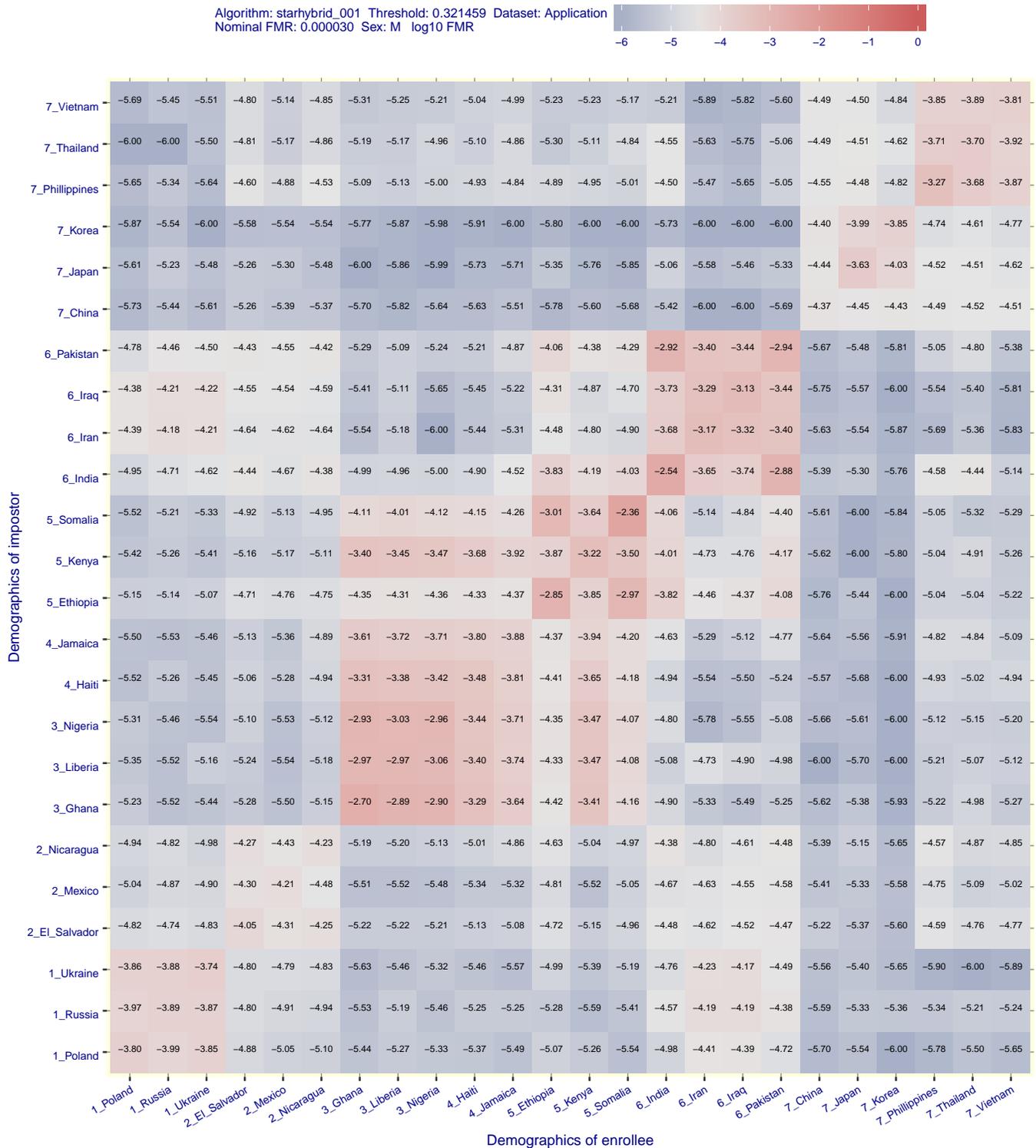


Figure 213: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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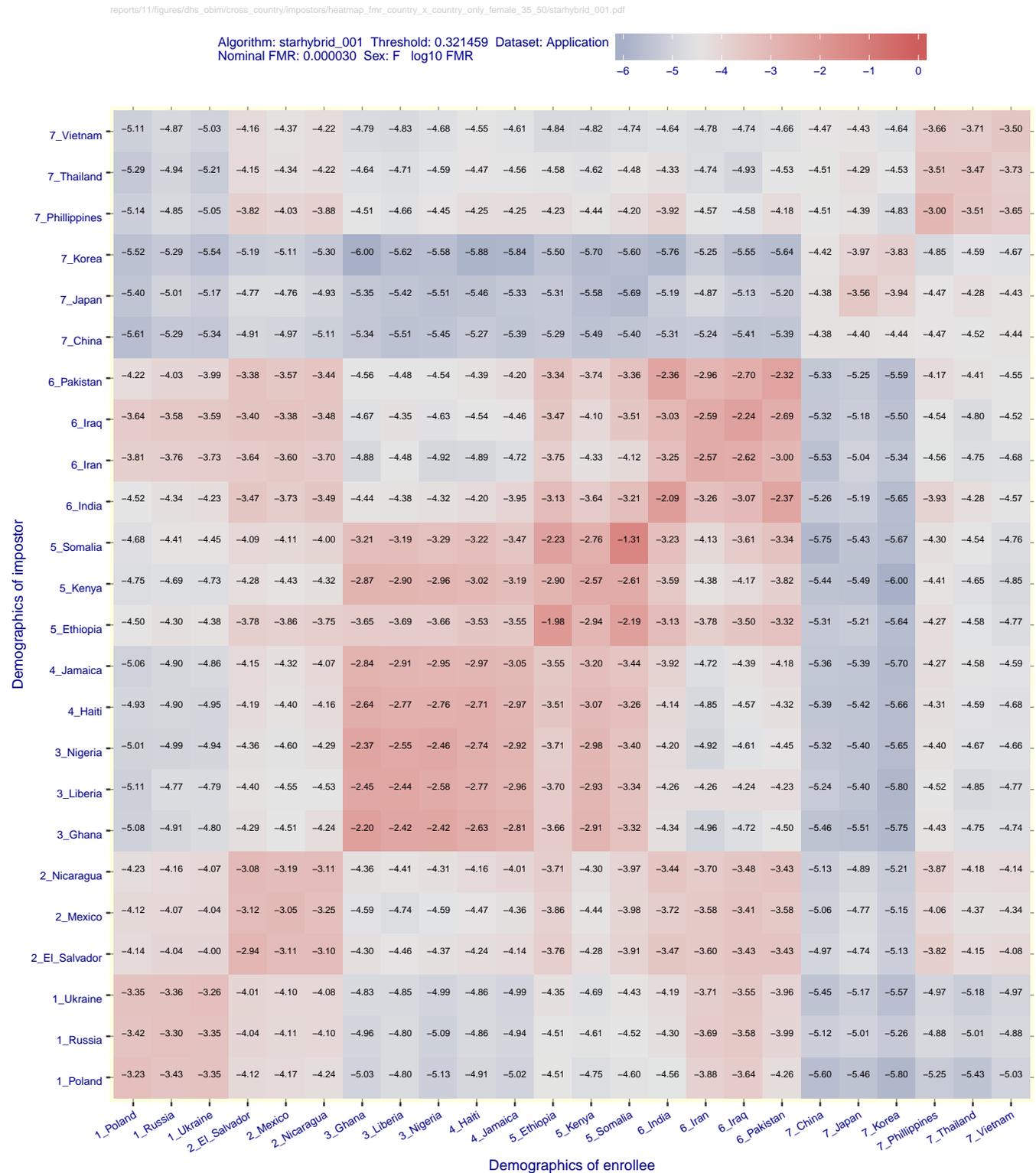


Figure 214: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/synesis\_004.pdf

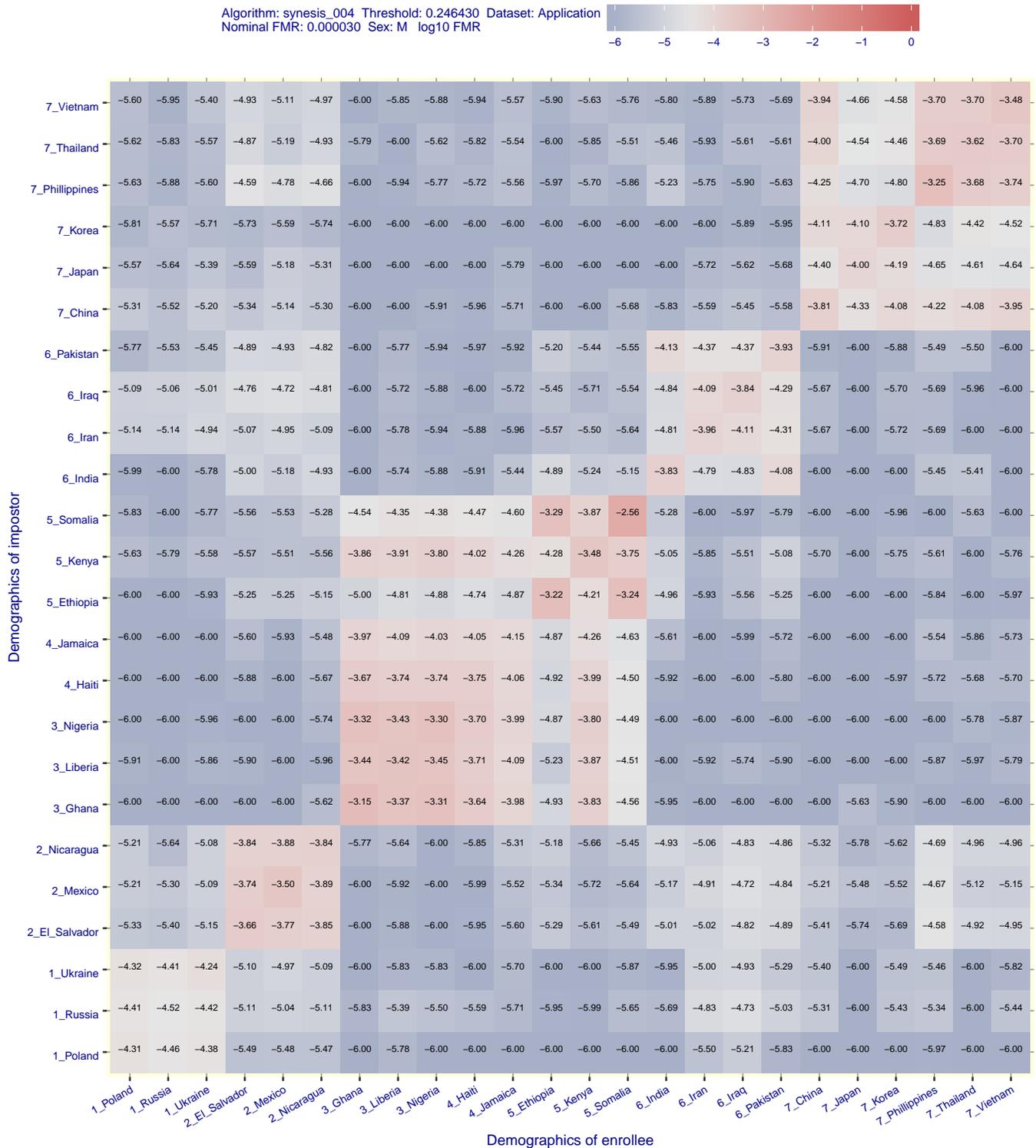


Figure 215: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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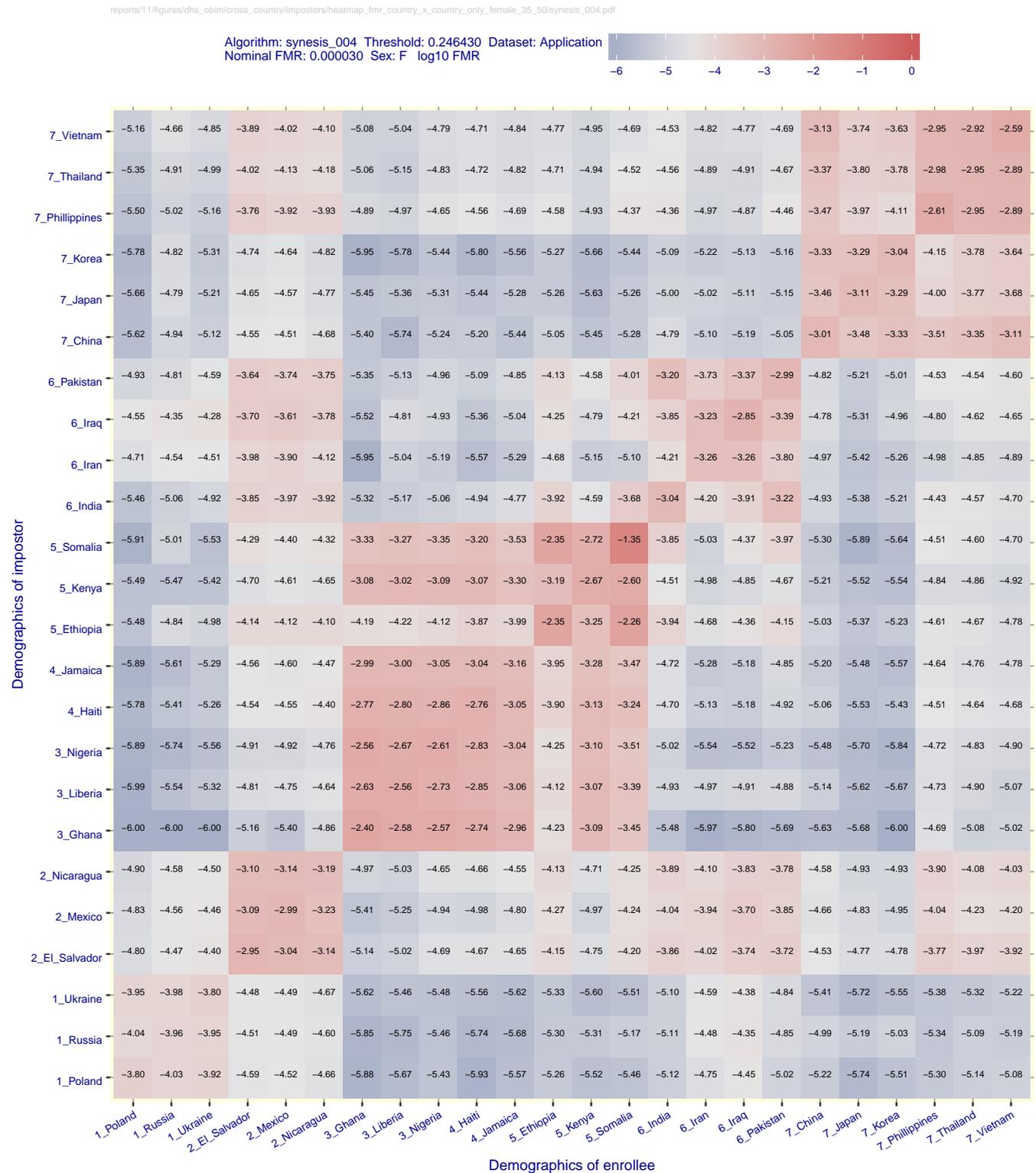


Figure 216: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/synesis\_005.pdf

Algorithm: synesis\_005 Threshold: 0.382779 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

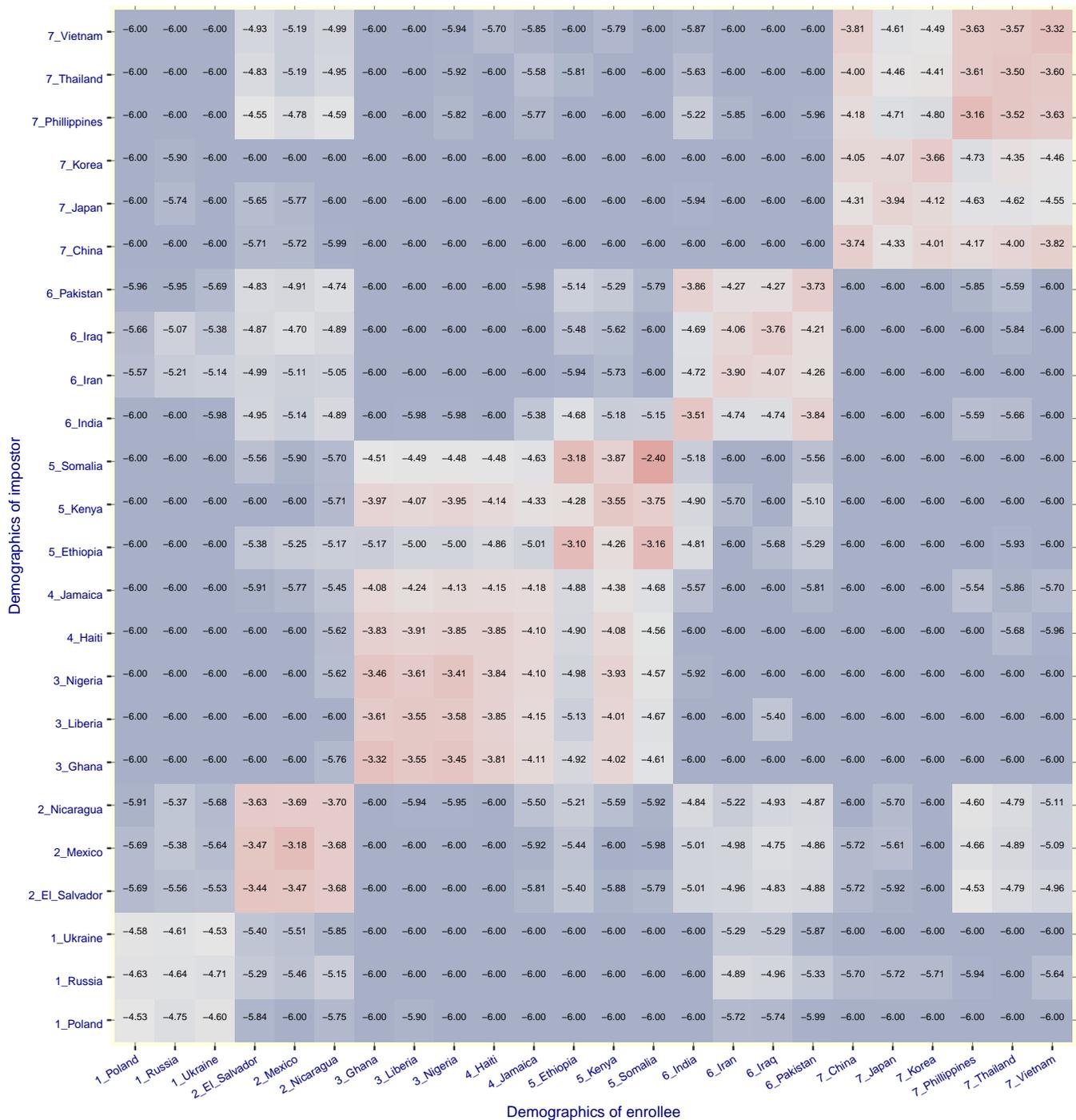


Figure 217: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/synesis\_005.pdf

Algorithm: synesis\_005 Threshold: 0.382779 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

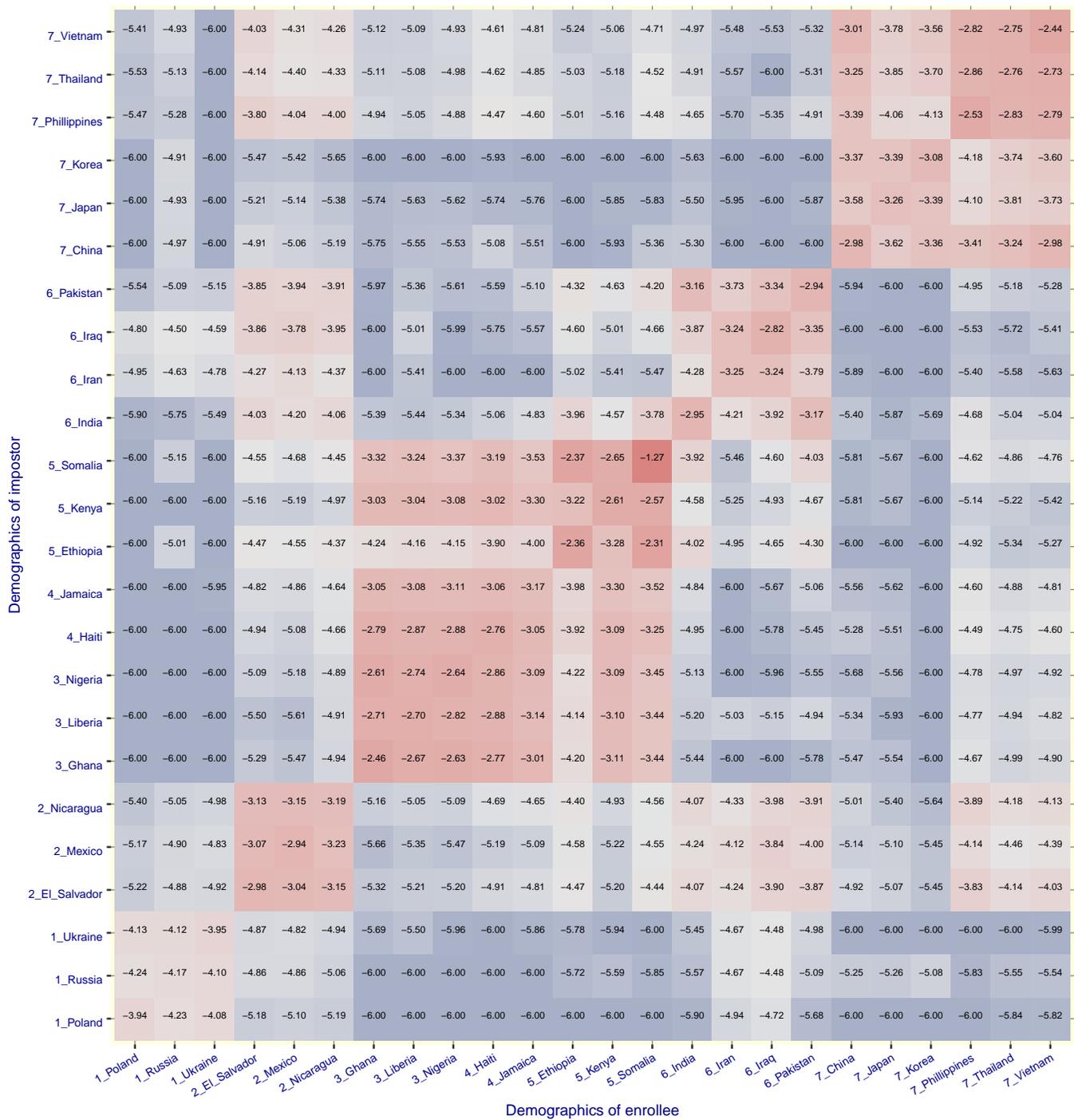


Figure 218: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/tech5\_002.pdf

Algorithm: tech5\_002 Threshold: 147.833000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

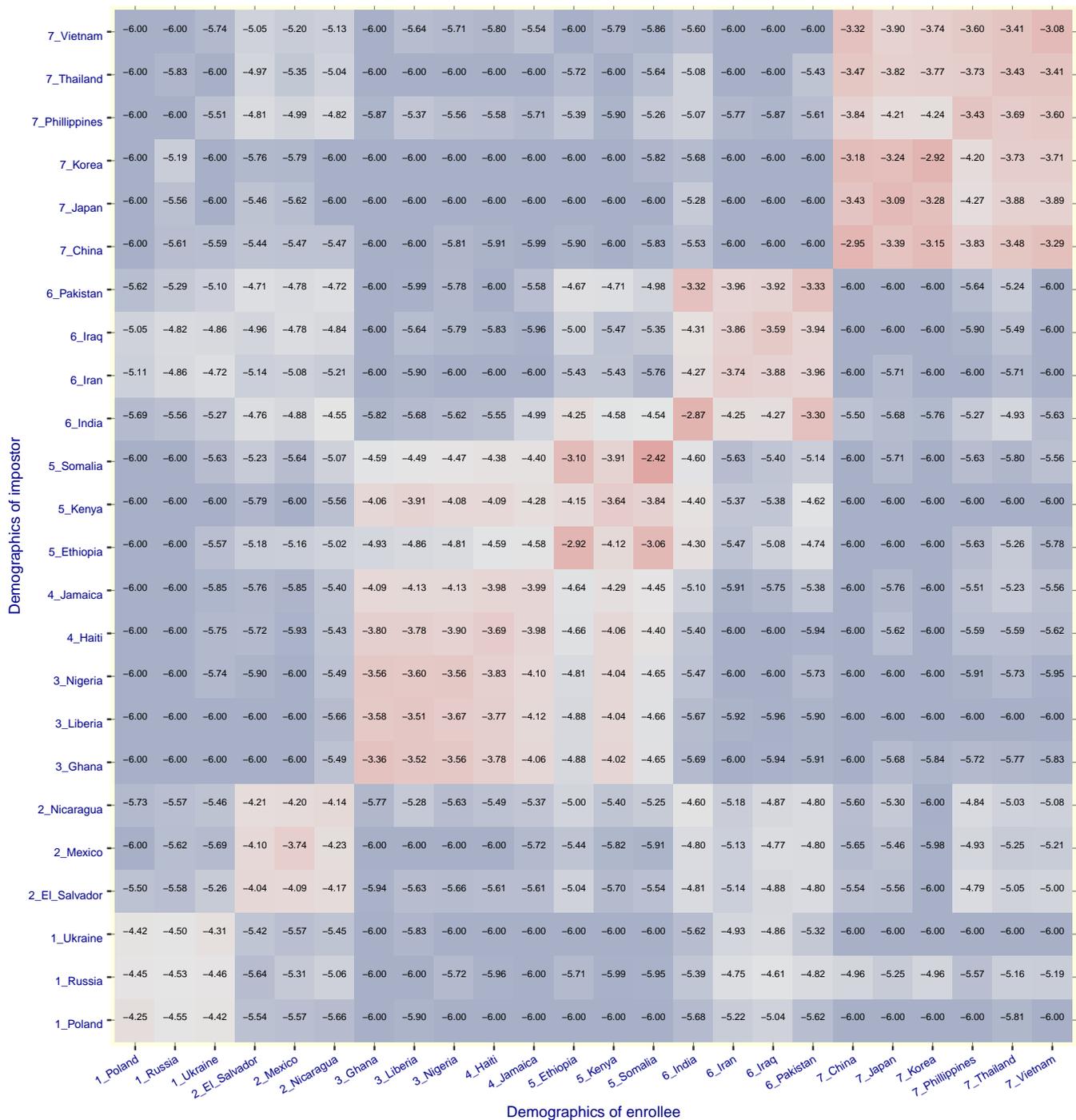
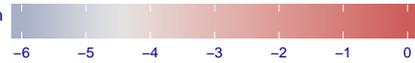


Figure 219: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50tech5\_002.pdf

Algorithm: tech5\_002 Threshold: 147.833000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

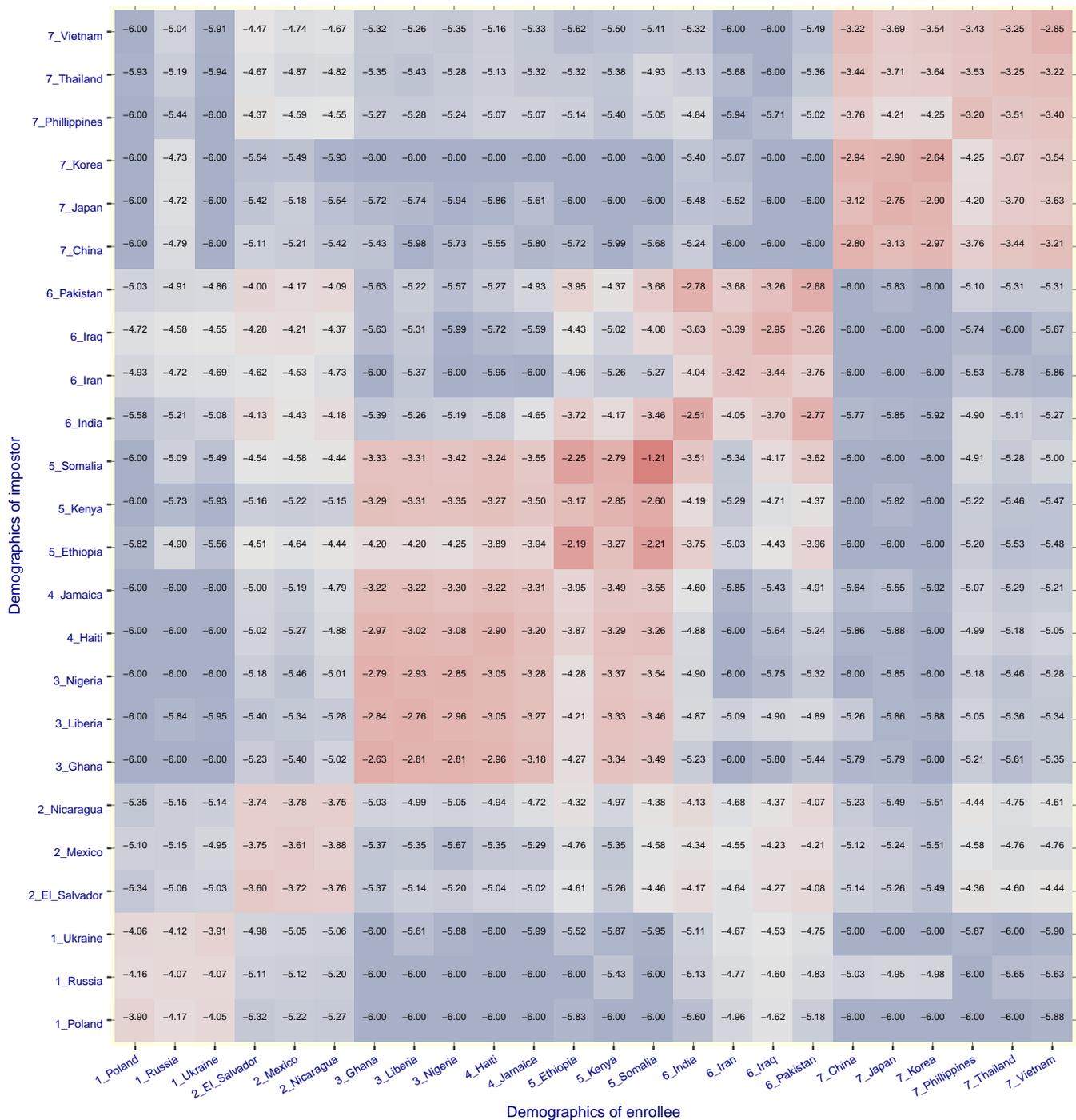


Figure 220: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/tech5\_003.pdf

Algorithm: tech5\_003 Threshold: 147.335000 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

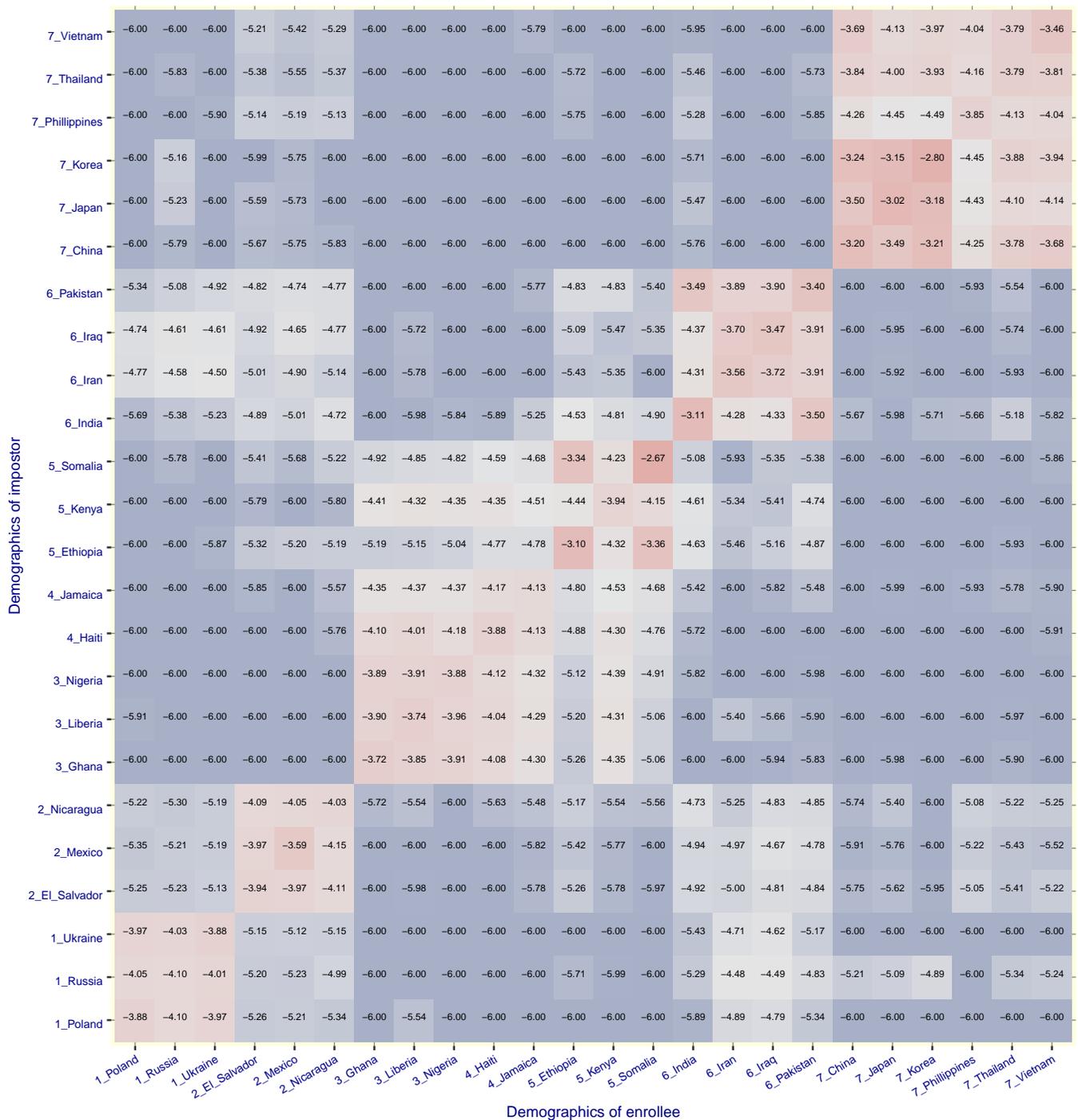
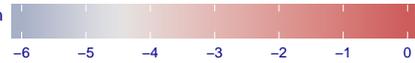


Figure 221: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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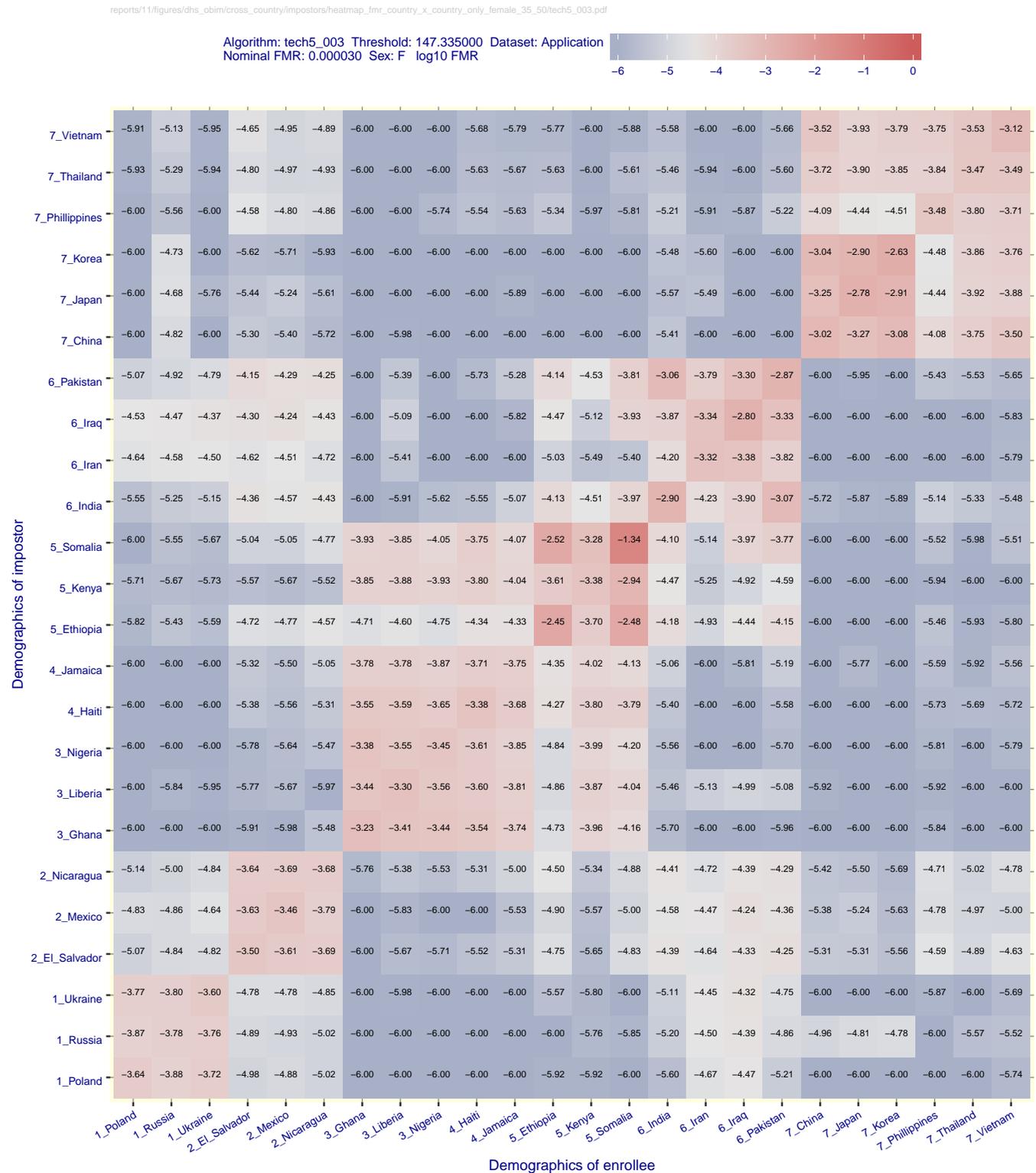


Figure 222: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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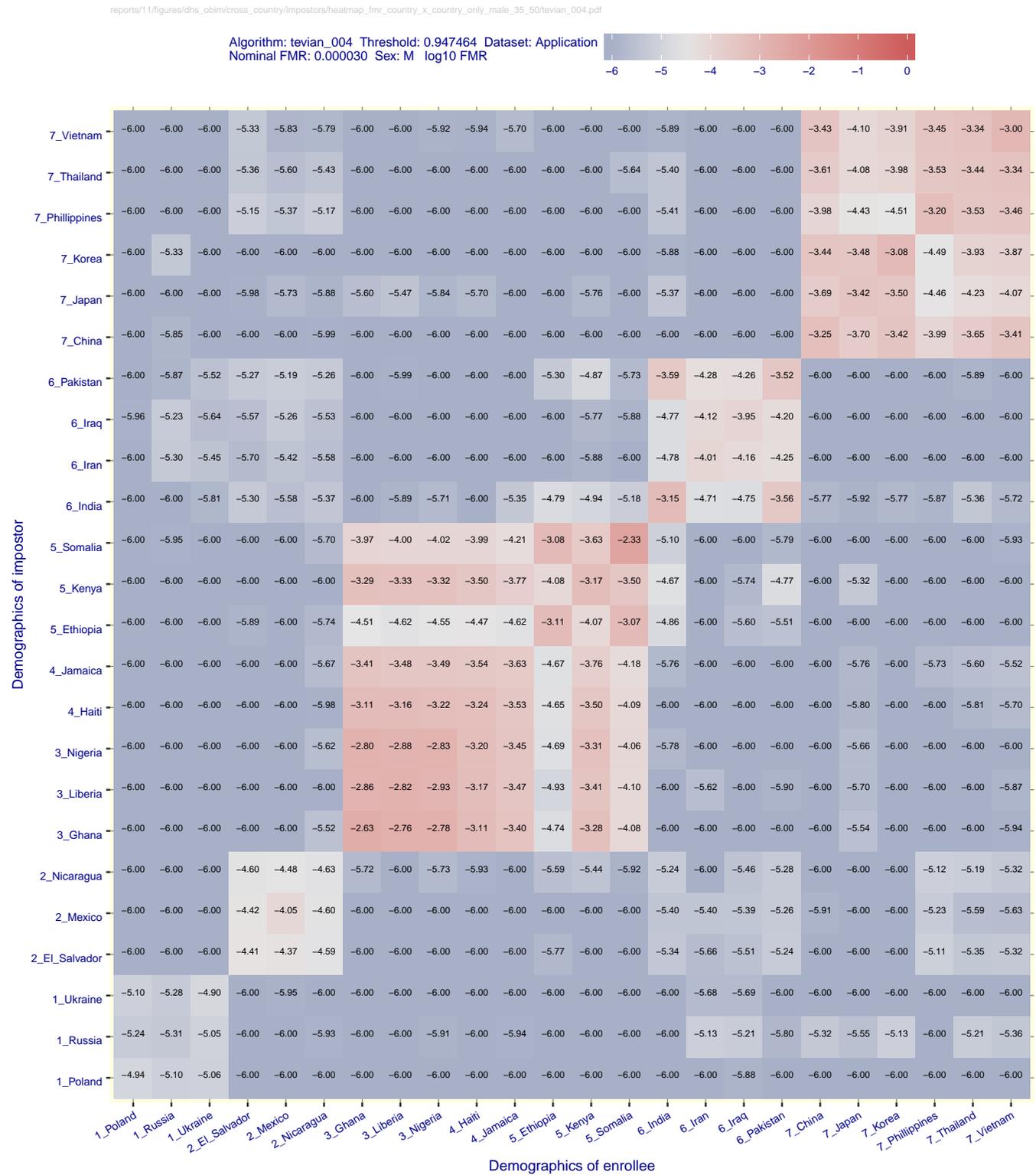


Figure 223: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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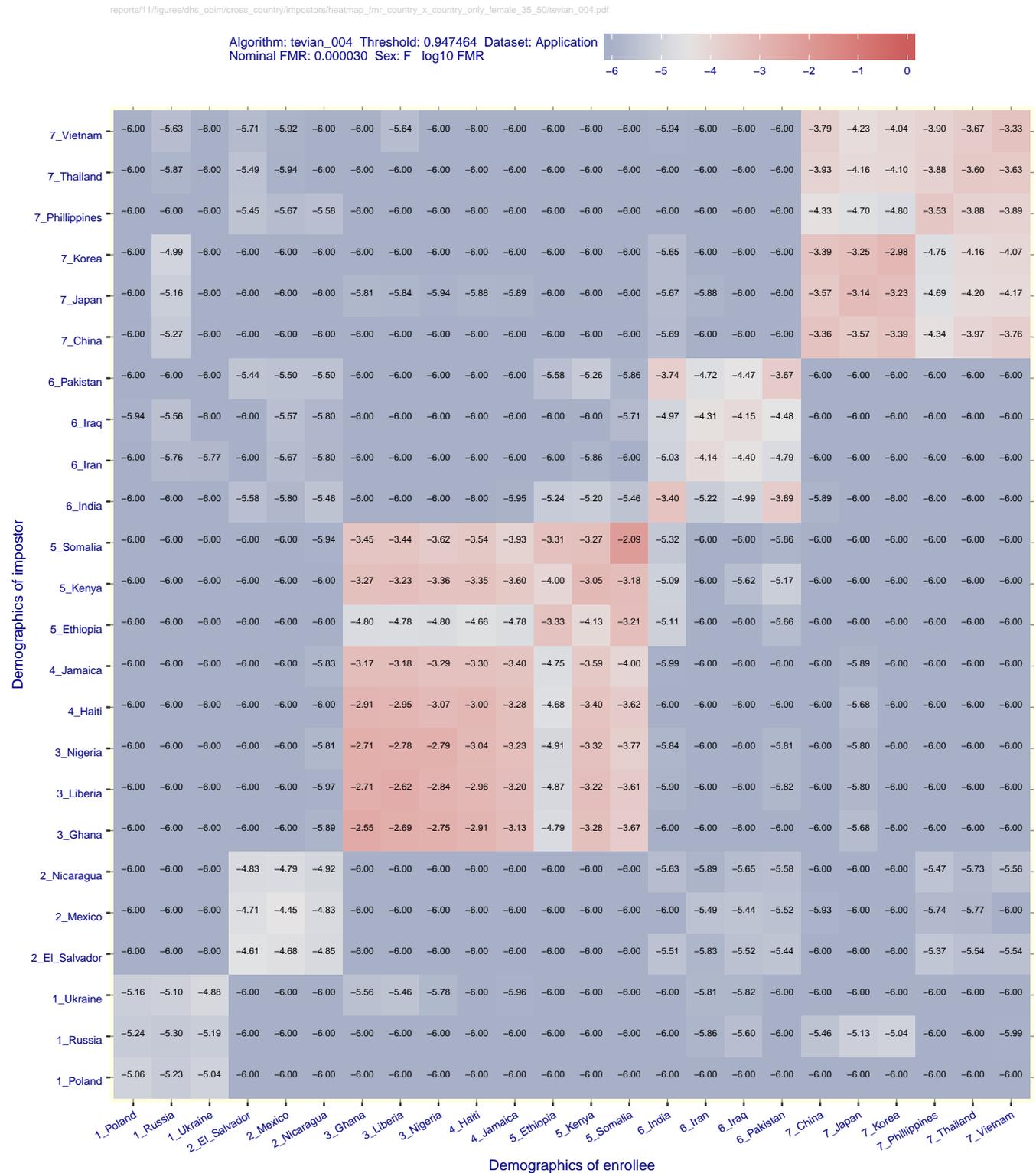


Figure 224: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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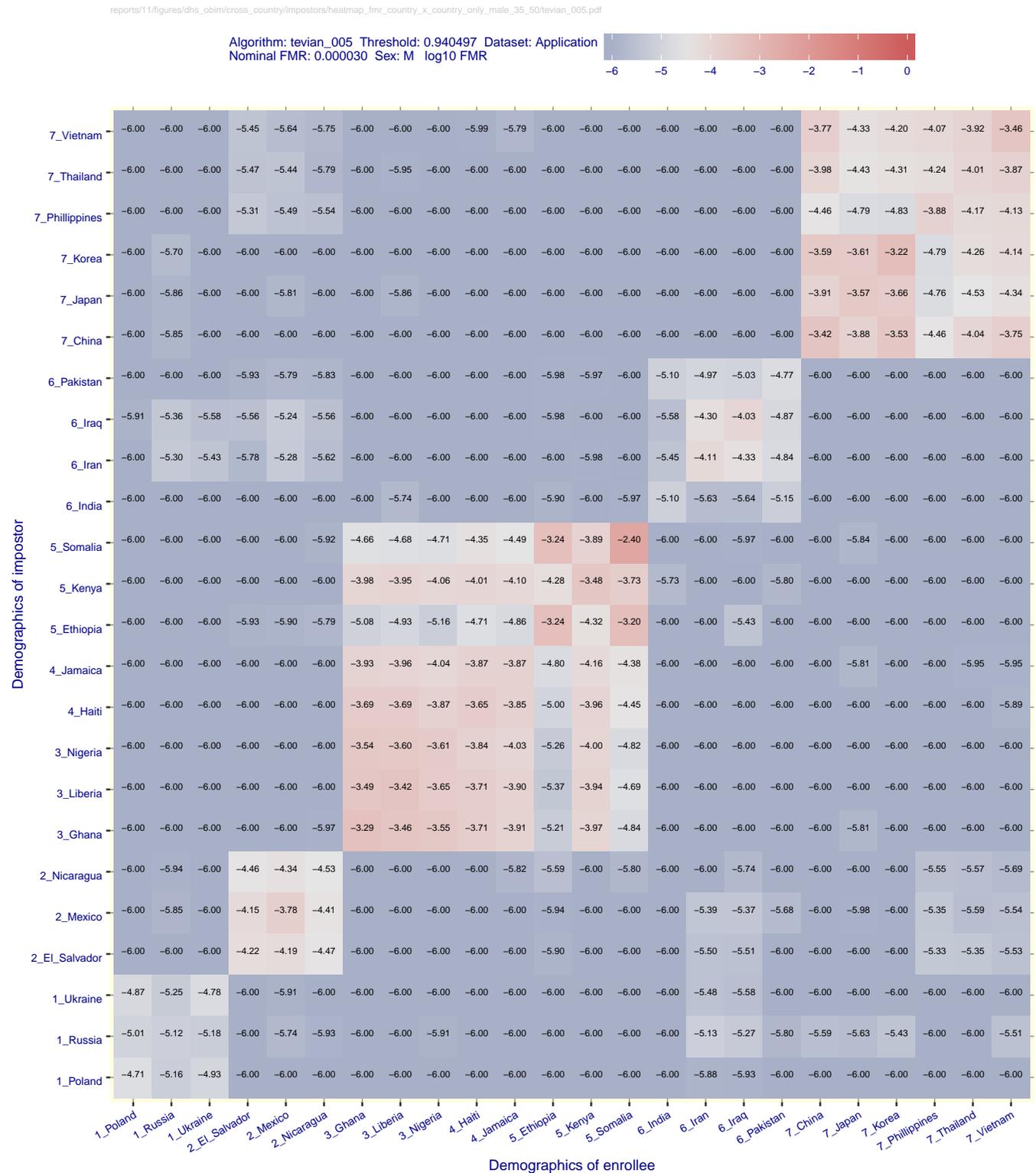


Figure 225: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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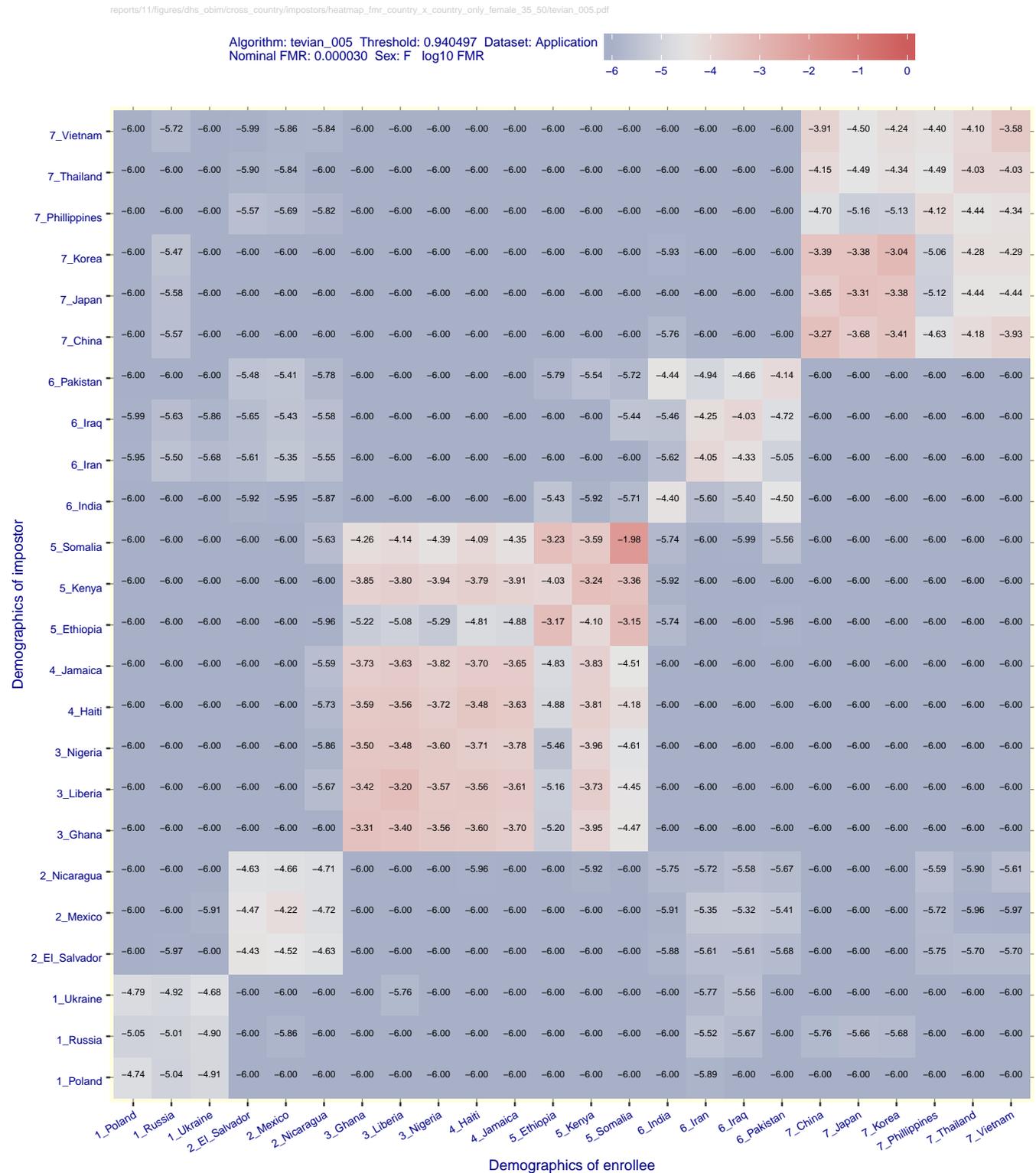


Figure 226: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/tiger\_002.pdf

Algorithm: tiger\_002 Threshold: 151.206439 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

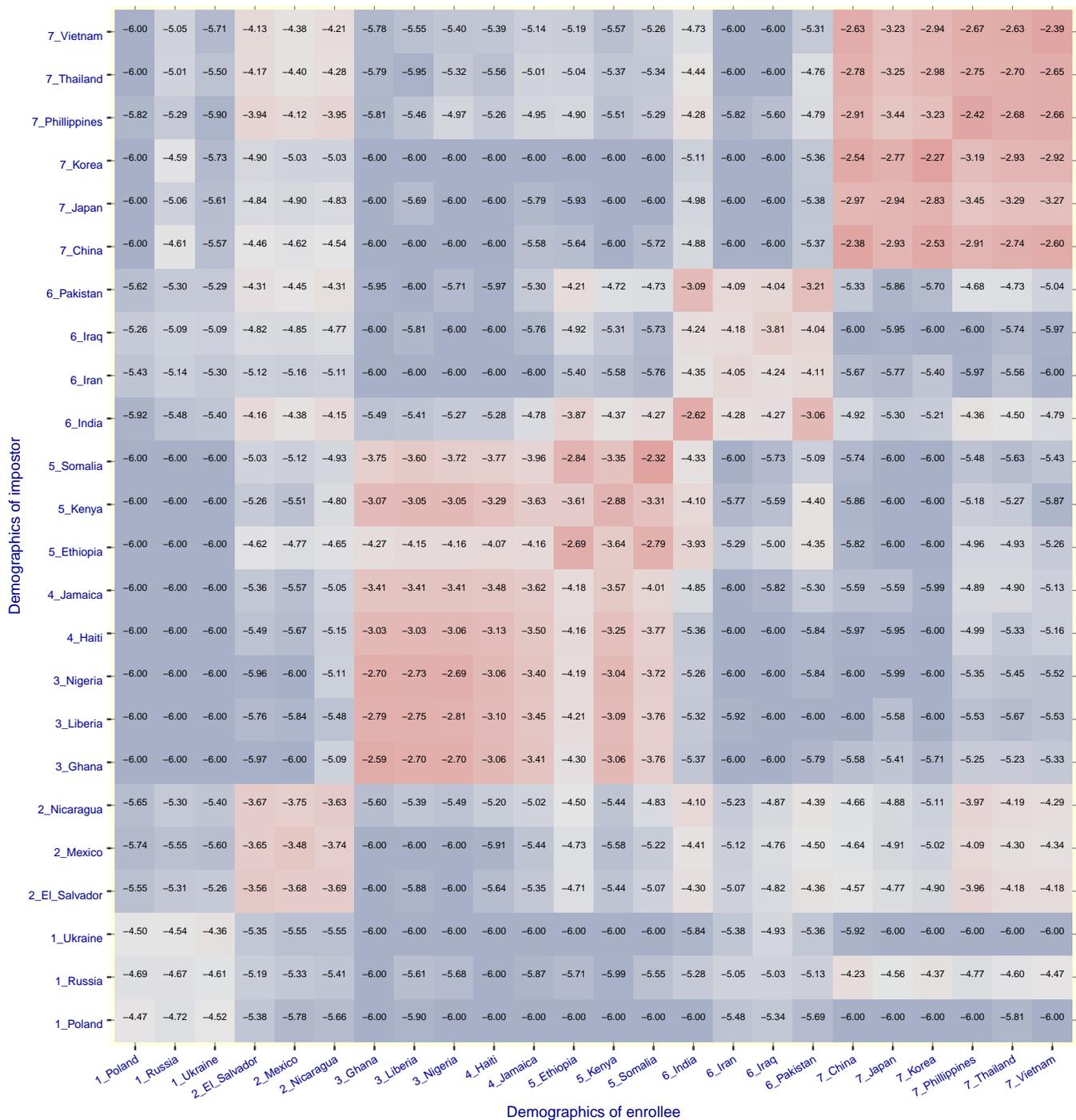
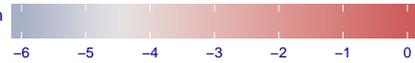


Figure 227: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR | T >> 0 → FMR, FPIR → 0  
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR | → FNMR, FNIR → 1

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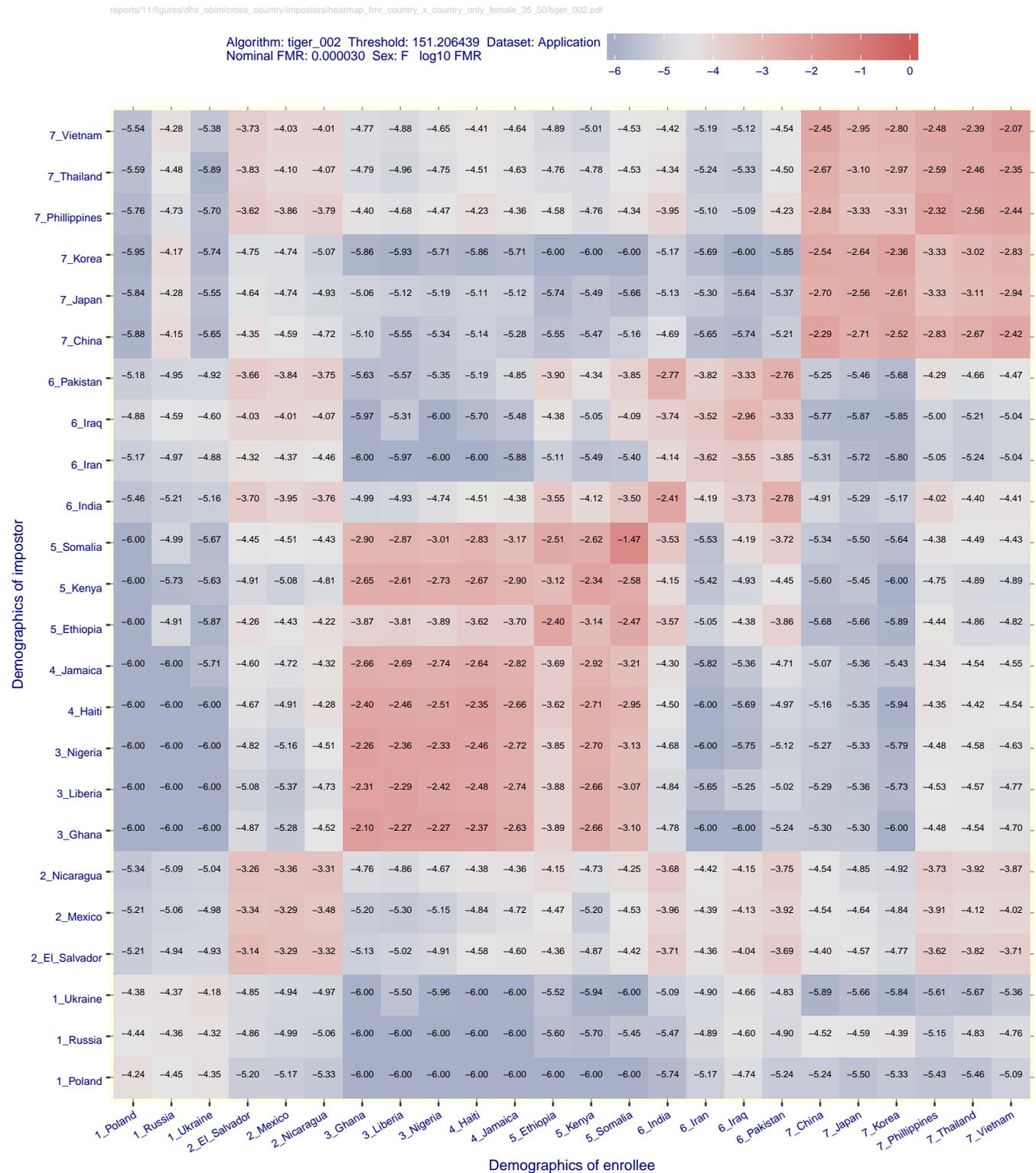


Figure 228: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50tiger\_003.pdf

Algorithm: tiger\_003 Threshold: 147.851439 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

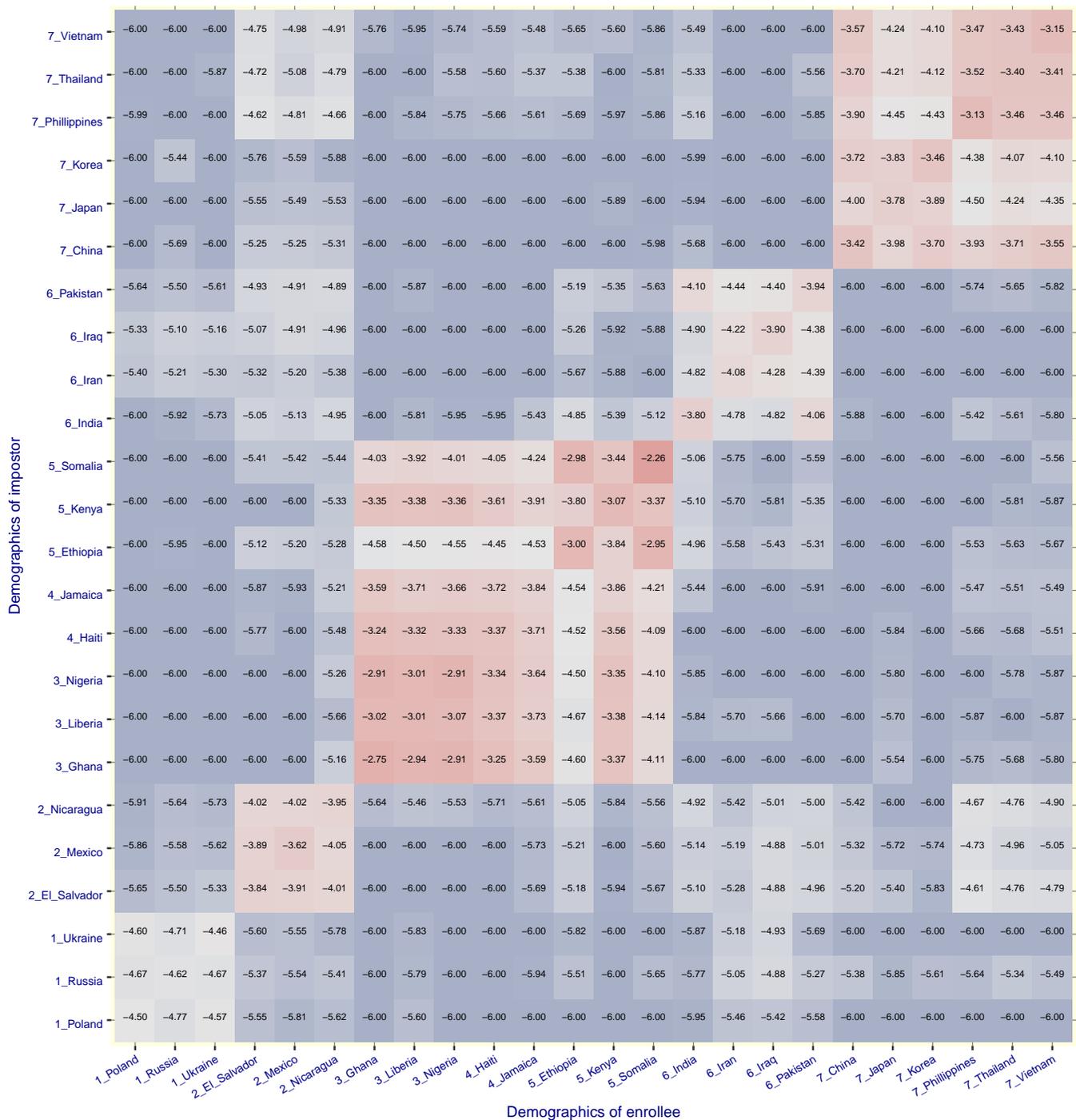
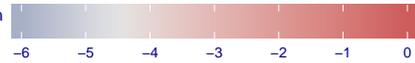


Figure 229: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR | T >> 0 → FMR, FPIR → 0  
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR | → FNMR, FNIR → 1

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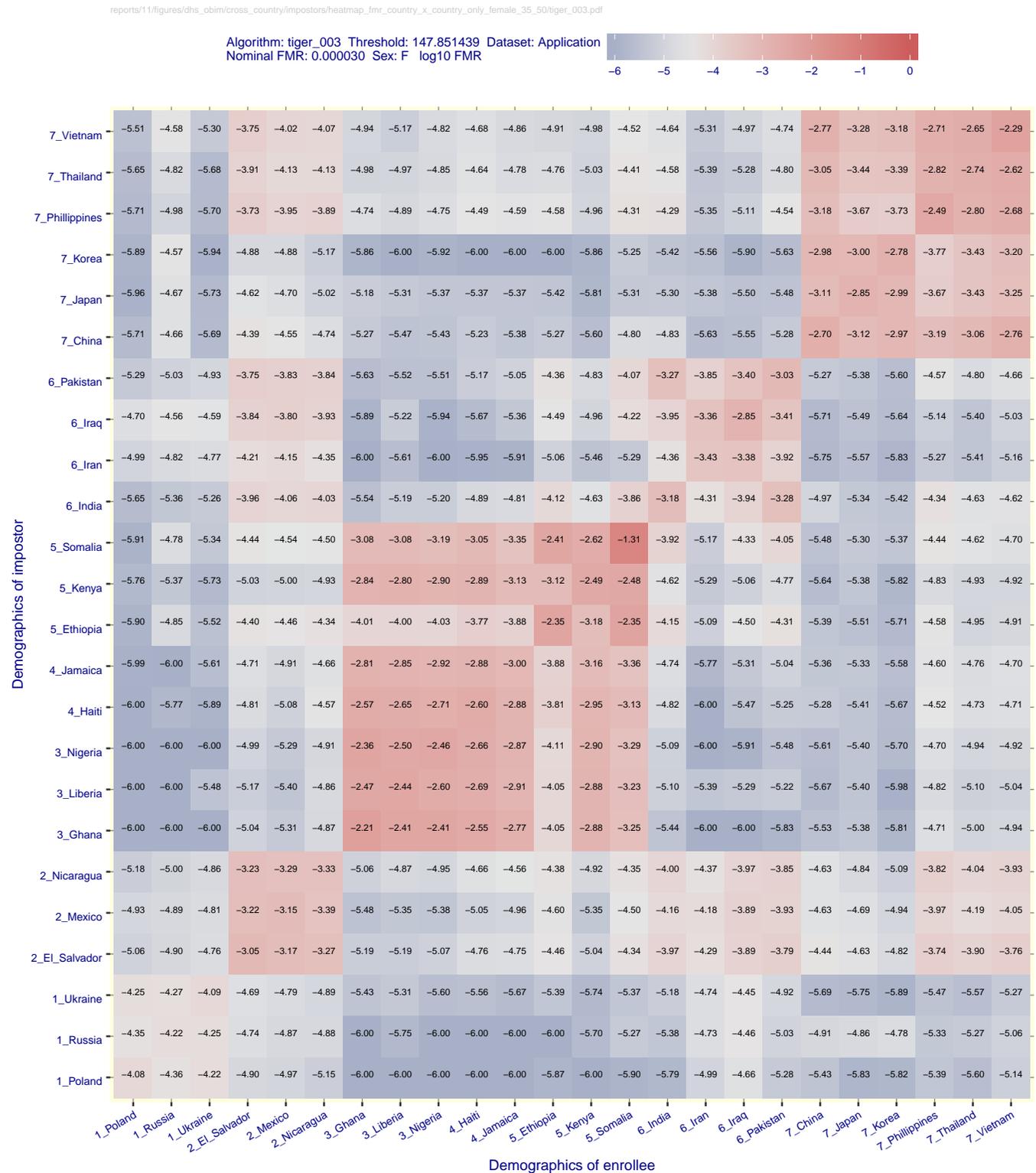
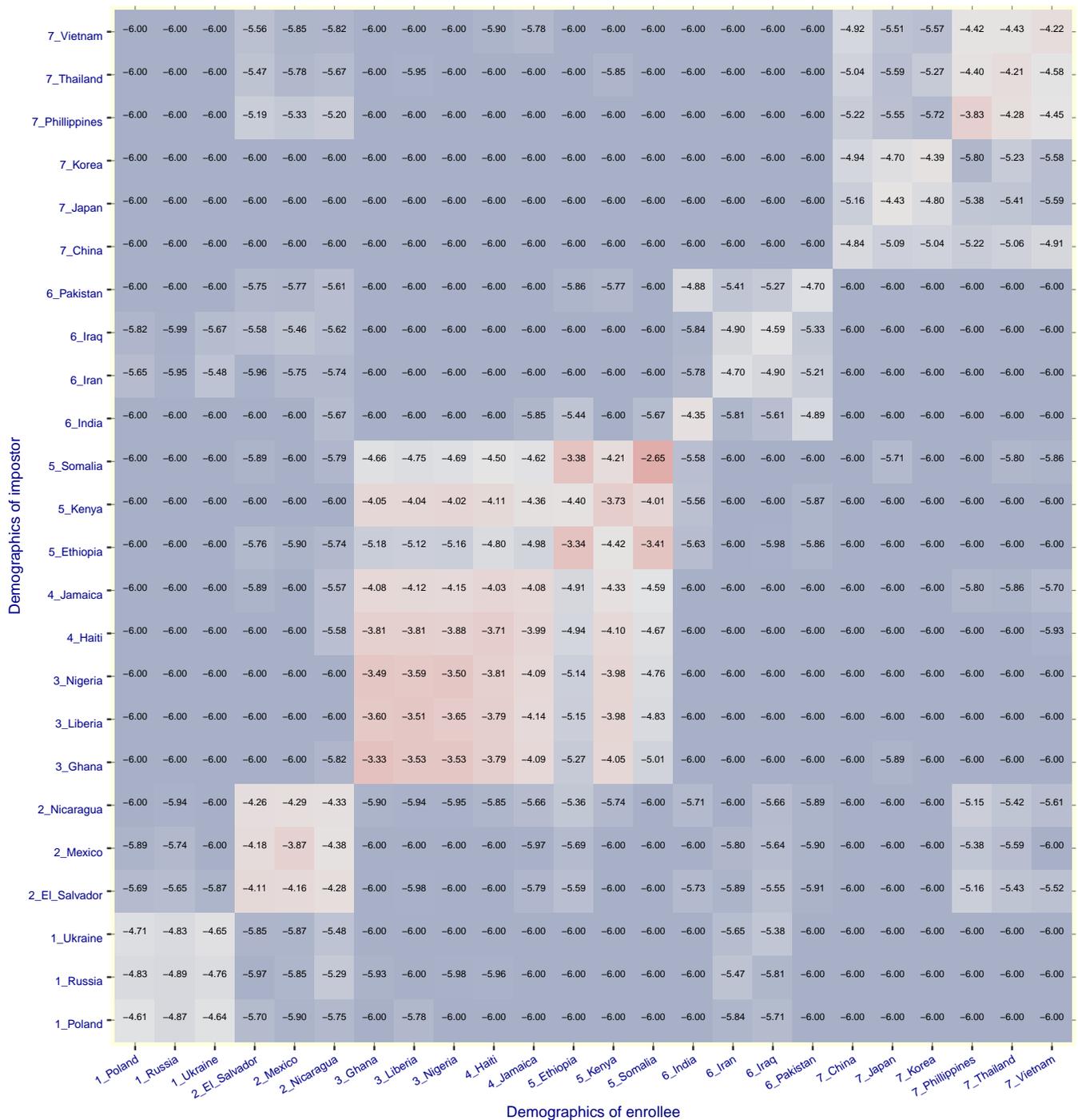
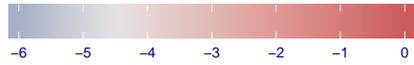


Figure 230: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/tongyi\_005.pdf

Algorithm: tongyi\_005 Threshold: 43.752100 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR



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Figure 231: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/tongyi\_005.pdf

Algorithm: tongyi\_005 Threshold: 43.752100 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

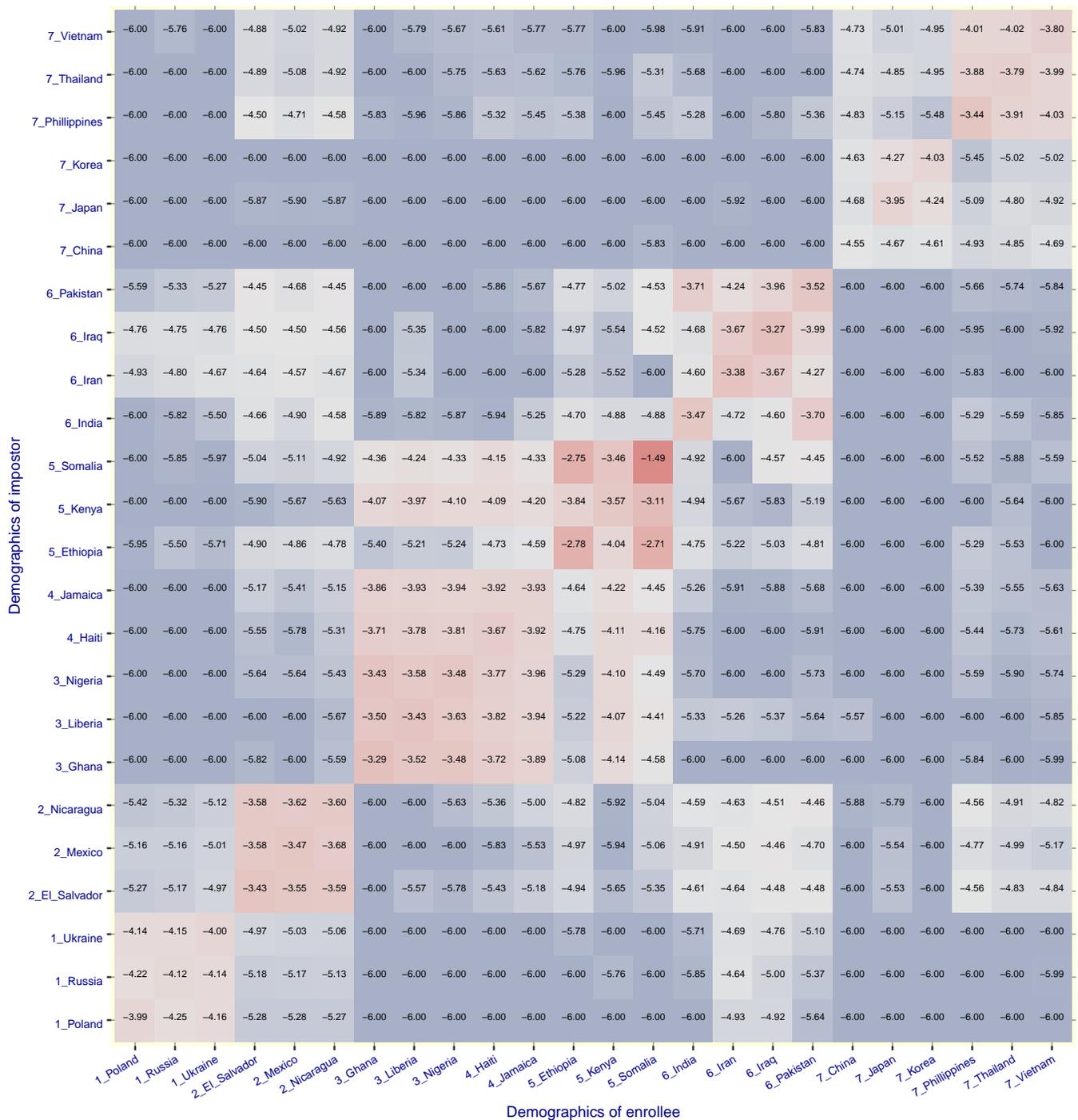


Figure 232: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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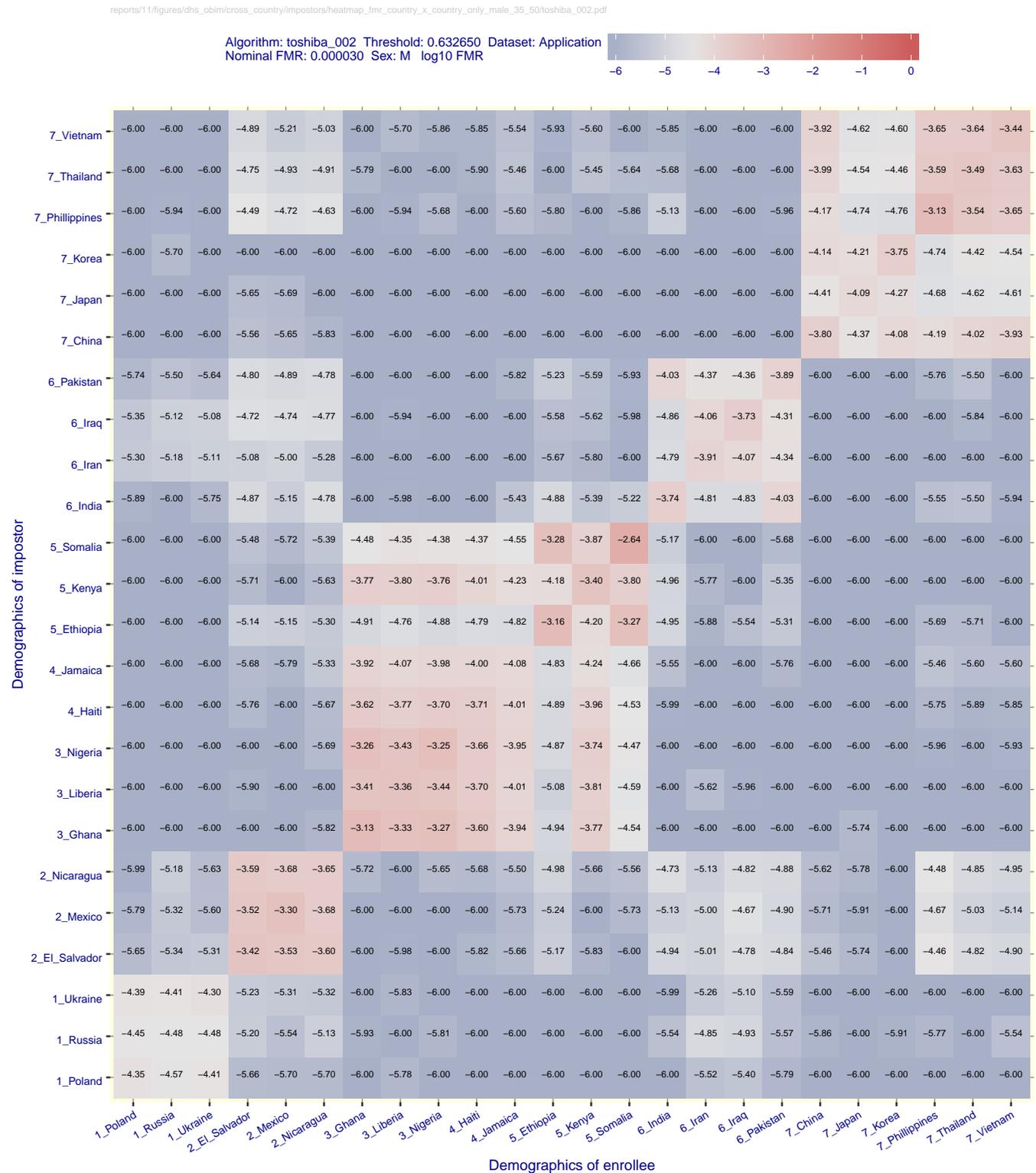


Figure 233: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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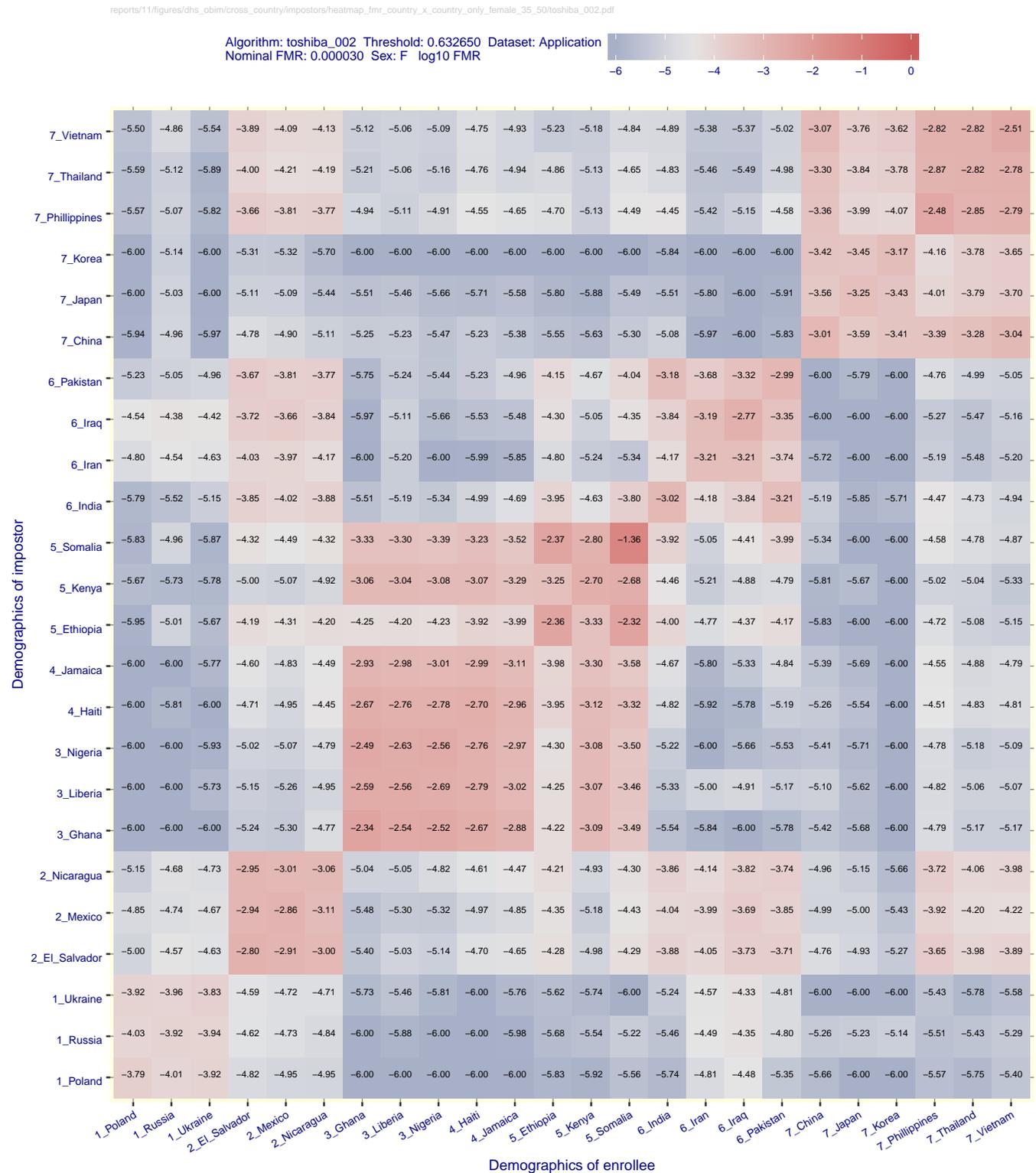


Figure 234: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/toshiba\_003.pdf

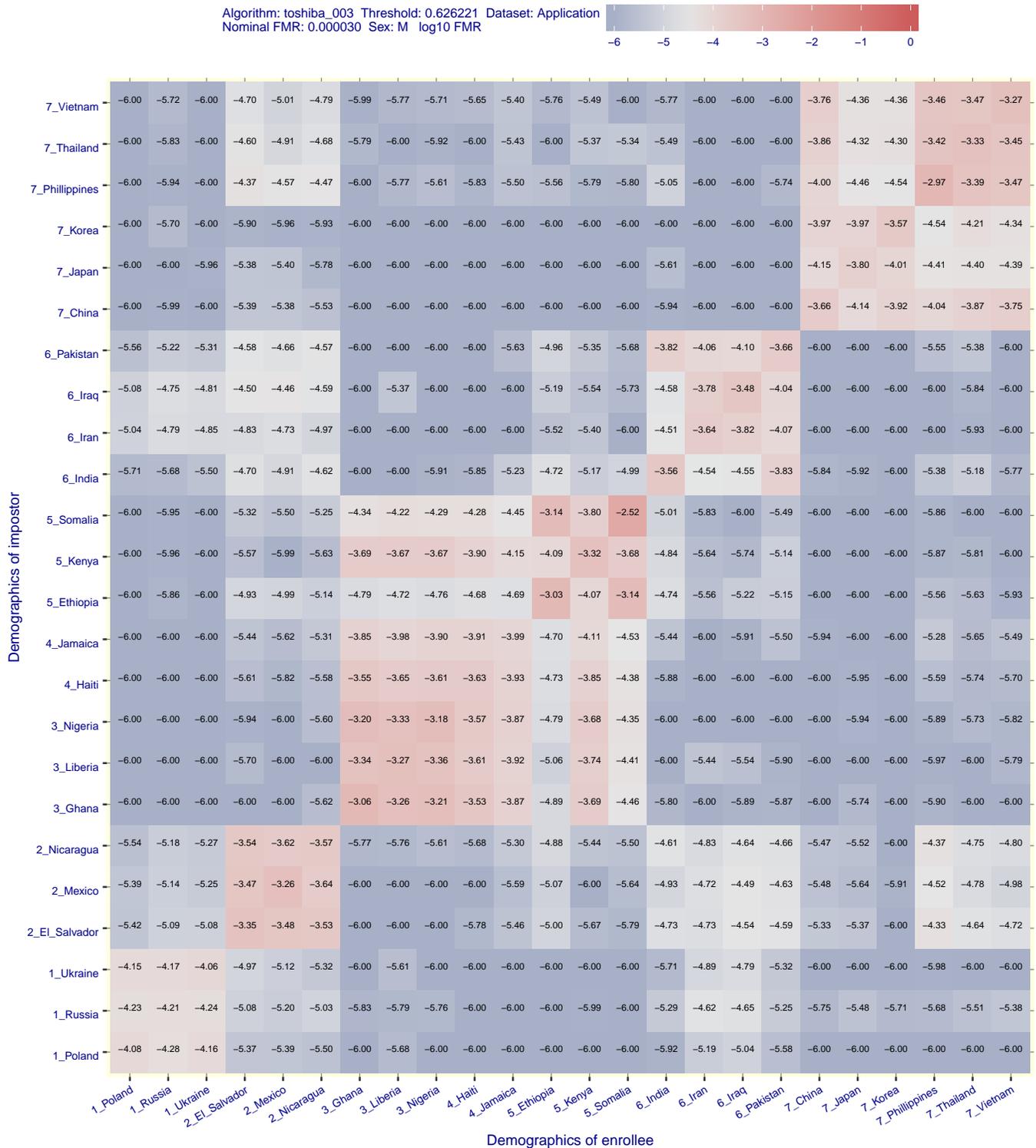


Figure 235: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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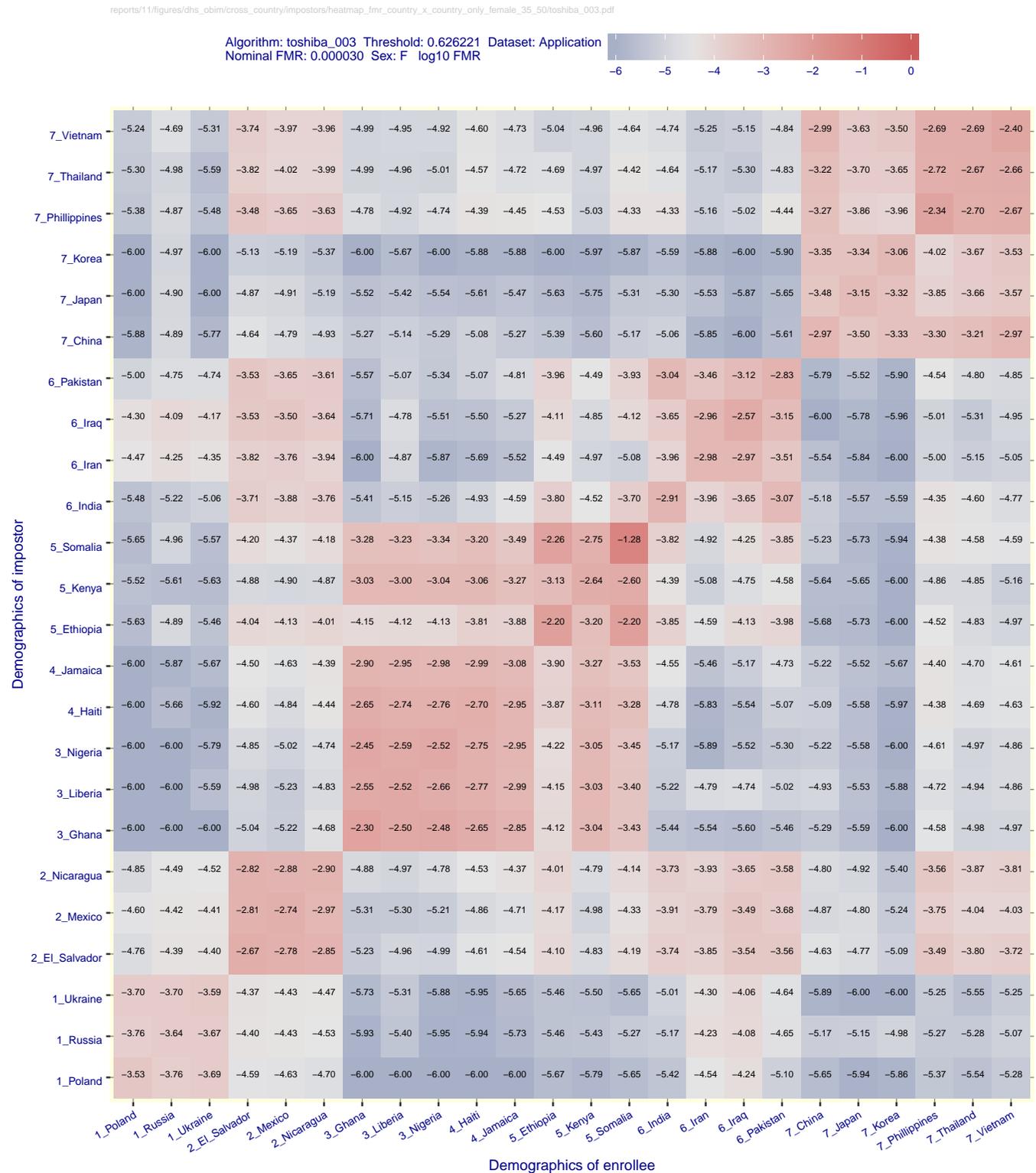


Figure 236: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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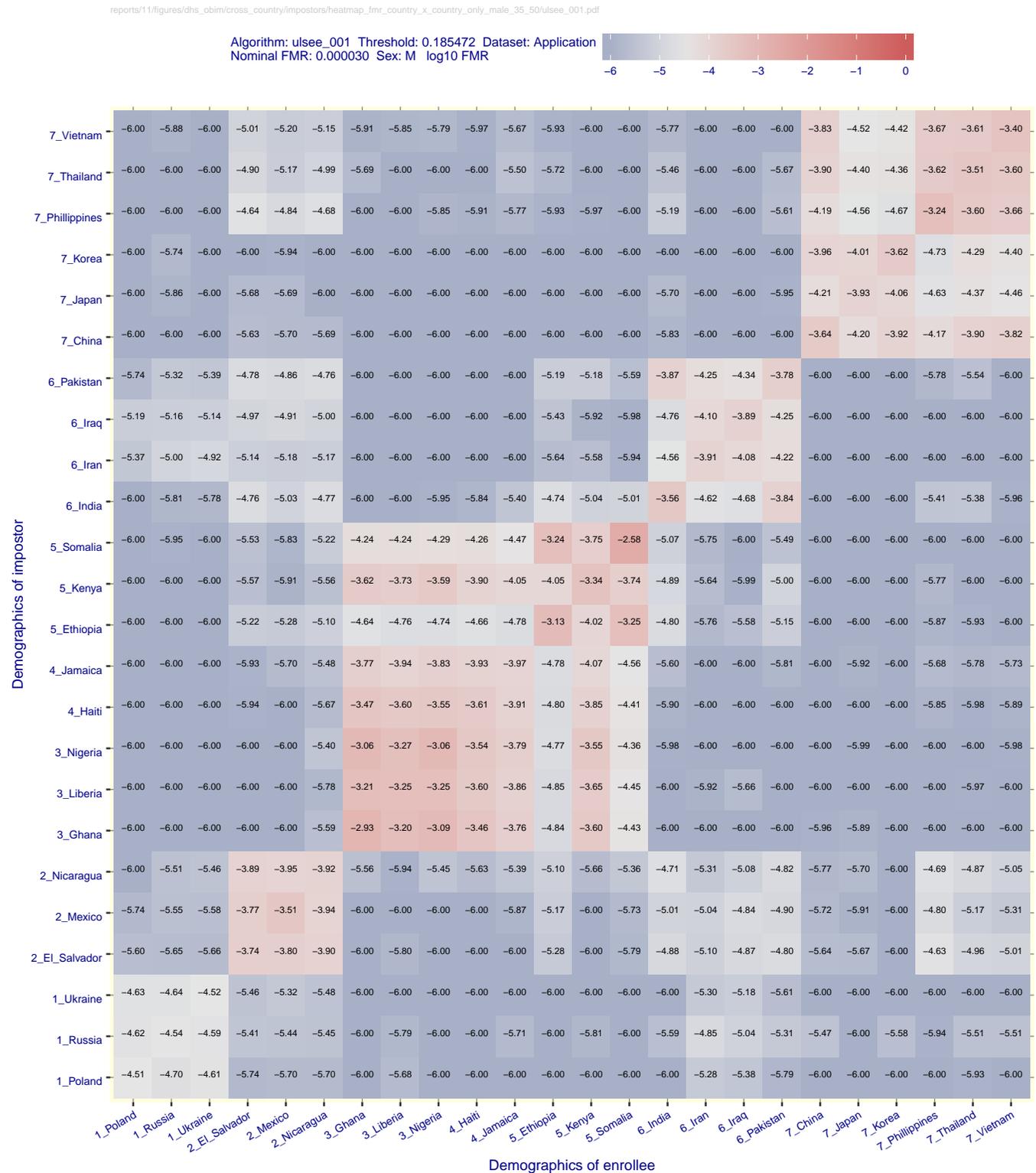


Figure 237: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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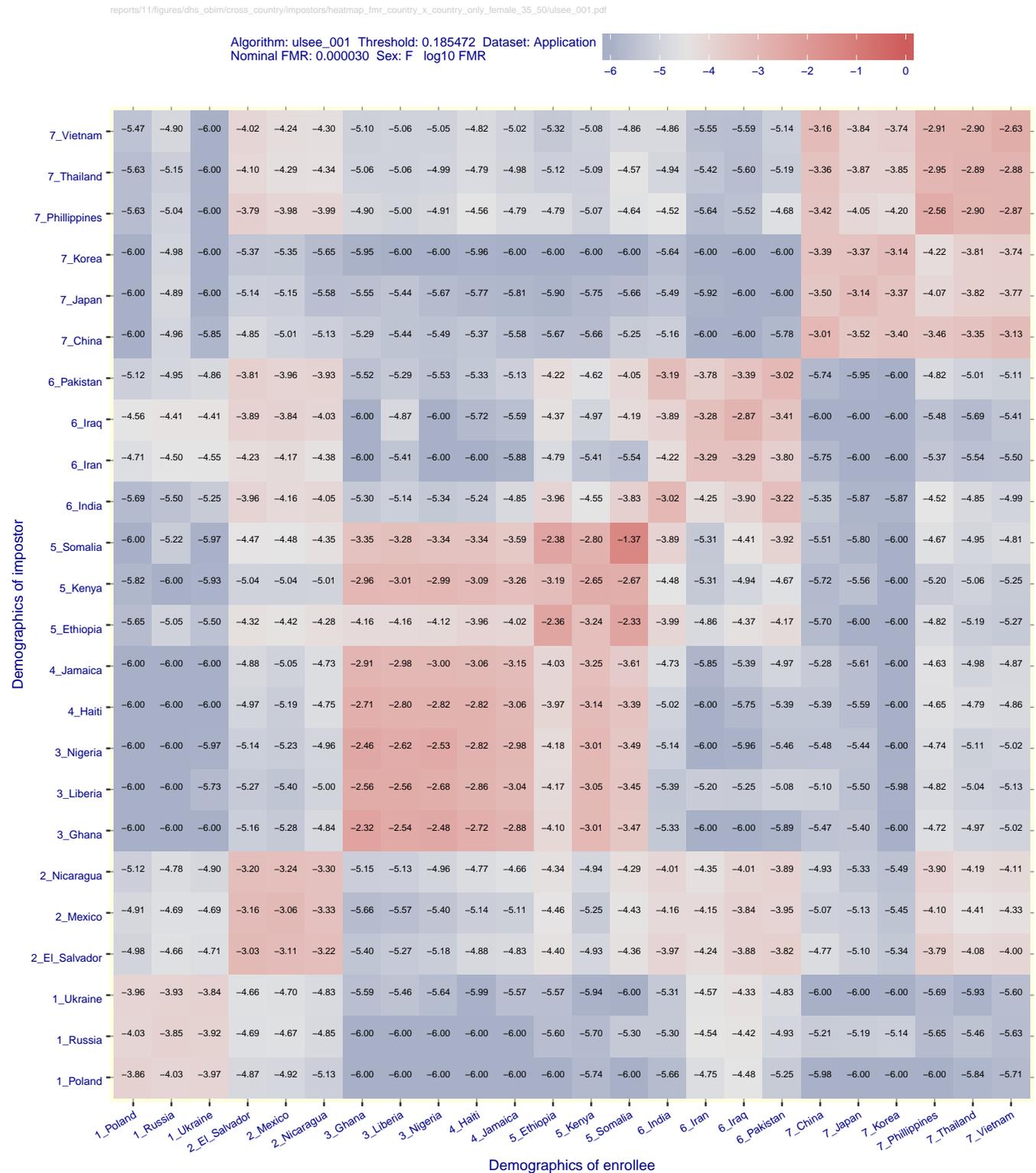


Figure 238: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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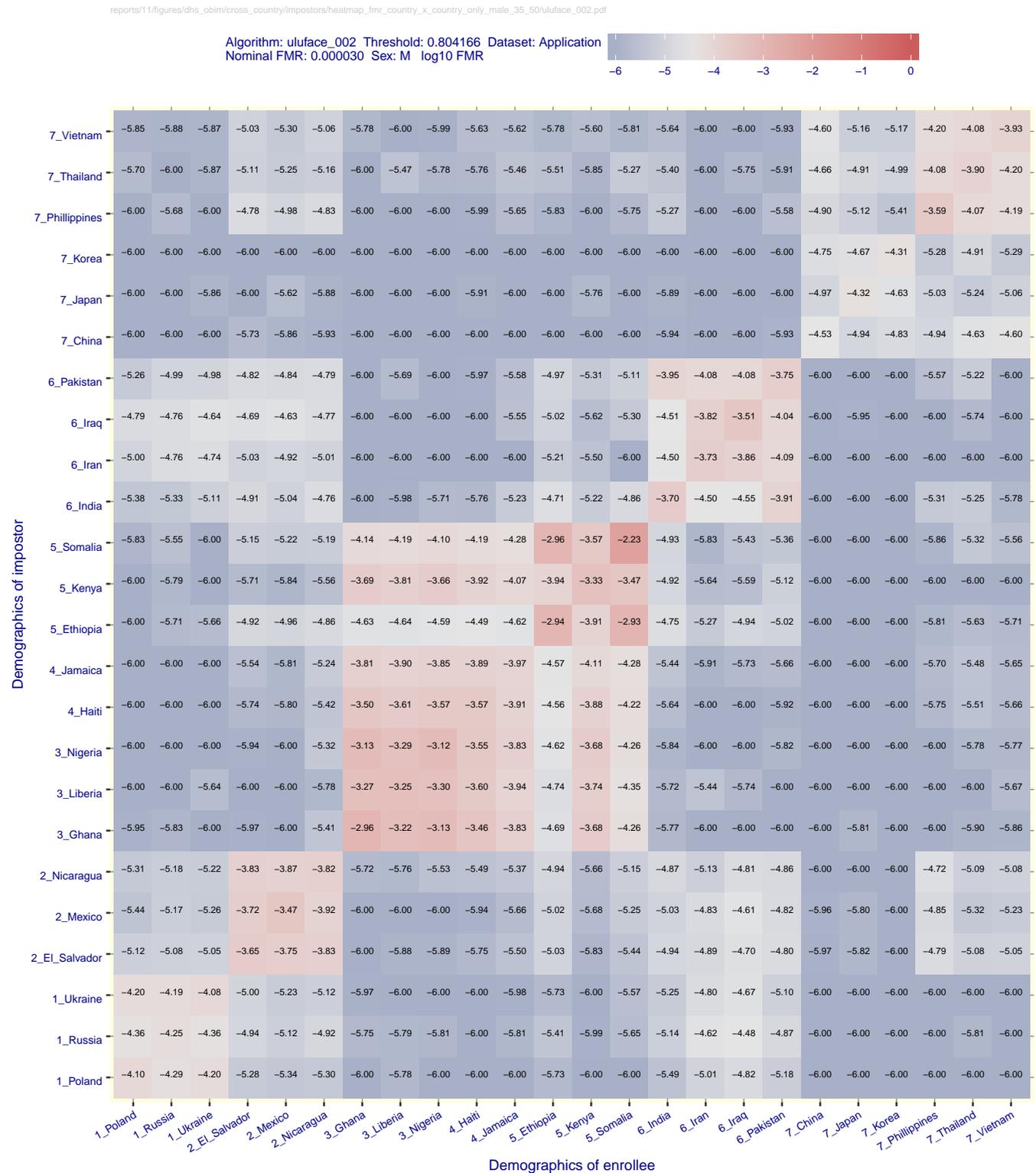


Figure 239: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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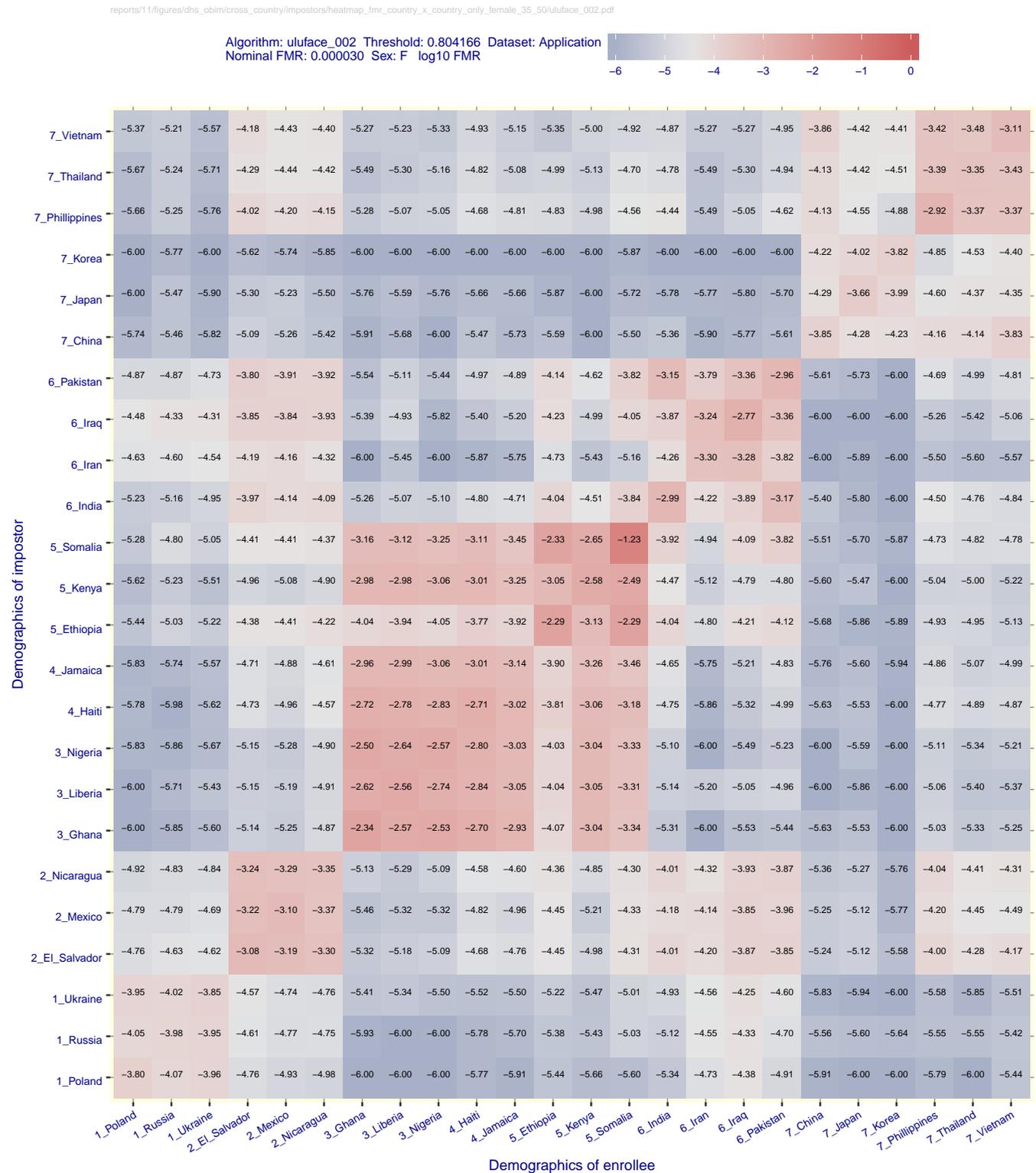


Figure 240: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/upc\_001.pdf

Algorithm: upc\_001 Threshold: 0.498212 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

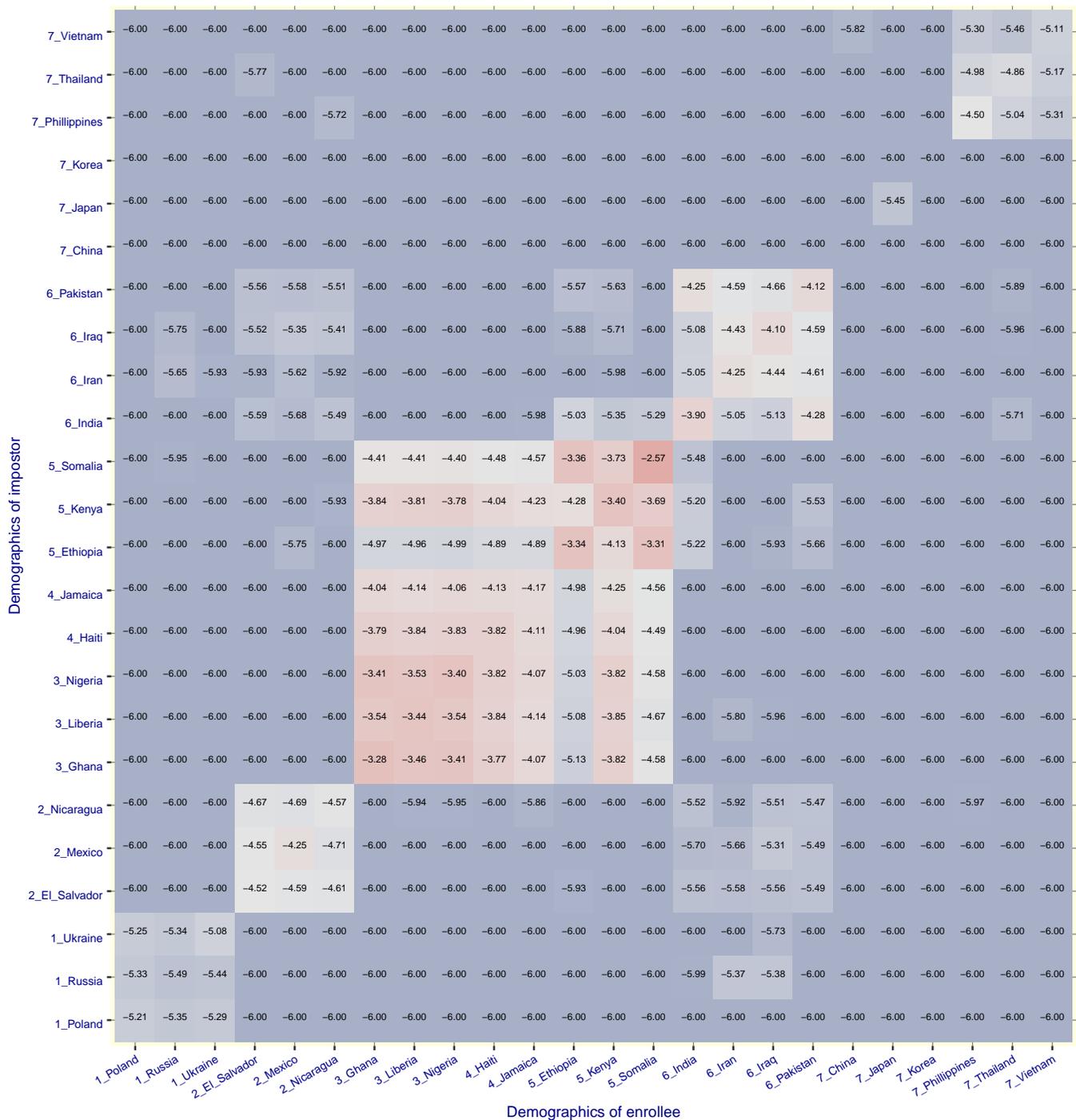


Figure 241: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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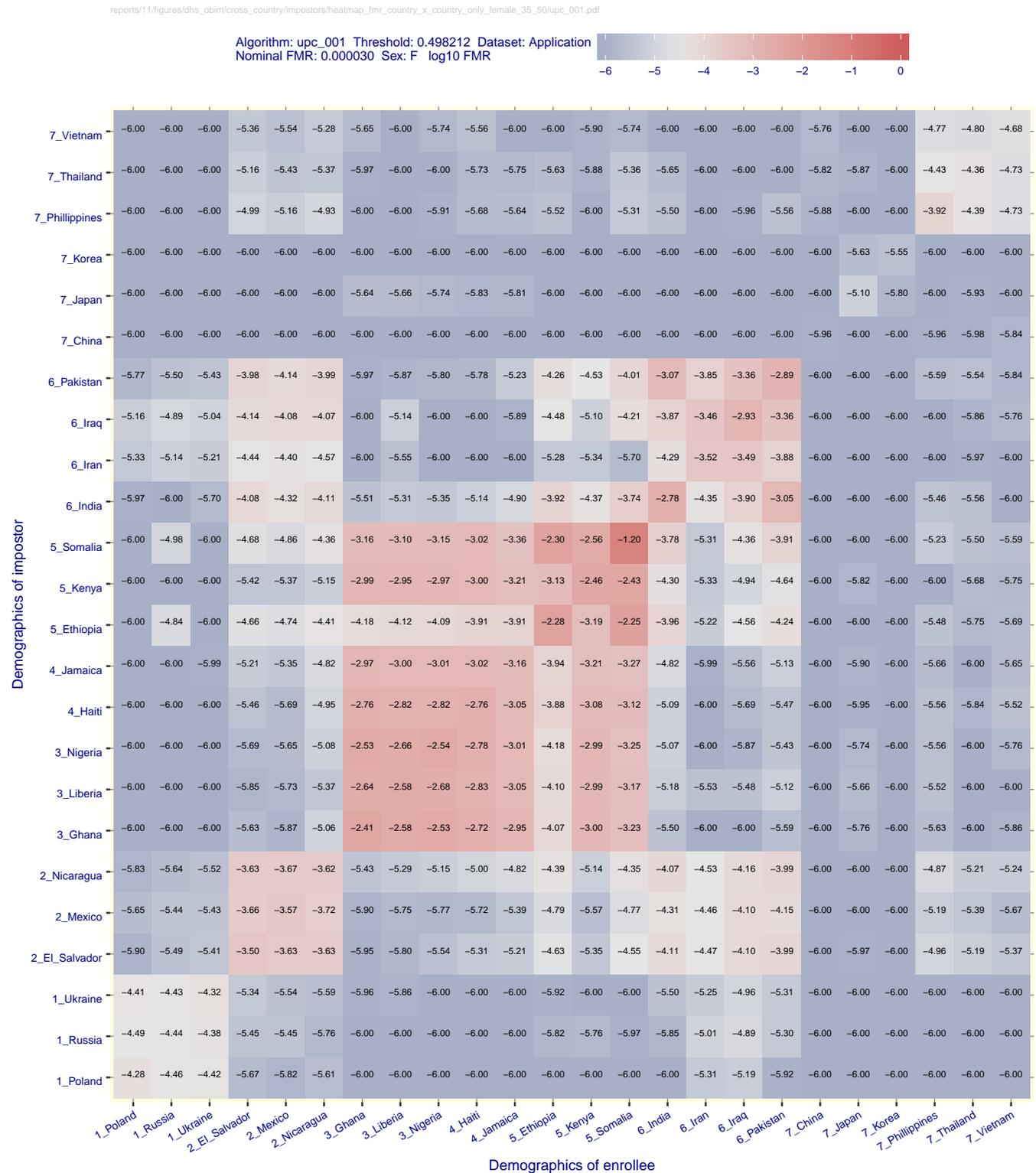


Figure 242: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/veridas\_001.pdf

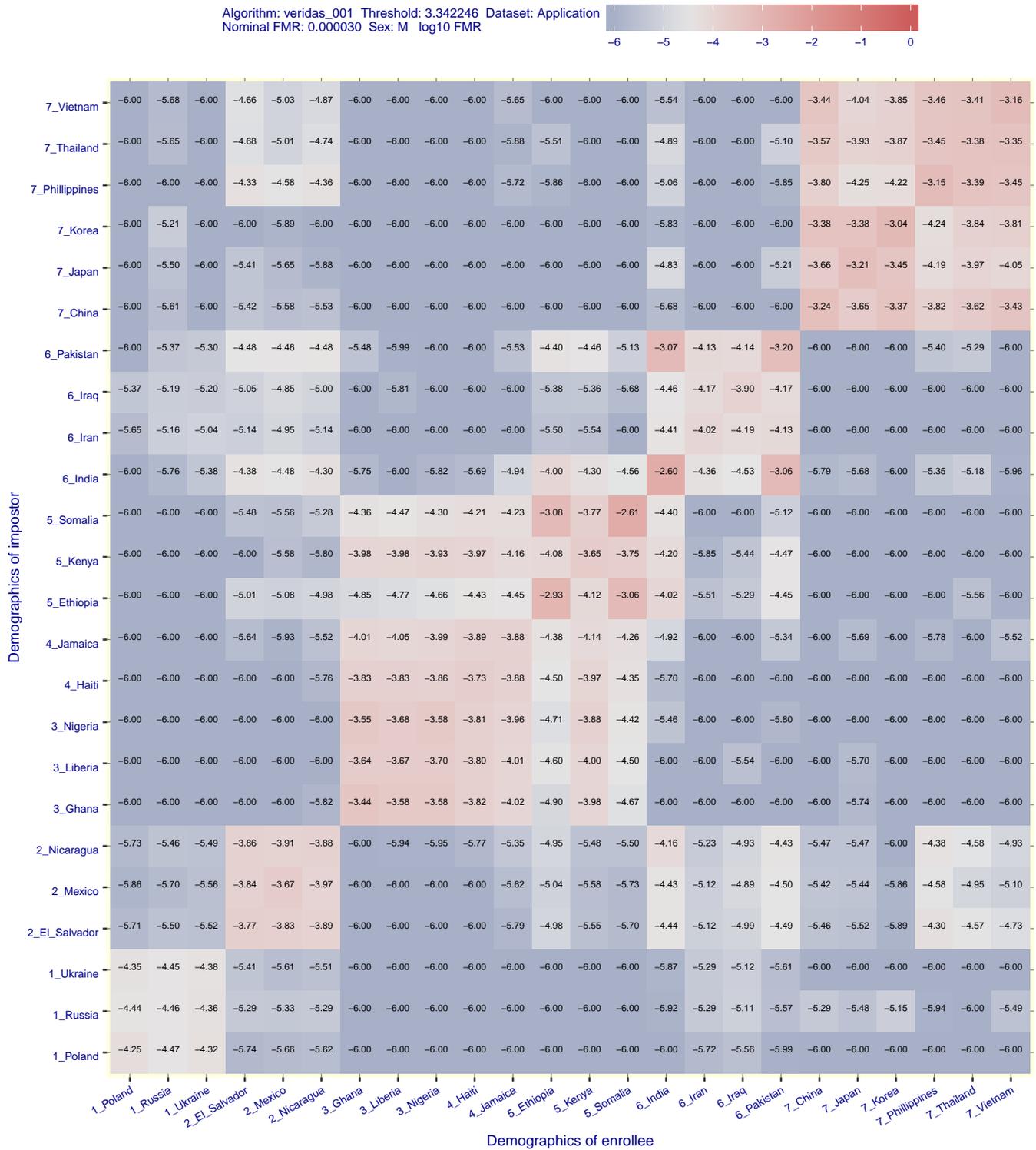


Figure 243: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/veridas\_001.pdf

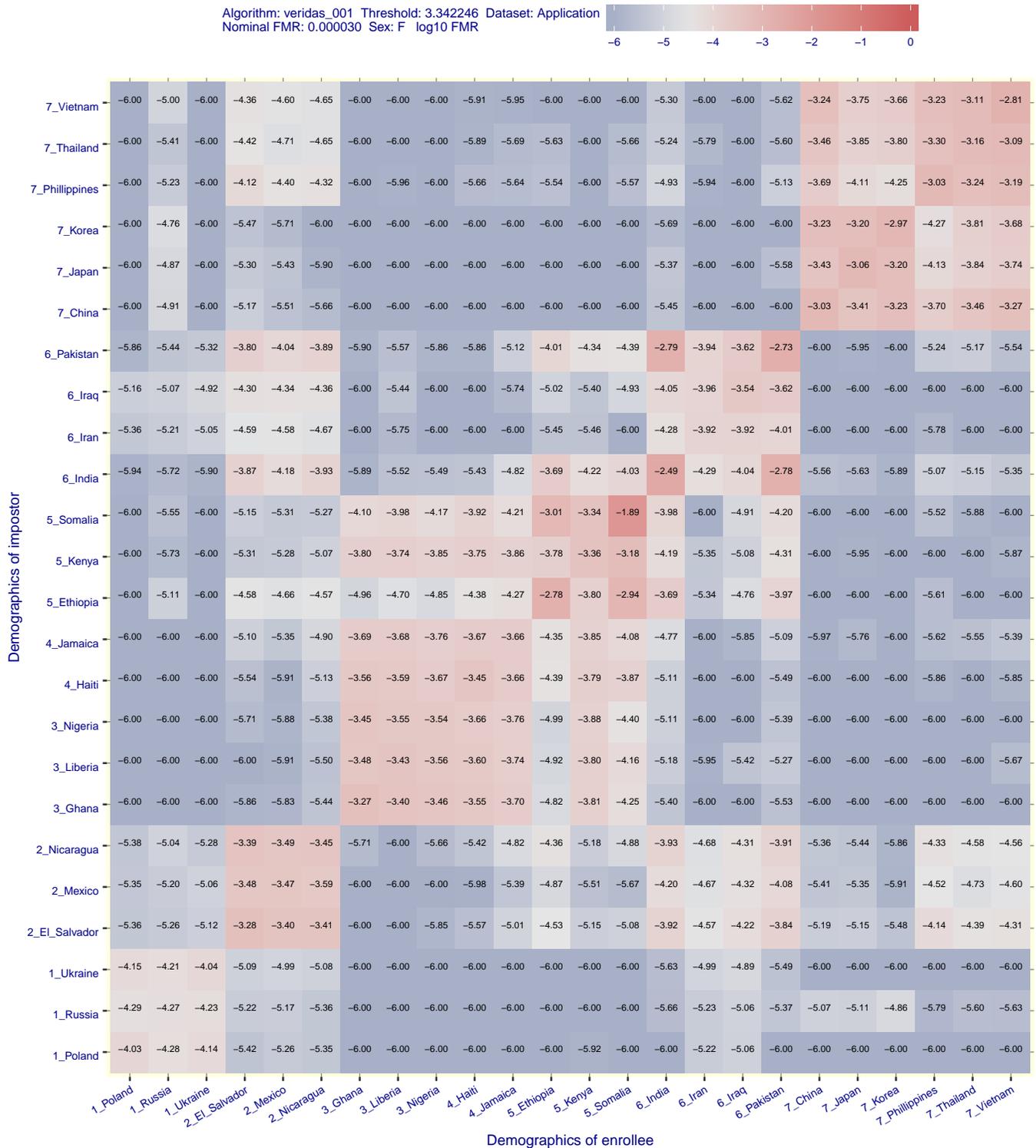


Figure 244: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/veridas\_002.pdf

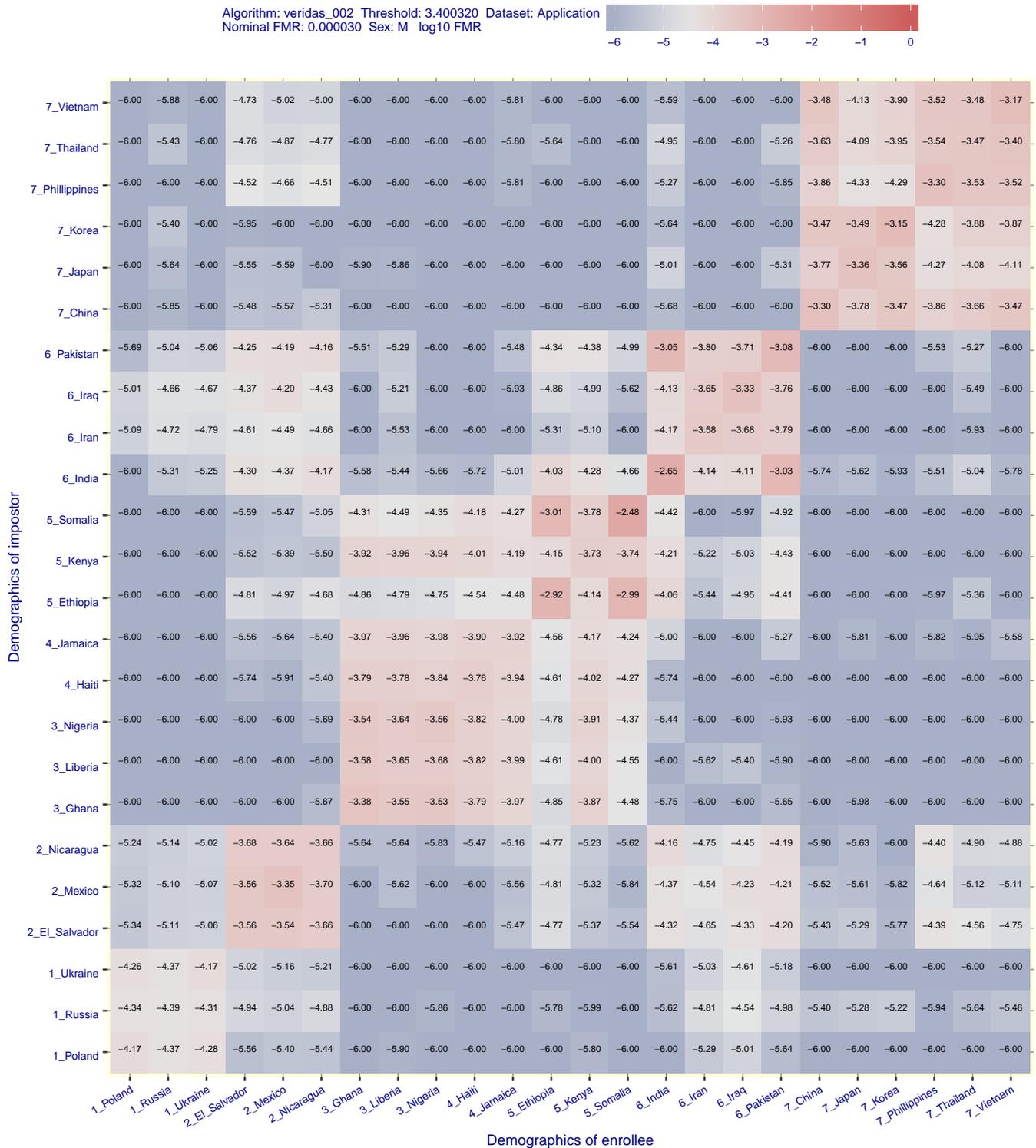


Figure 245: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0$

$\rightarrow$  FMR, FPIR  $\rightarrow$  0  
 $\rightarrow$  FNMR, FNIR  $\rightarrow$  1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/veridas\_002.pdf

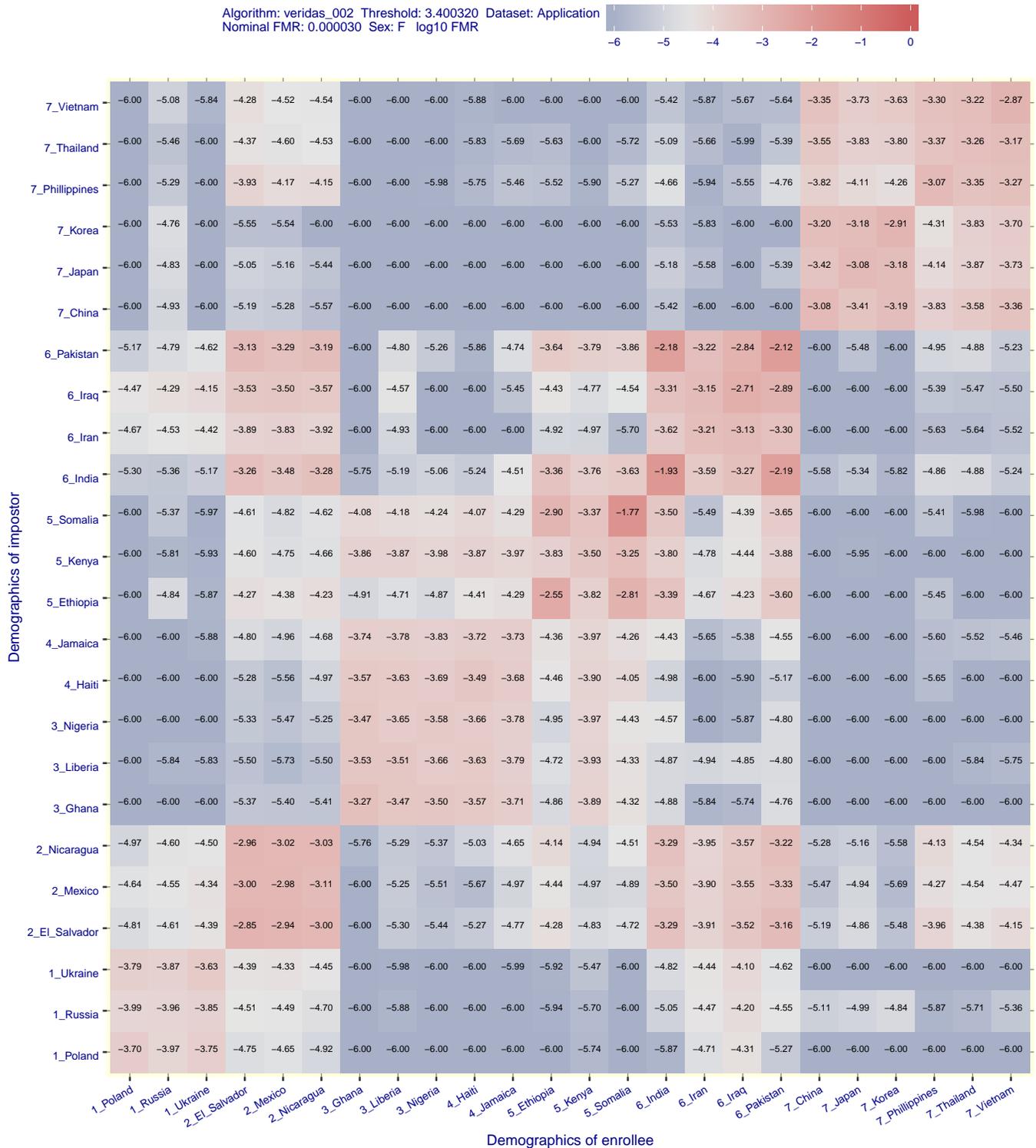


Figure 246: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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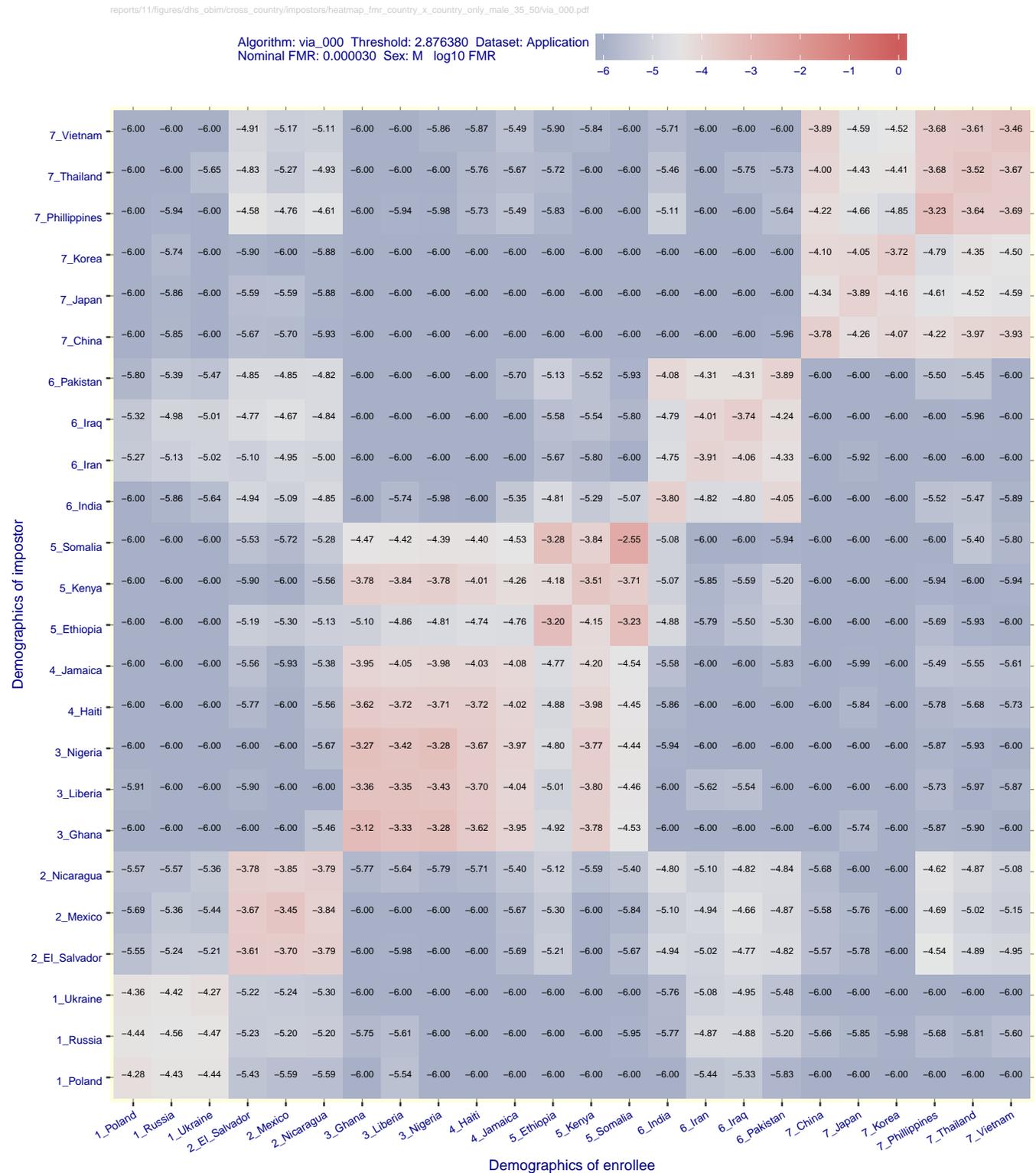


Figure 247: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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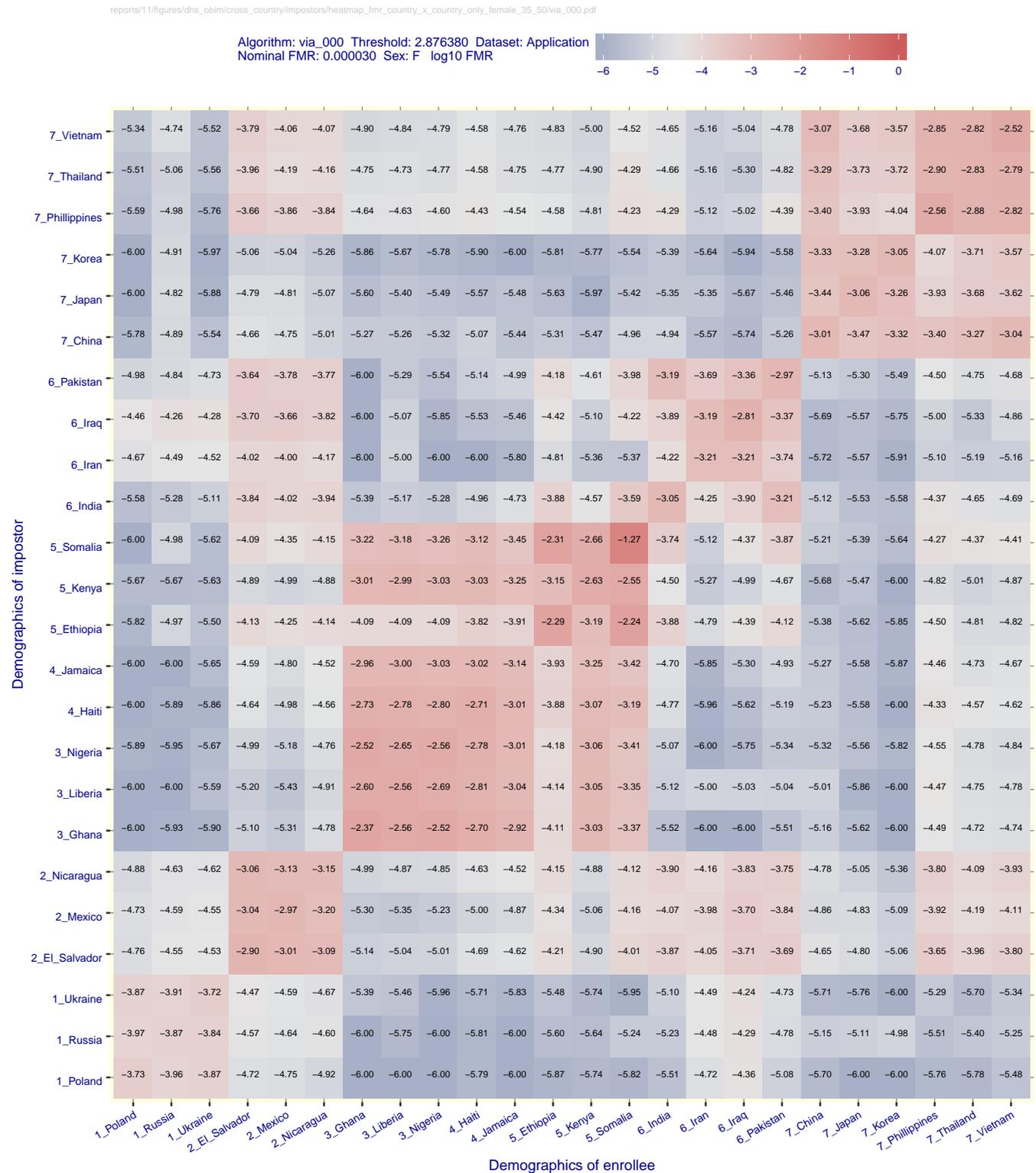


Figure 248: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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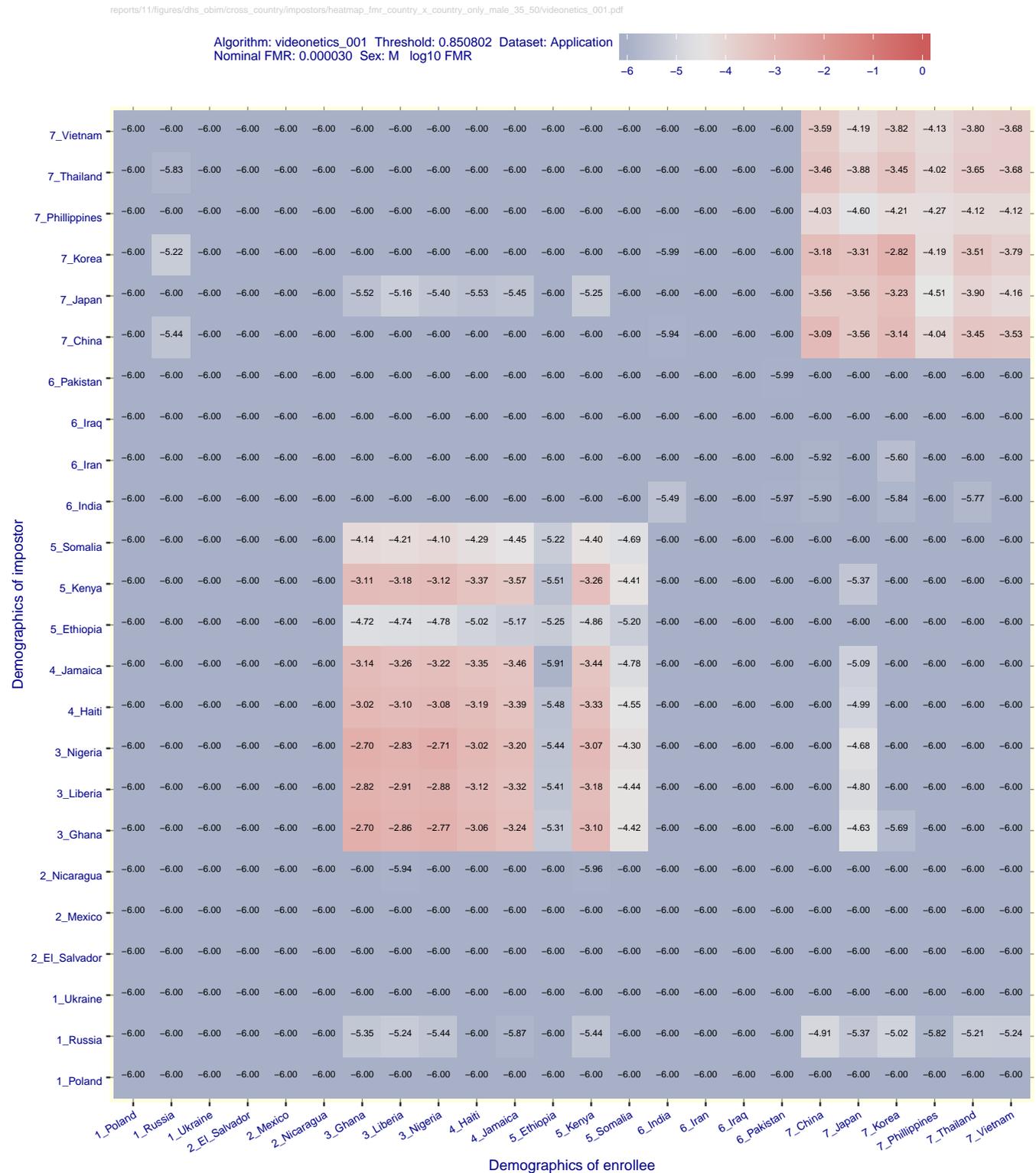


Figure 249: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/vigilantsolutions\_006.pdf

Algorithm: vigilantsolutions\_006 Threshold: 2.879437 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

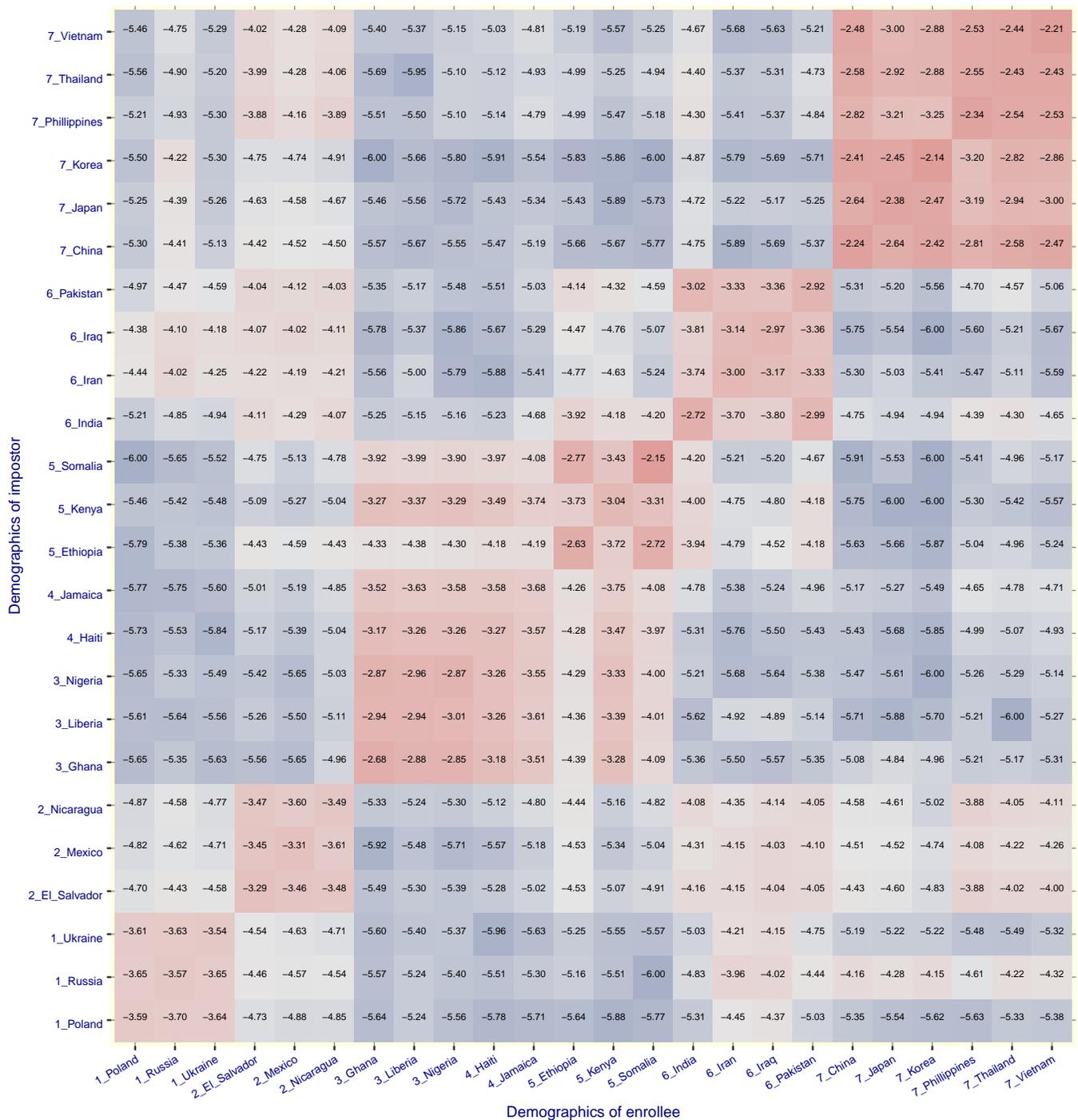


Figure 251: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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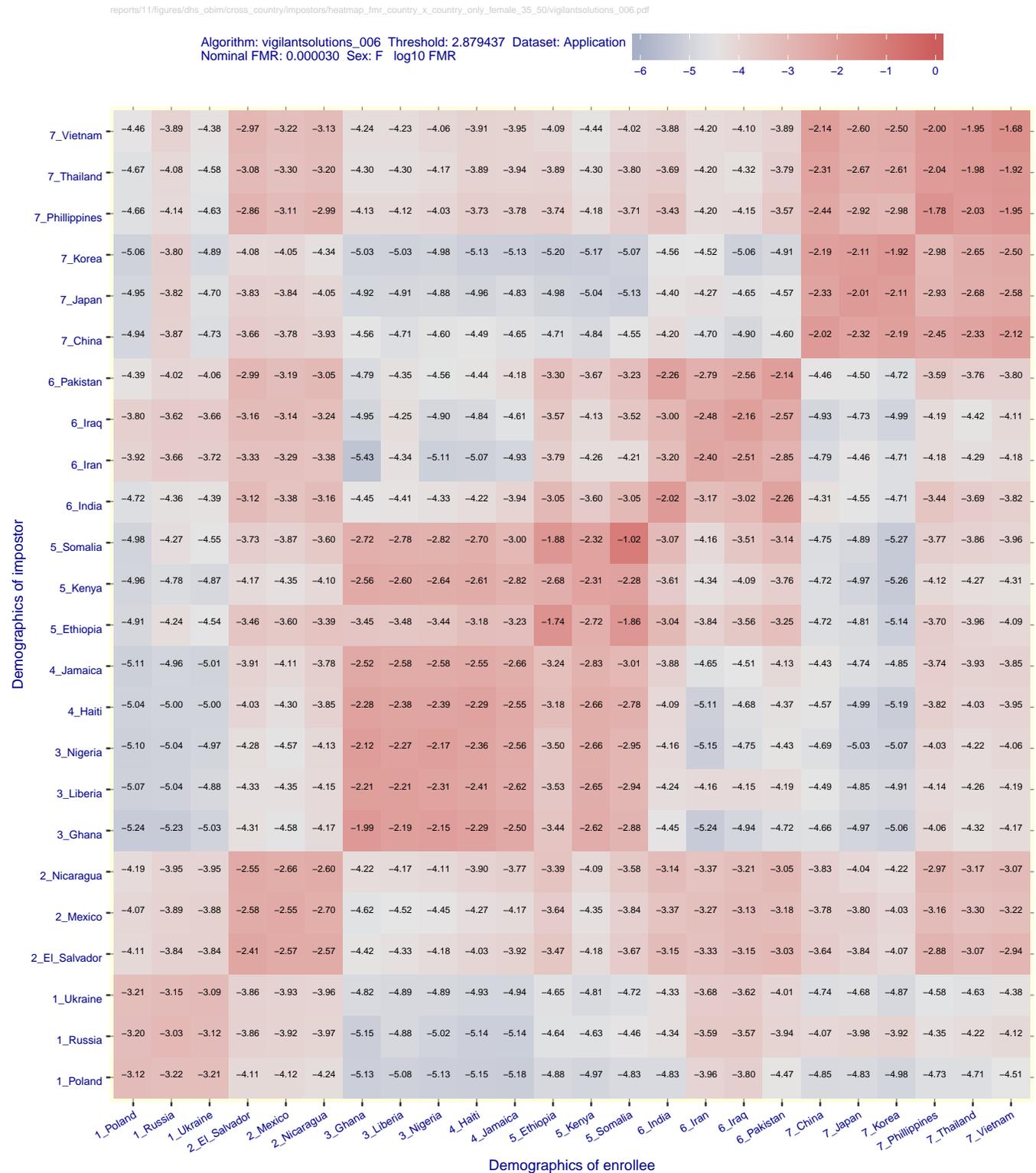


Figure 252: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_male\_35\_50/vigilantsolutions\_007.pdf

Algorithm: vigilantsolutions\_007 Threshold: 2.858313 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR

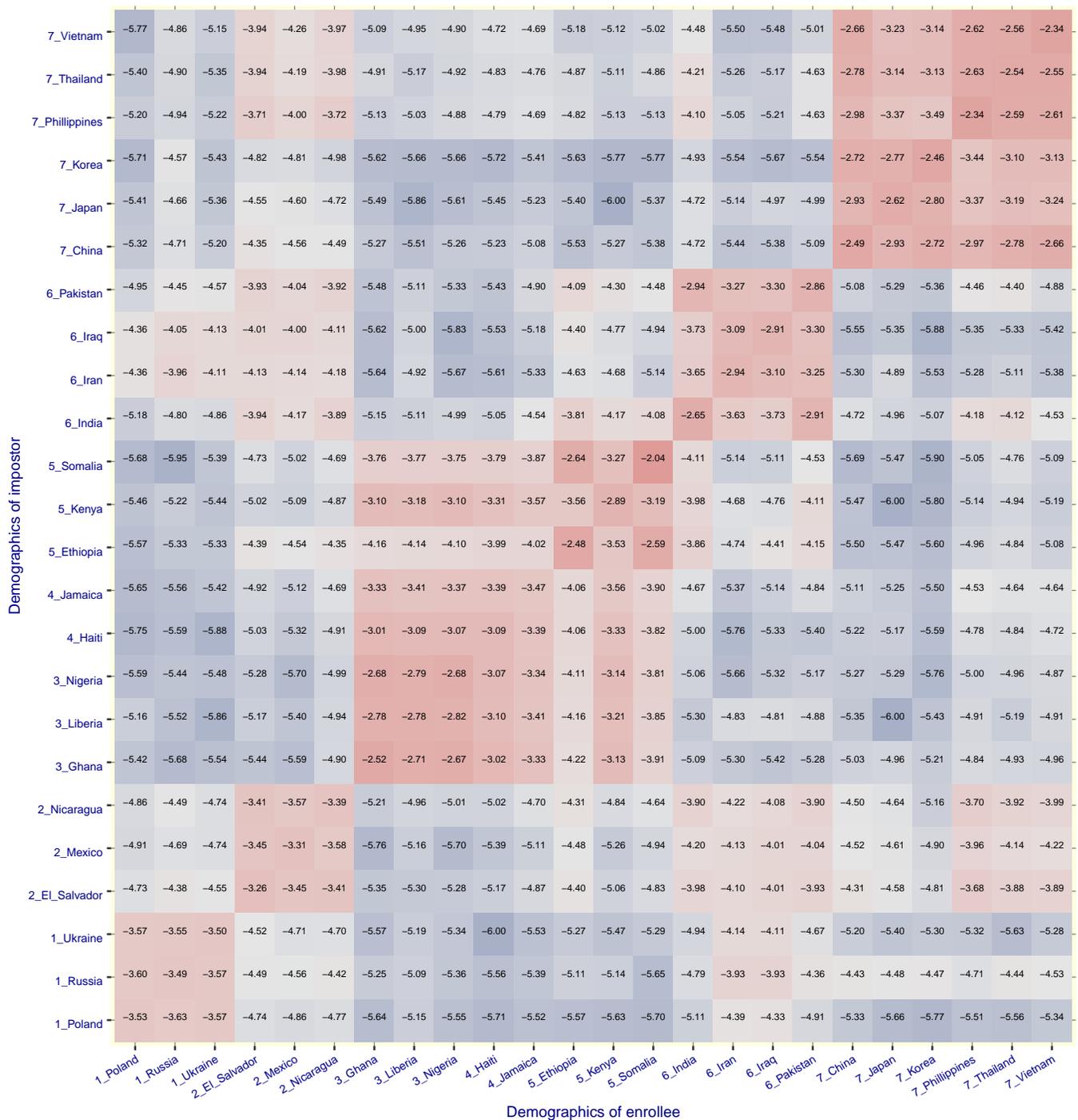


Figure 253: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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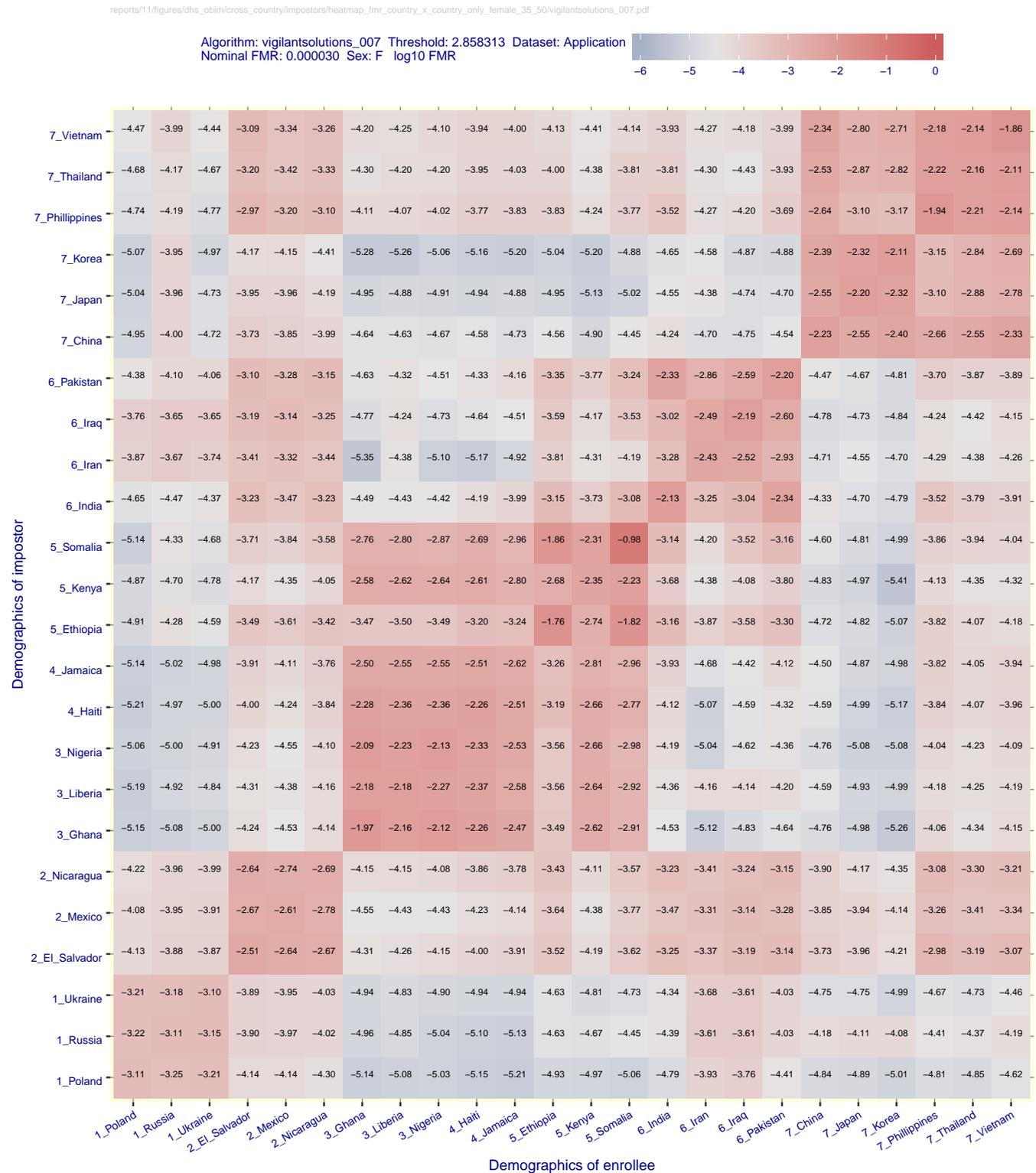
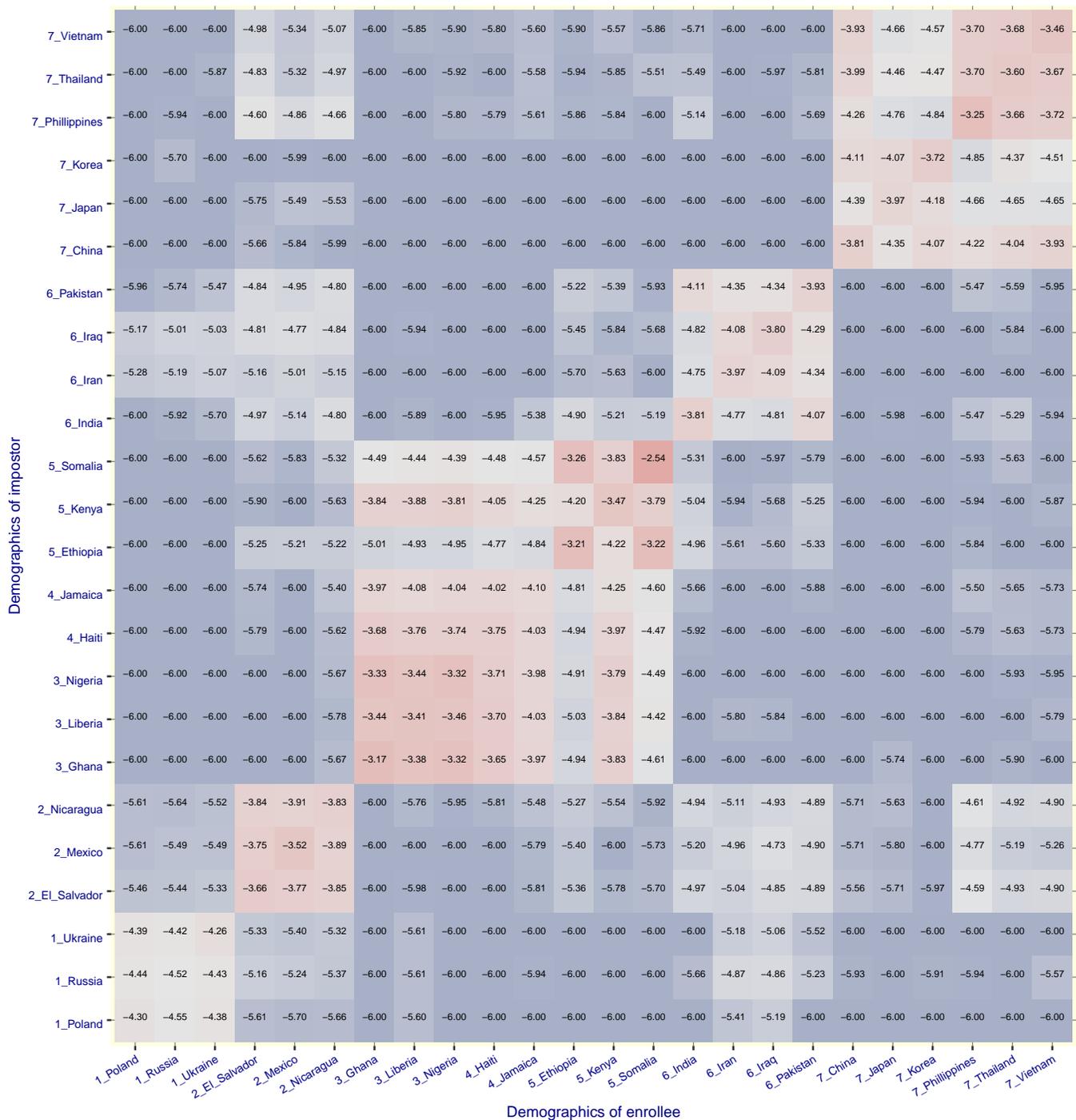


Figure 254: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/vion\_000.pdf

Algorithm: vion\_000 Threshold: 0.438061 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR



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Figure 255: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

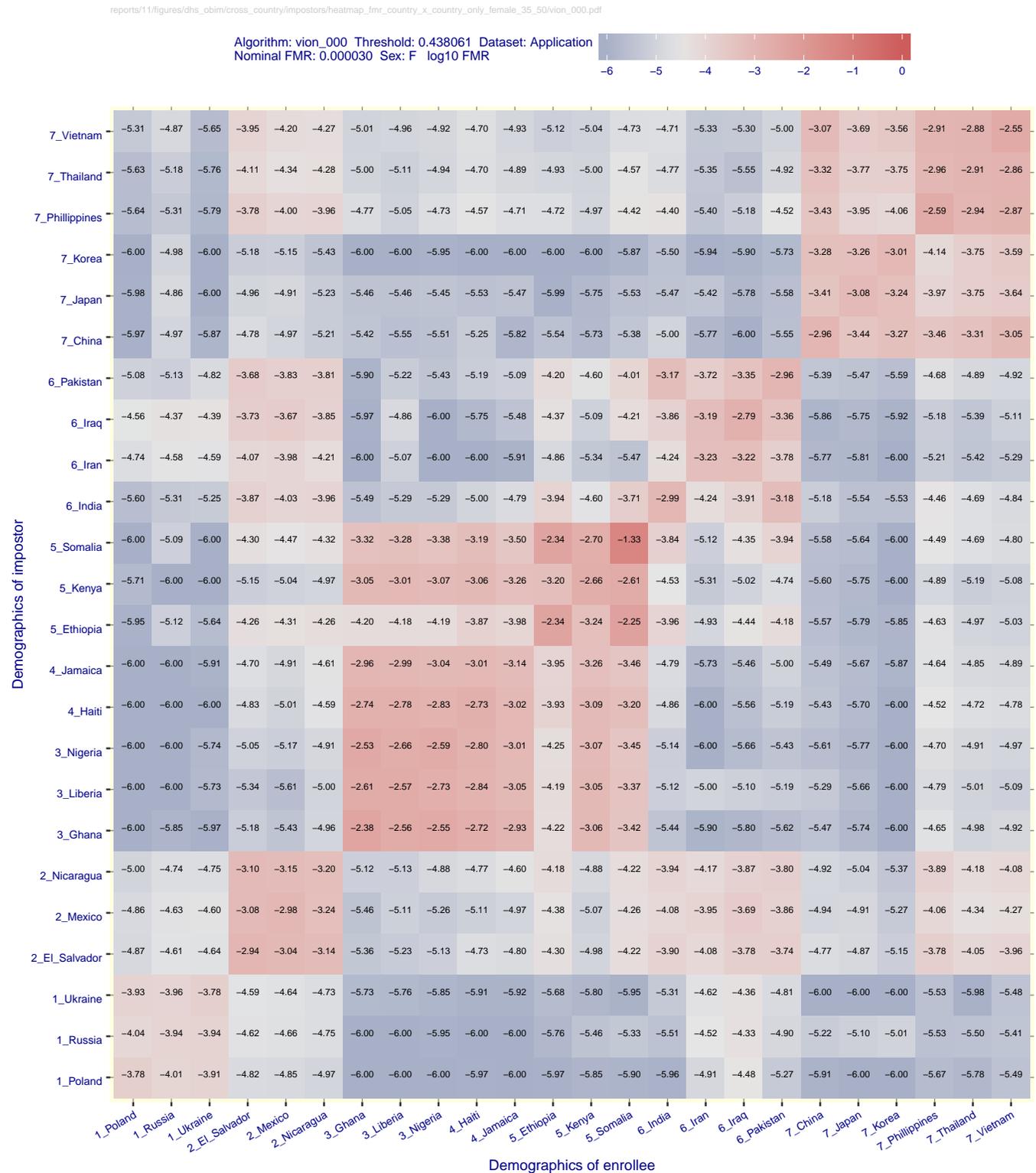


Figure 256: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/visionbox\_000.pdf

Algorithm: visionbox\_000 Threshold: 0.442652 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR

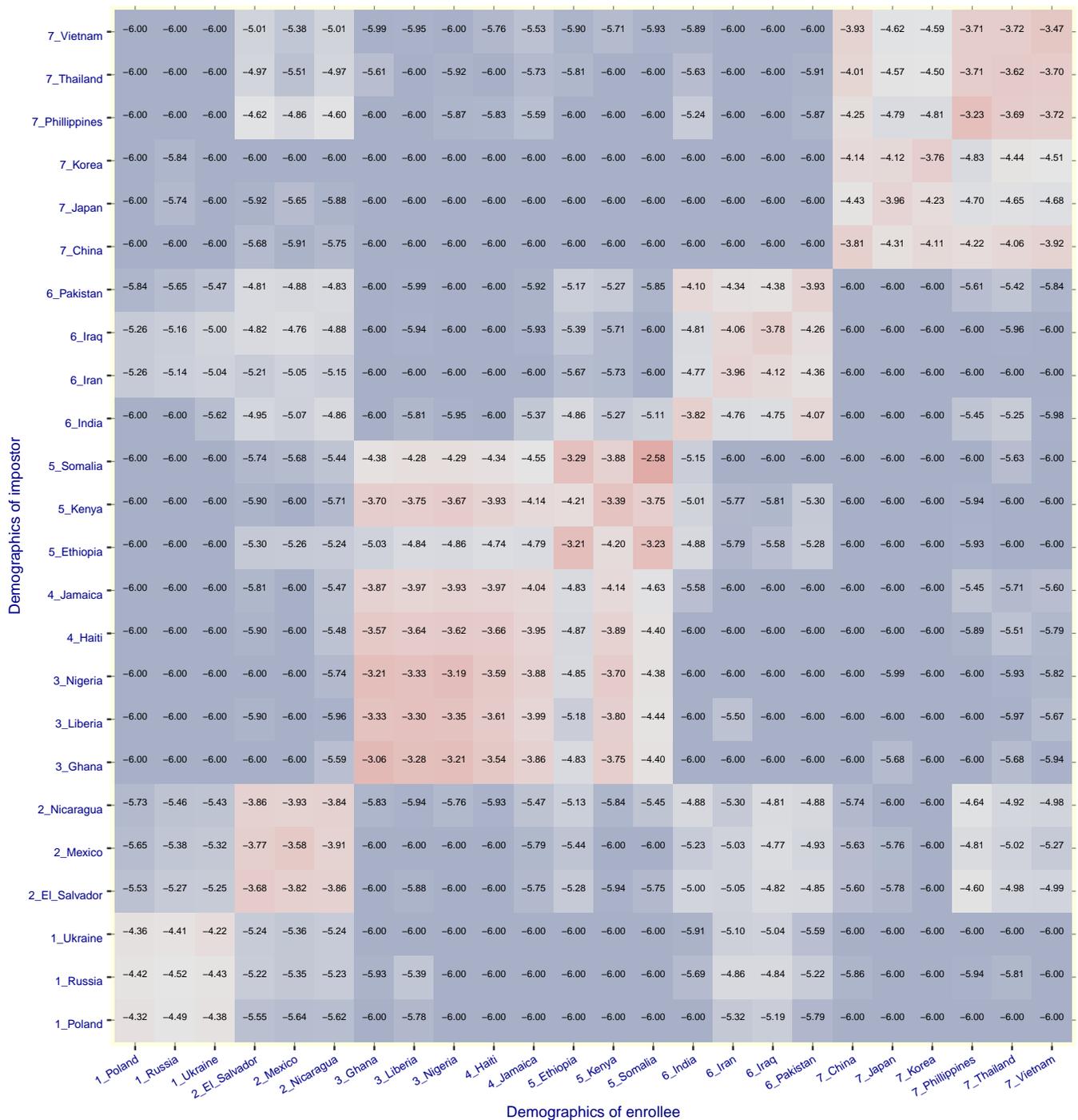
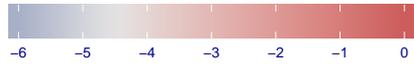


Figure 257: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR | 1:N FPIR | T >> 0  
 1:1 FNMR | 1:N FNIR

→ FMR, FPIR → 0  
 → FNMR, FNIR → 1

This publication is available free of charge from: https://doi.org/10.6028/NIST.IR.8280

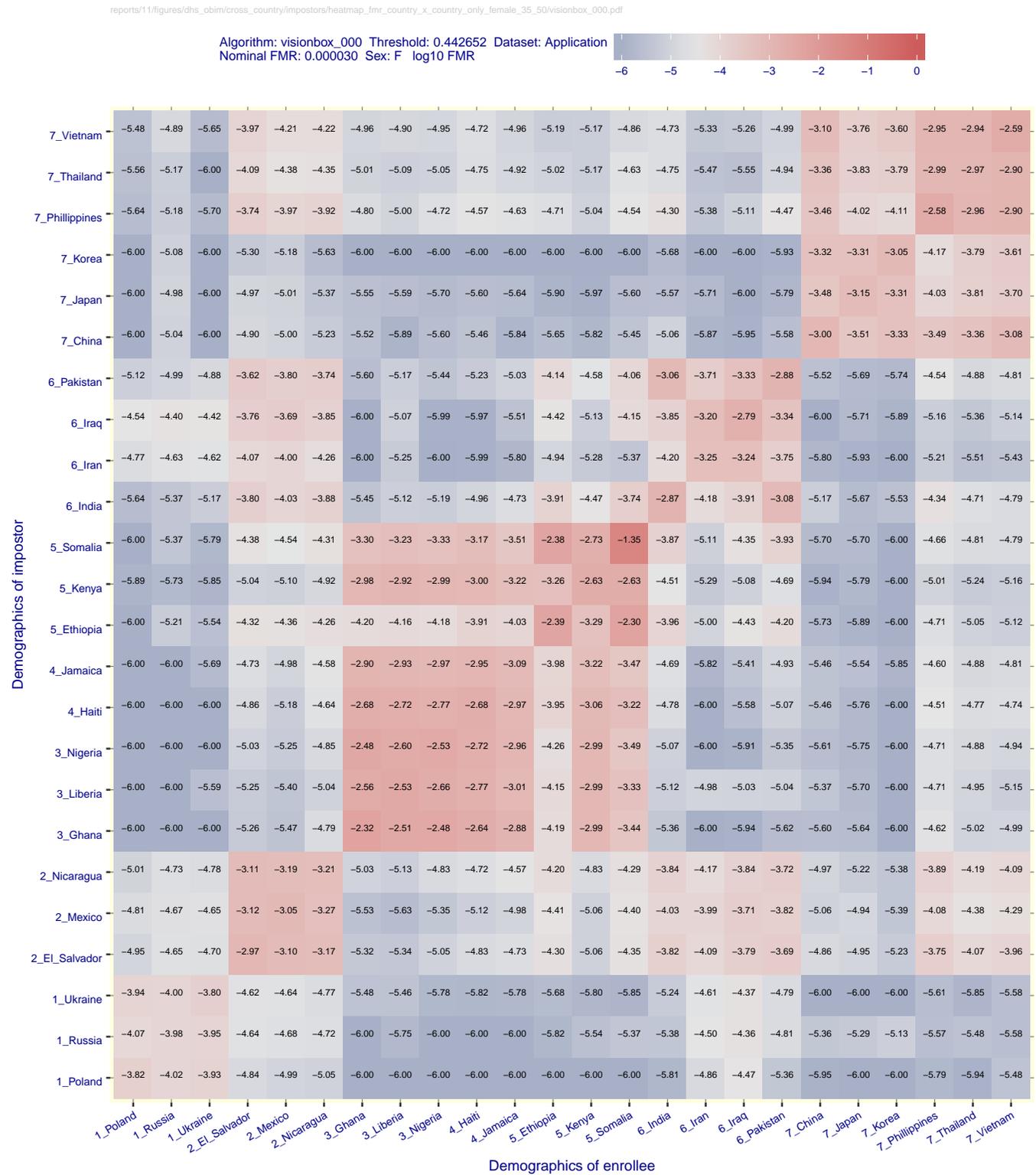


Figure 258: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/visionbox\_001.pdf

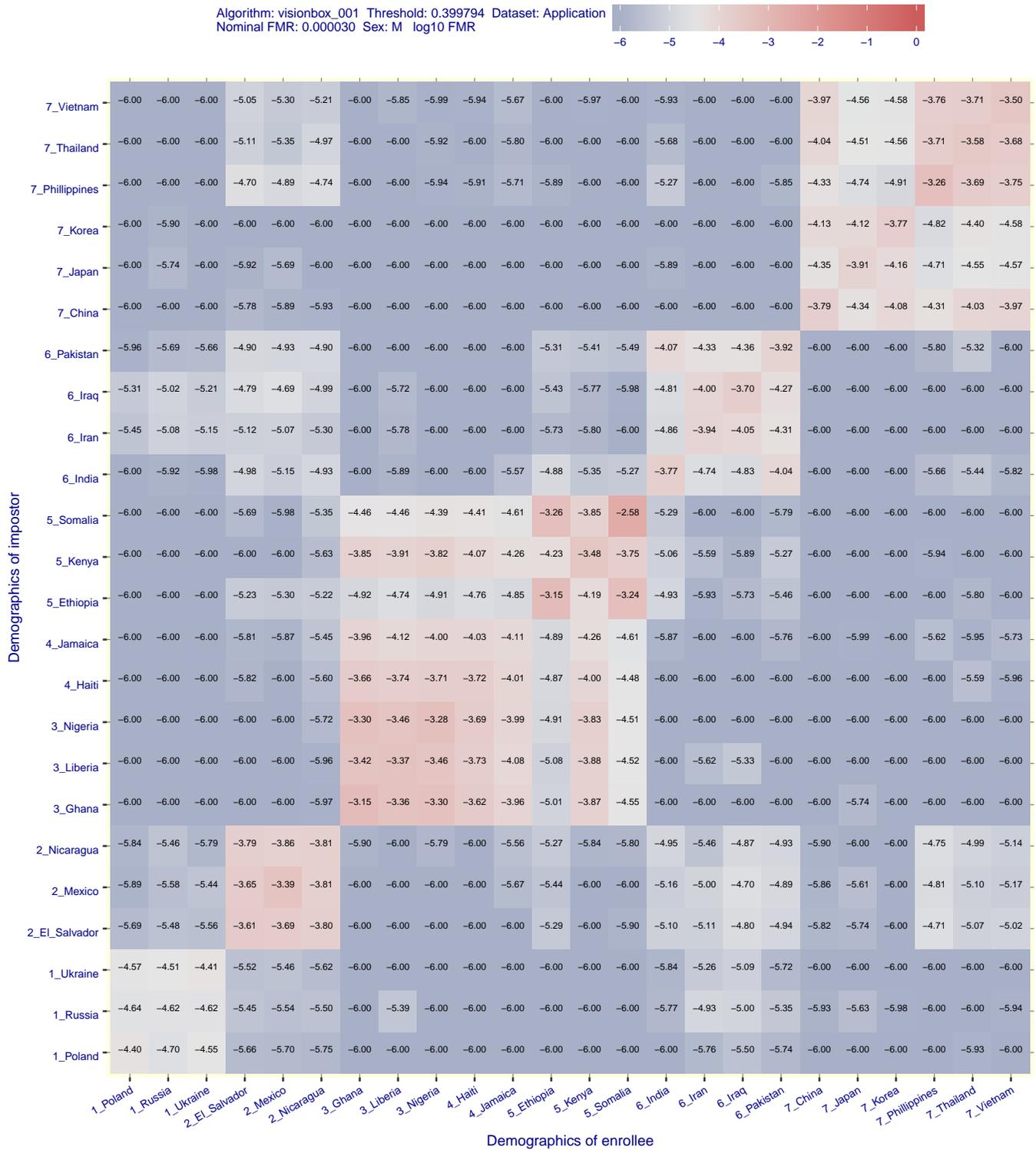


Figure 259: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

T >> 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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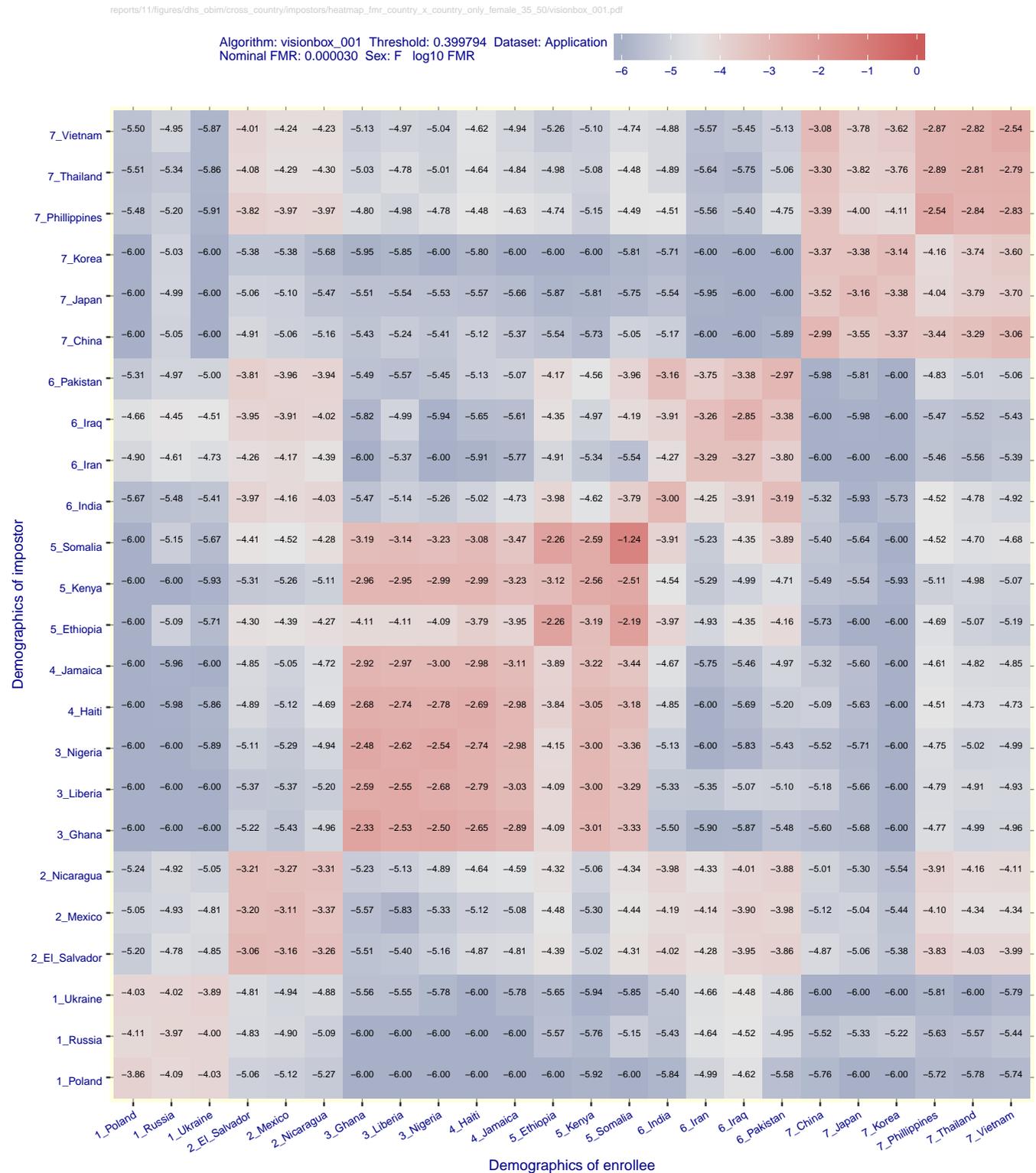


Figure 260: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/visionlabs\_006.pdf

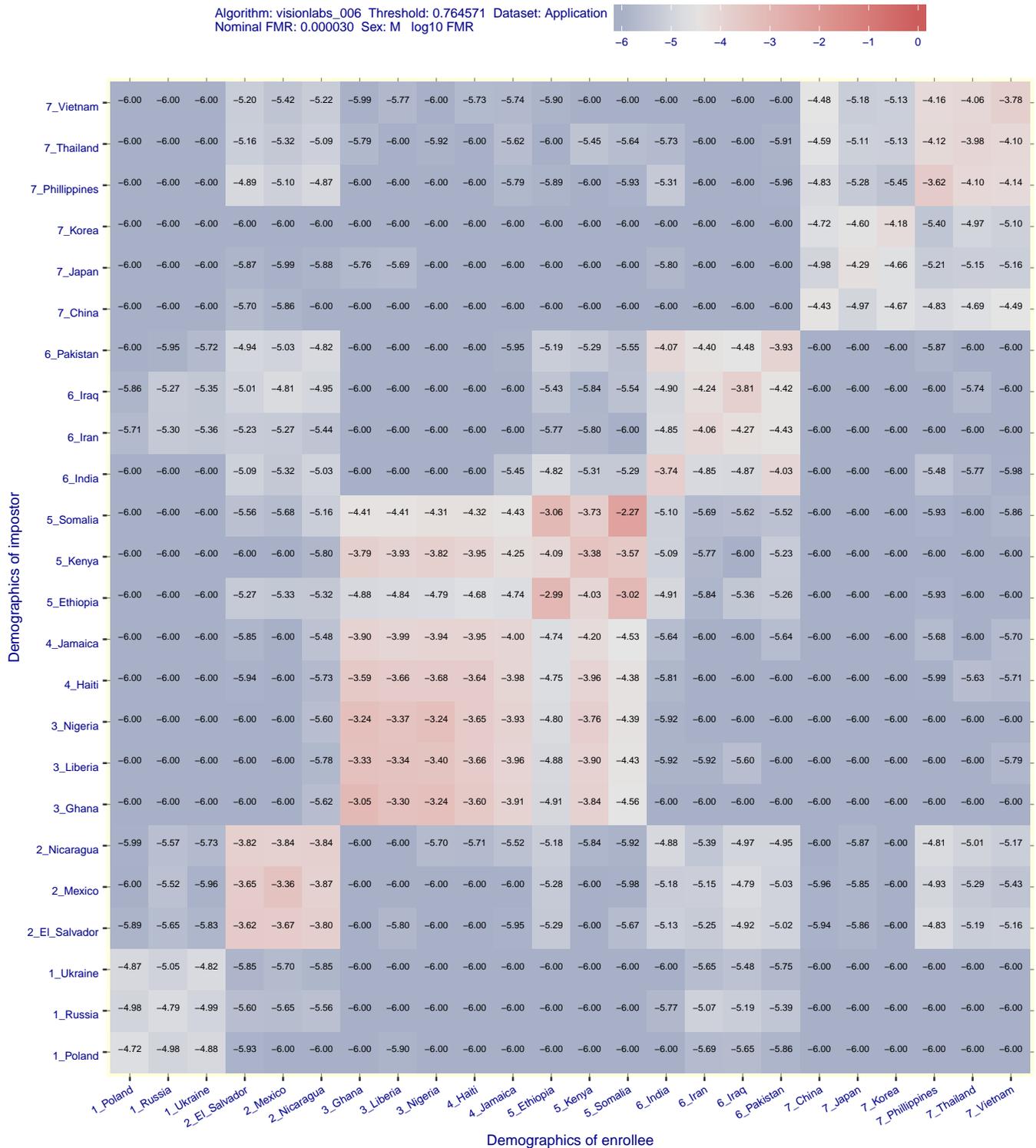


Figure 261: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/visionlabs\_006.pdf

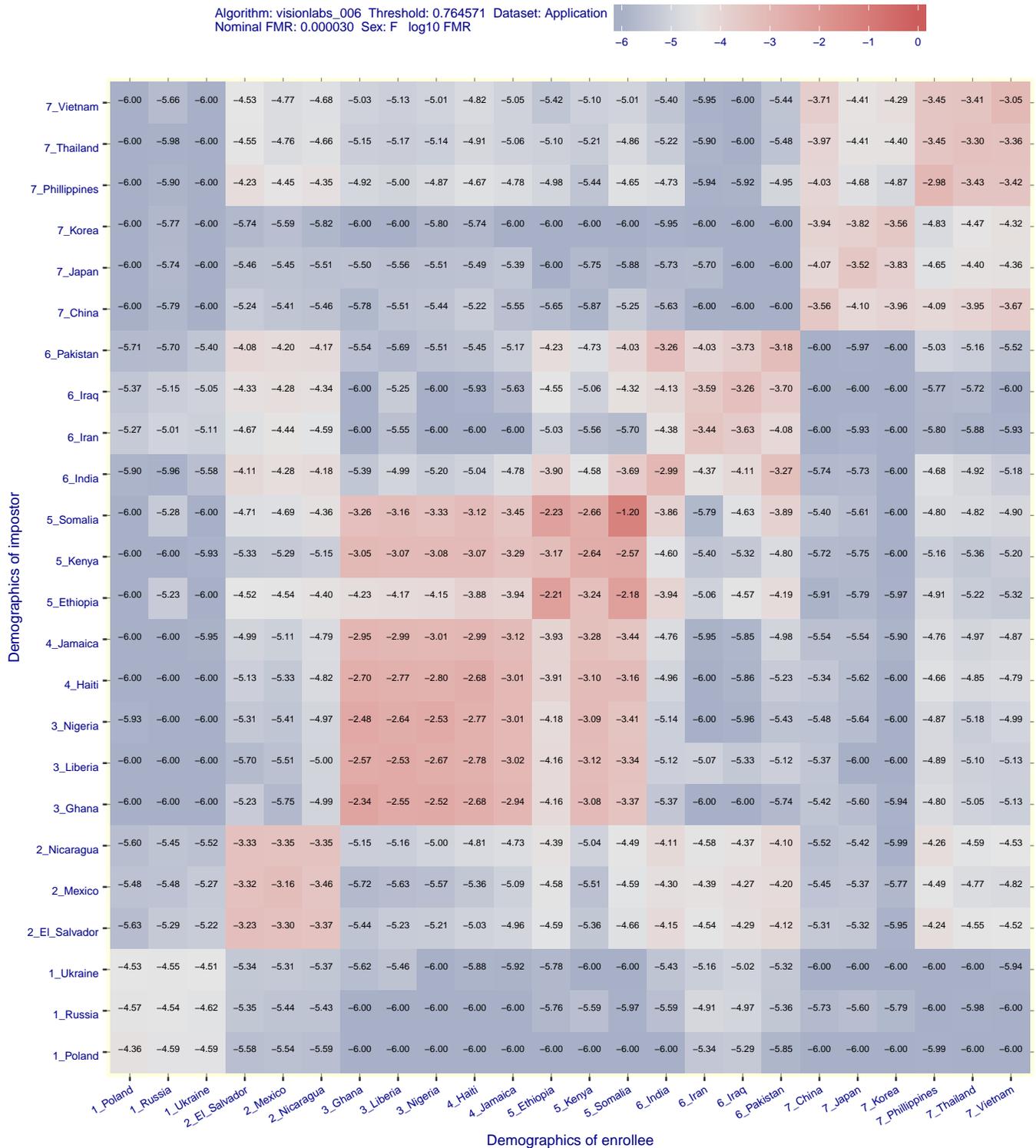


Figure 262: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/visionlabs\_007.pdf

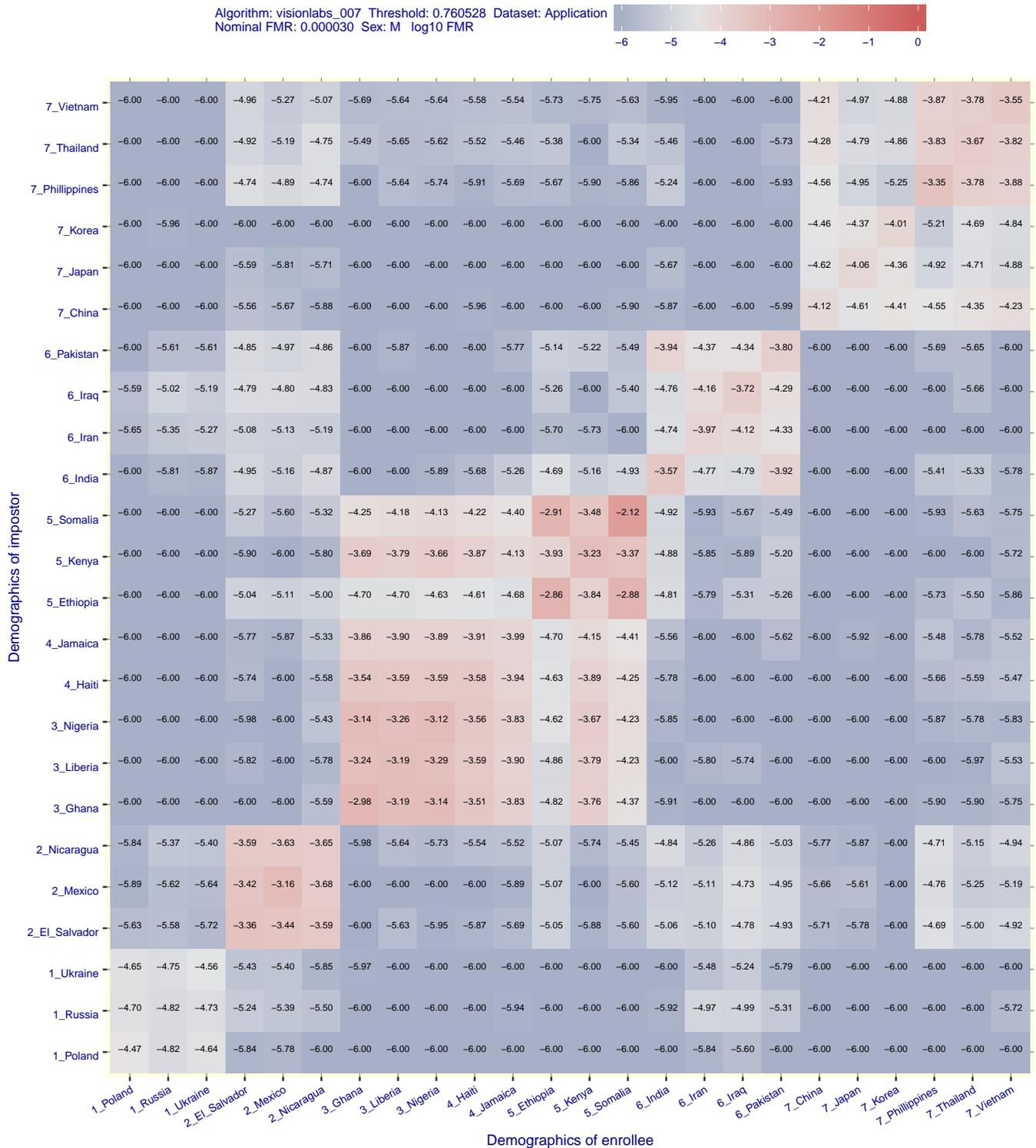


Figure 263: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR  
1:1 FNMR

1:N FPIR  
1:N FNIR

$T \gg 0$

$\rightarrow$  FMR, FPIR  $\rightarrow$  0  
 $\rightarrow$  FNMR, FNIR  $\rightarrow$  1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/visionlabs\_007.pdf

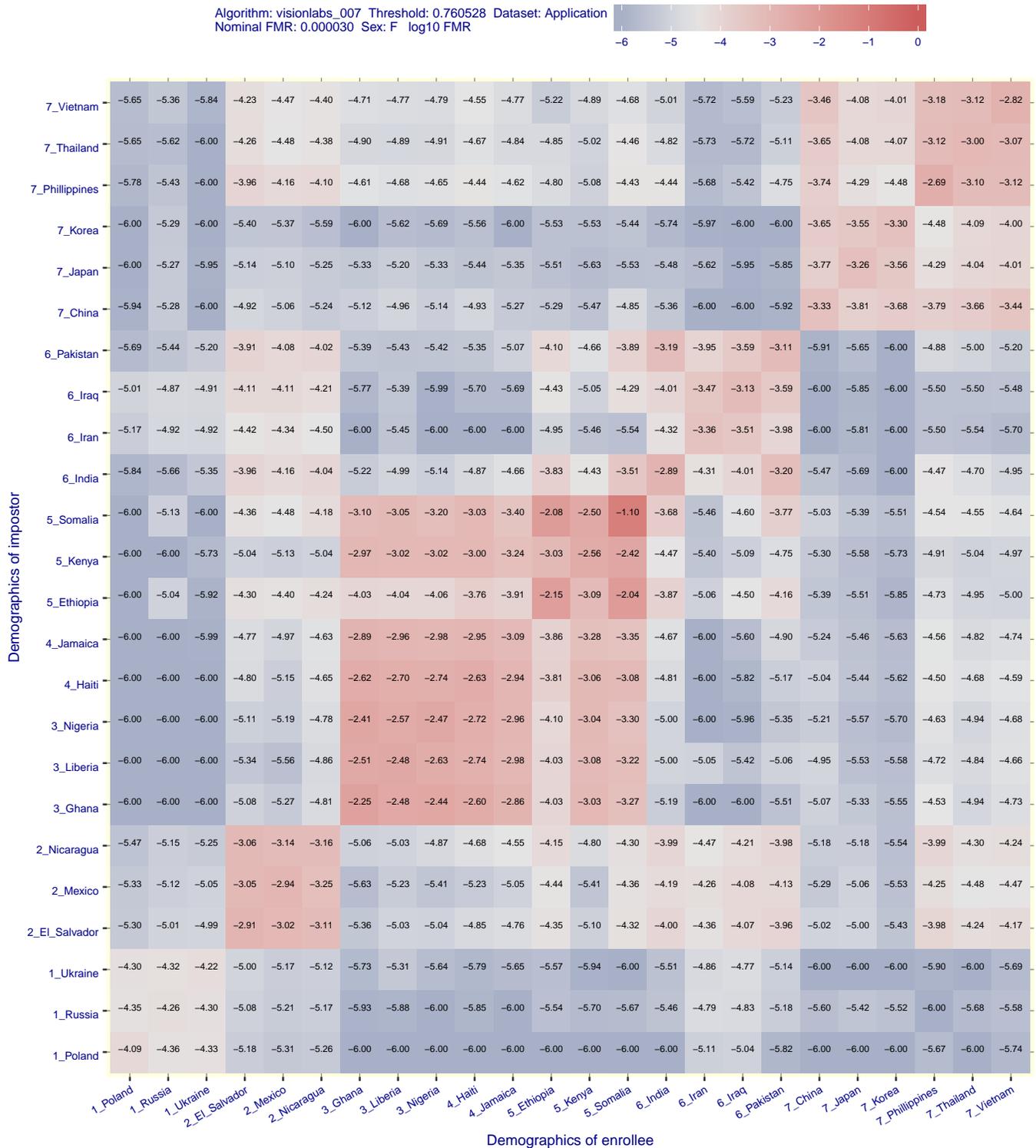


Figure 264: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects 1:1 FMR 1:N FPIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 False negative: Failed association of one subject 1:1 FNMR 1:N FNIR |  $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/vocord\_006.pdf

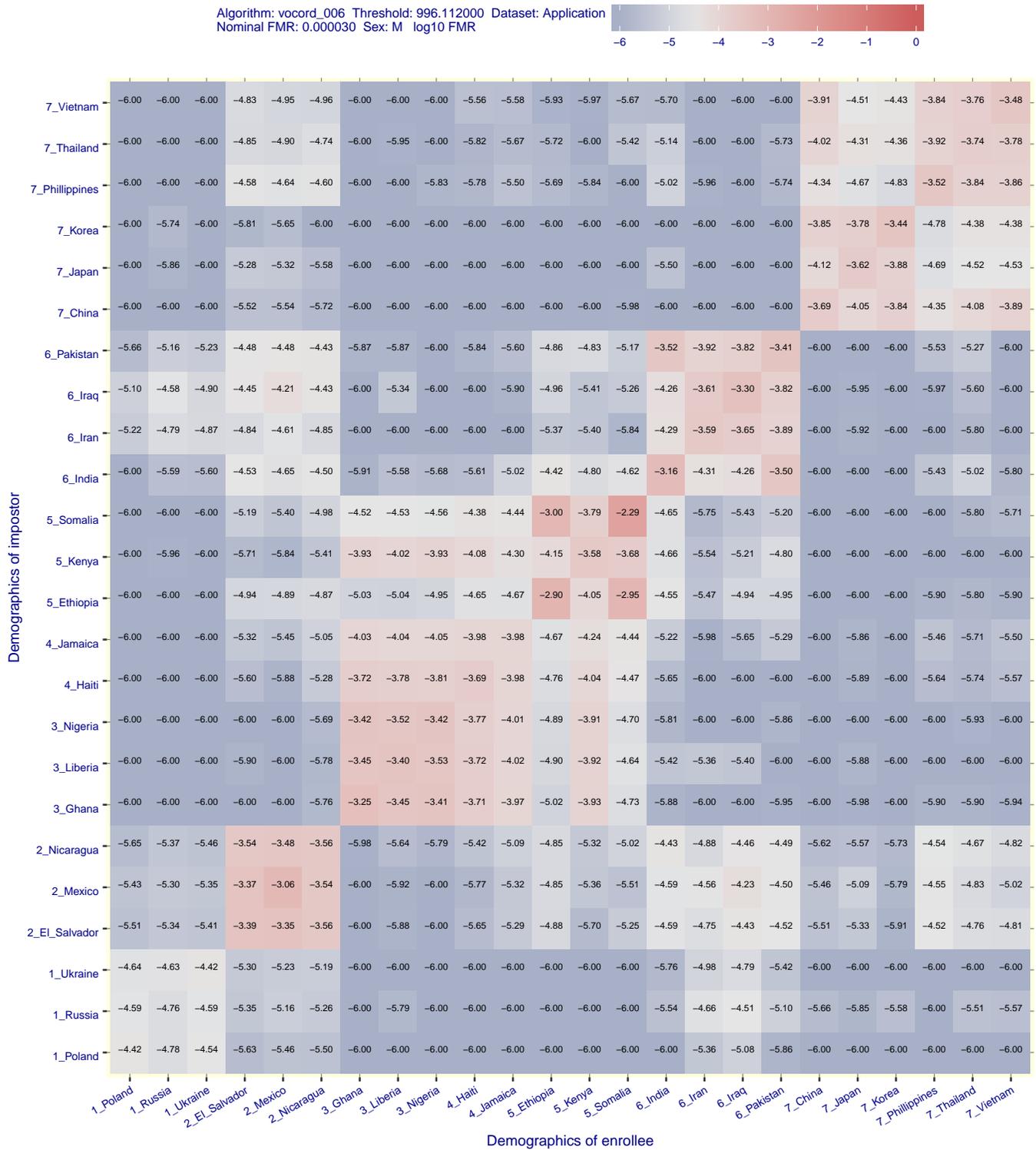


Figure 265: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
False negative: Failed association of one subject

1:1 FMR | 1:1 FNMR | 1:N FPIR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/vocord\_006.pdf

Algorithm: vocord\_006 Threshold: 996.112000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

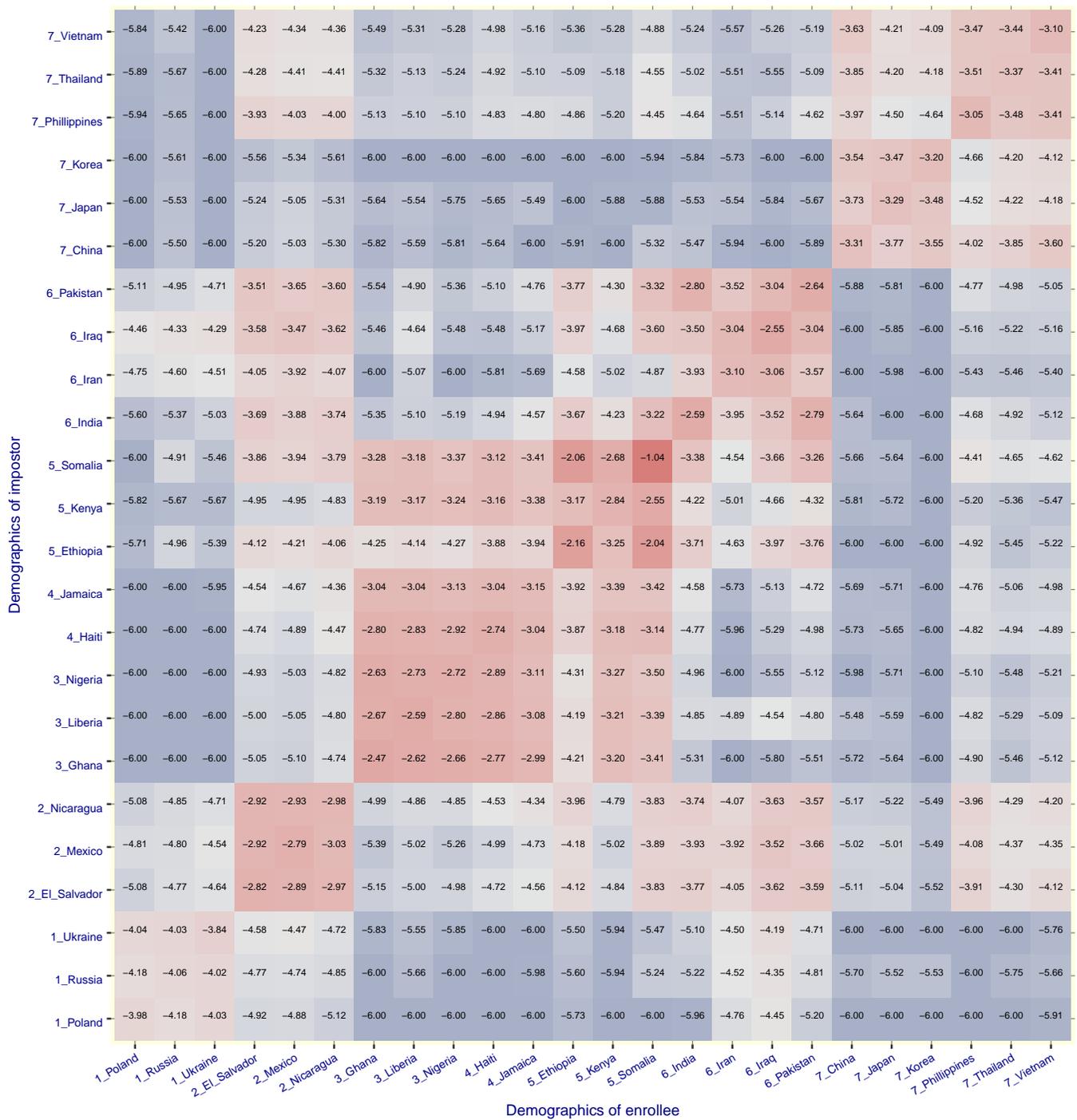


Figure 266: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

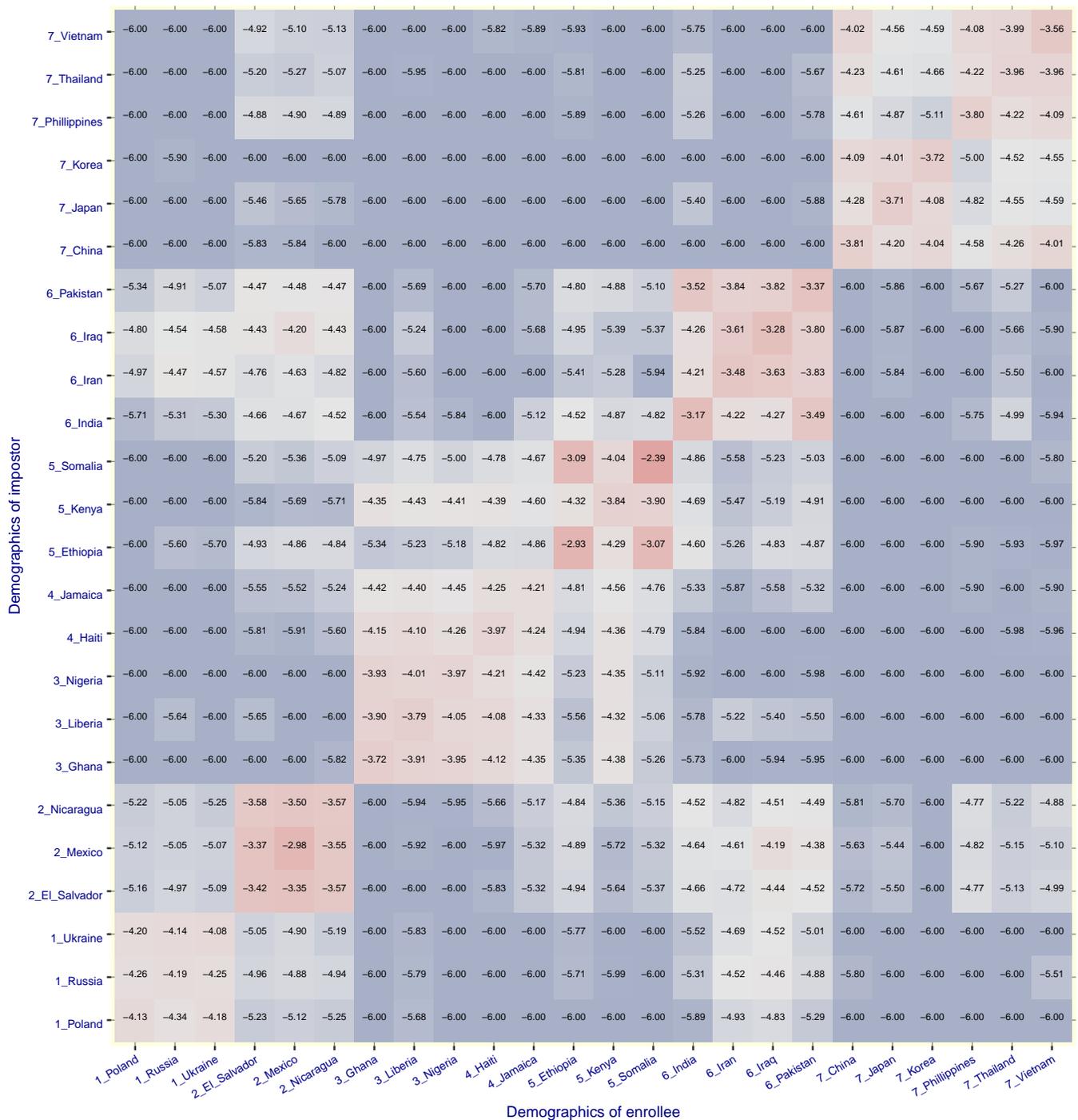
1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR |  $T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/vocord\_007.pdf

Algorithm: vocord\_007 Threshold: 995.473000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR



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Figure 267: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/vocord\_007.pdf

Algorithm: vocord\_007 Threshold: 995.473000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

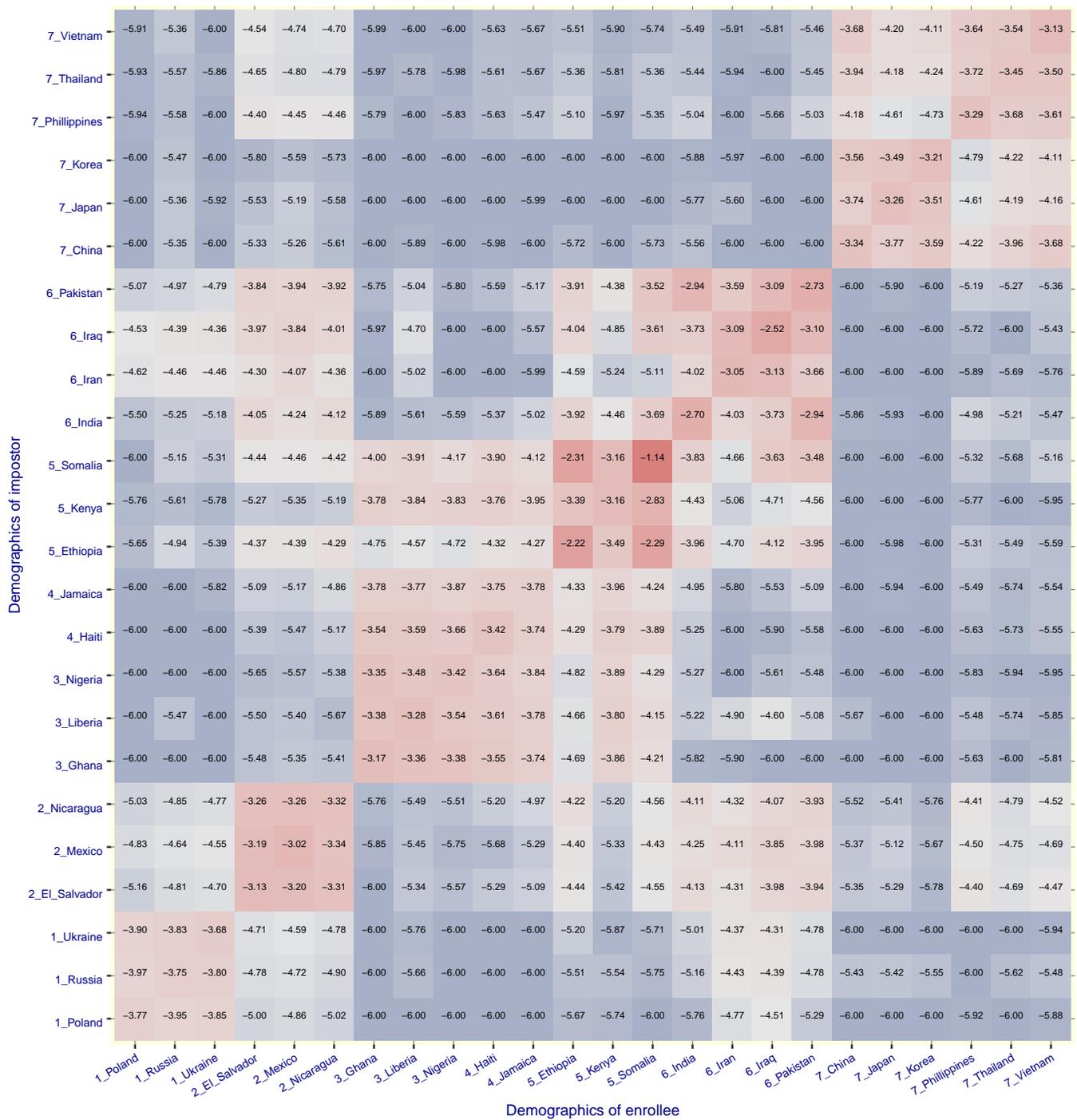


Figure 268: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

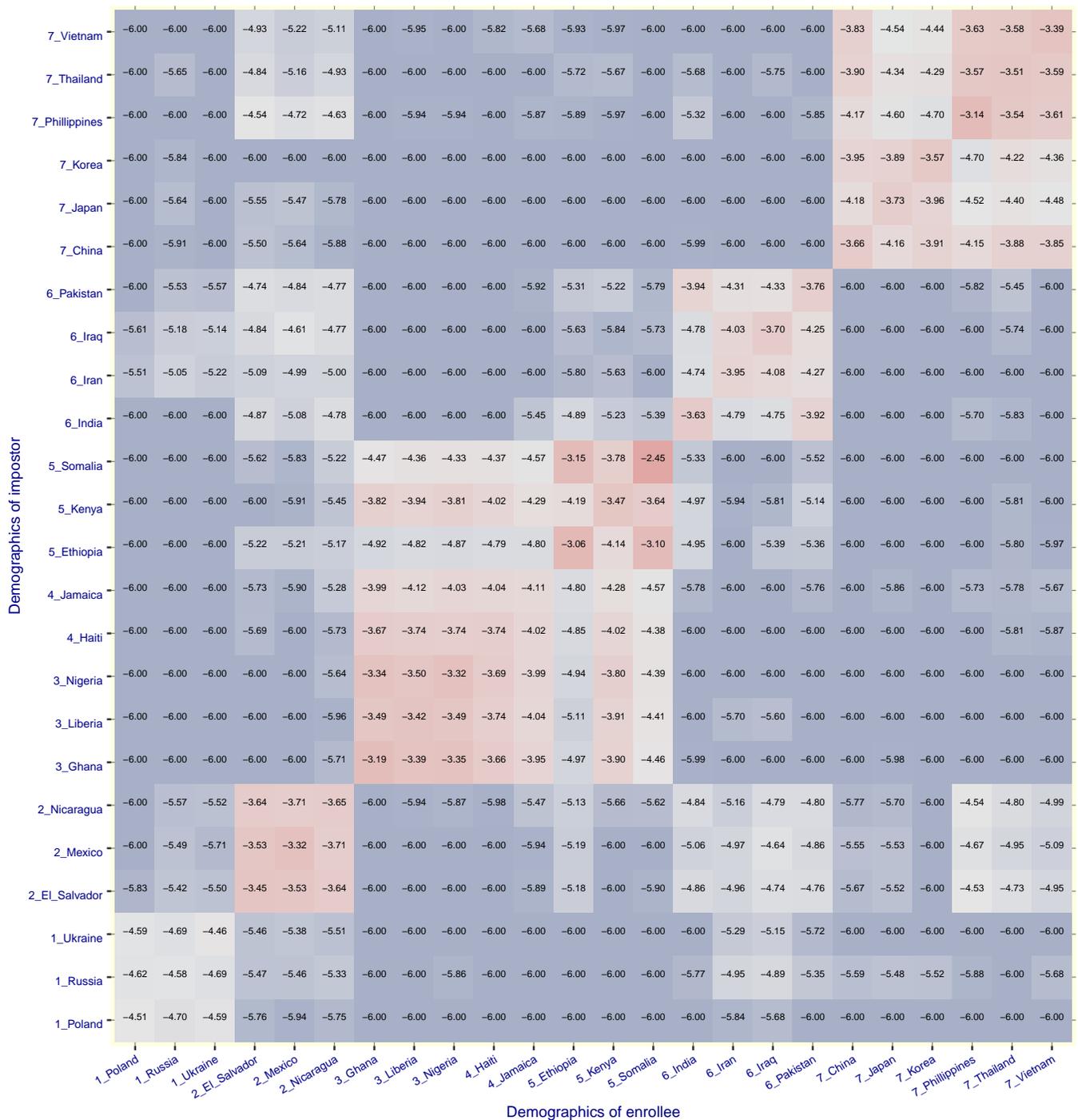
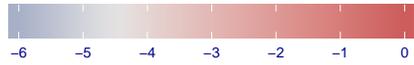
1:1 FMR | 1:N FPIR |  $T \gg 0$   
 1:1 FNMR | 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/winsense\_000.pdf

Algorithm: winsense\_000 Threshold: 0.427596 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR



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Figure 269: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmri\_country\_x\_country\_only\_female\_35\_50/winsense\_000.pdf

Algorithm: winsense\_000 Threshold: 0.427596 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log10 FMR

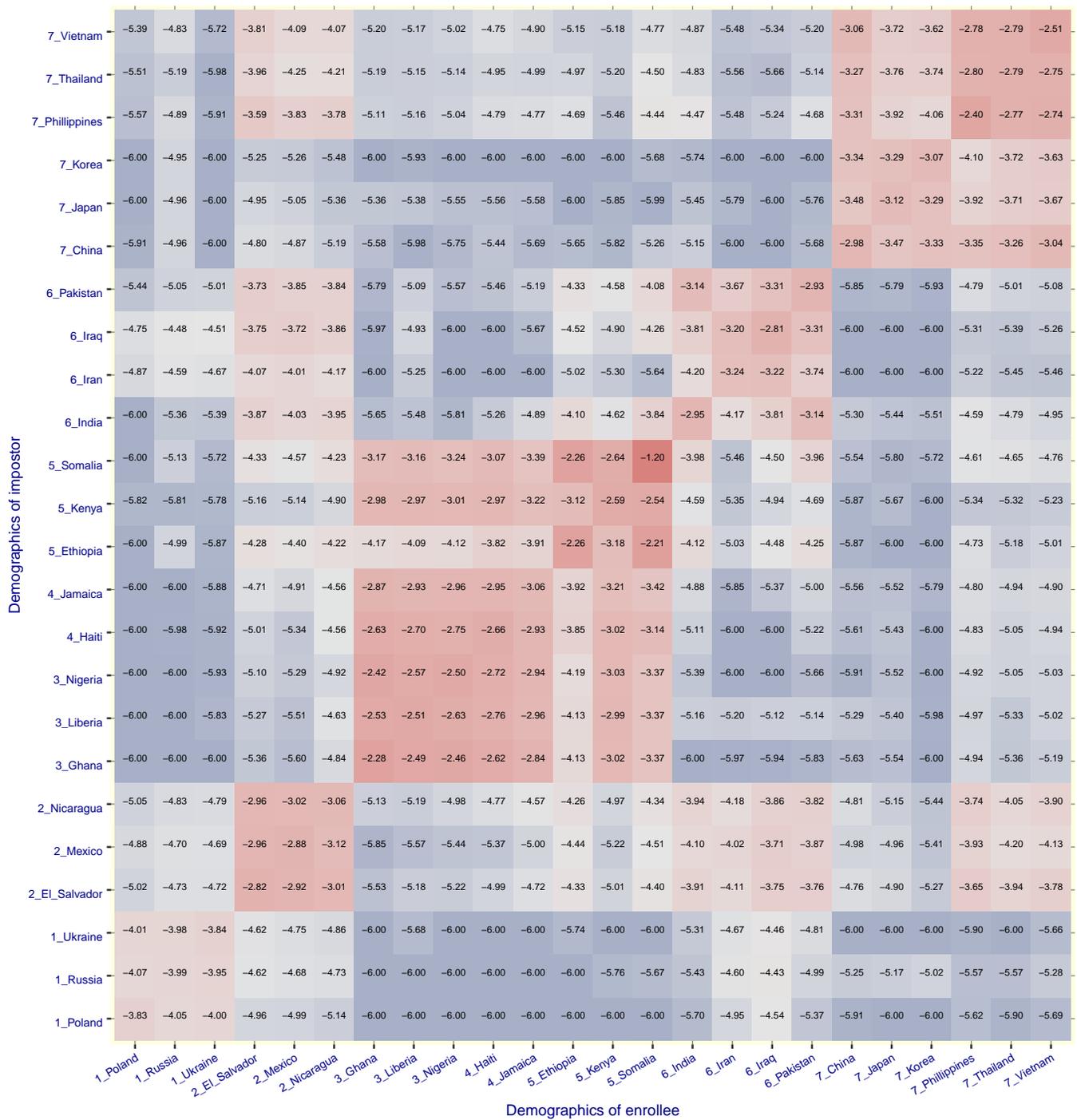


Figure 270: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

1:N FPIR  
 1:N FNIR

$T \gg 0 \rightarrow \text{FMR, FPIR} \rightarrow 0$   
 $\rightarrow \text{FNMR, FNIR} \rightarrow 1$

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/x-laboratory\_000.pdf

Algorithm: x-laboratory\_000 Threshold: 0.443660 Dataset: Application  
Nominal FMR: 0.000030 Sex: M log10 FMR

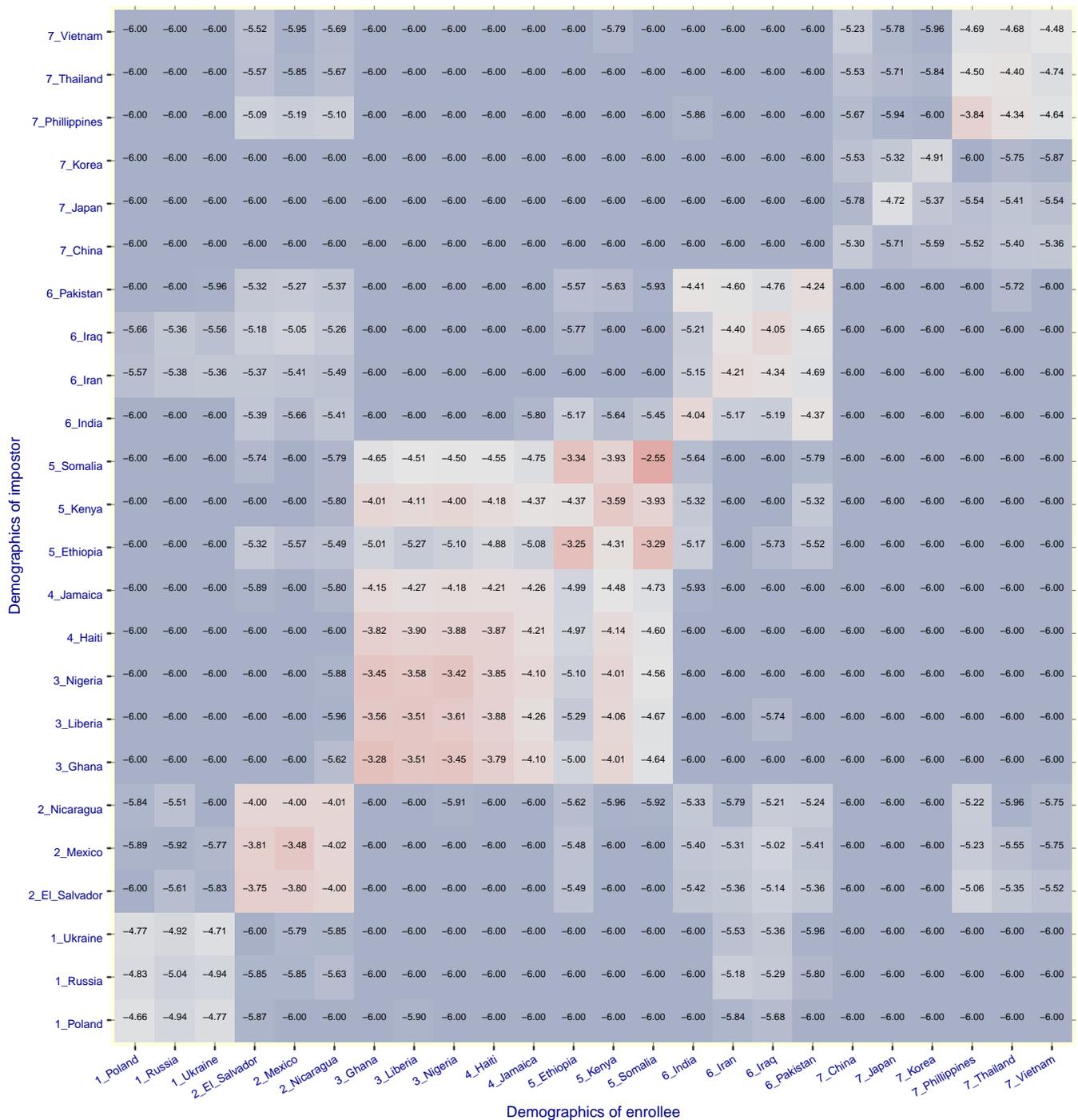


Figure 271: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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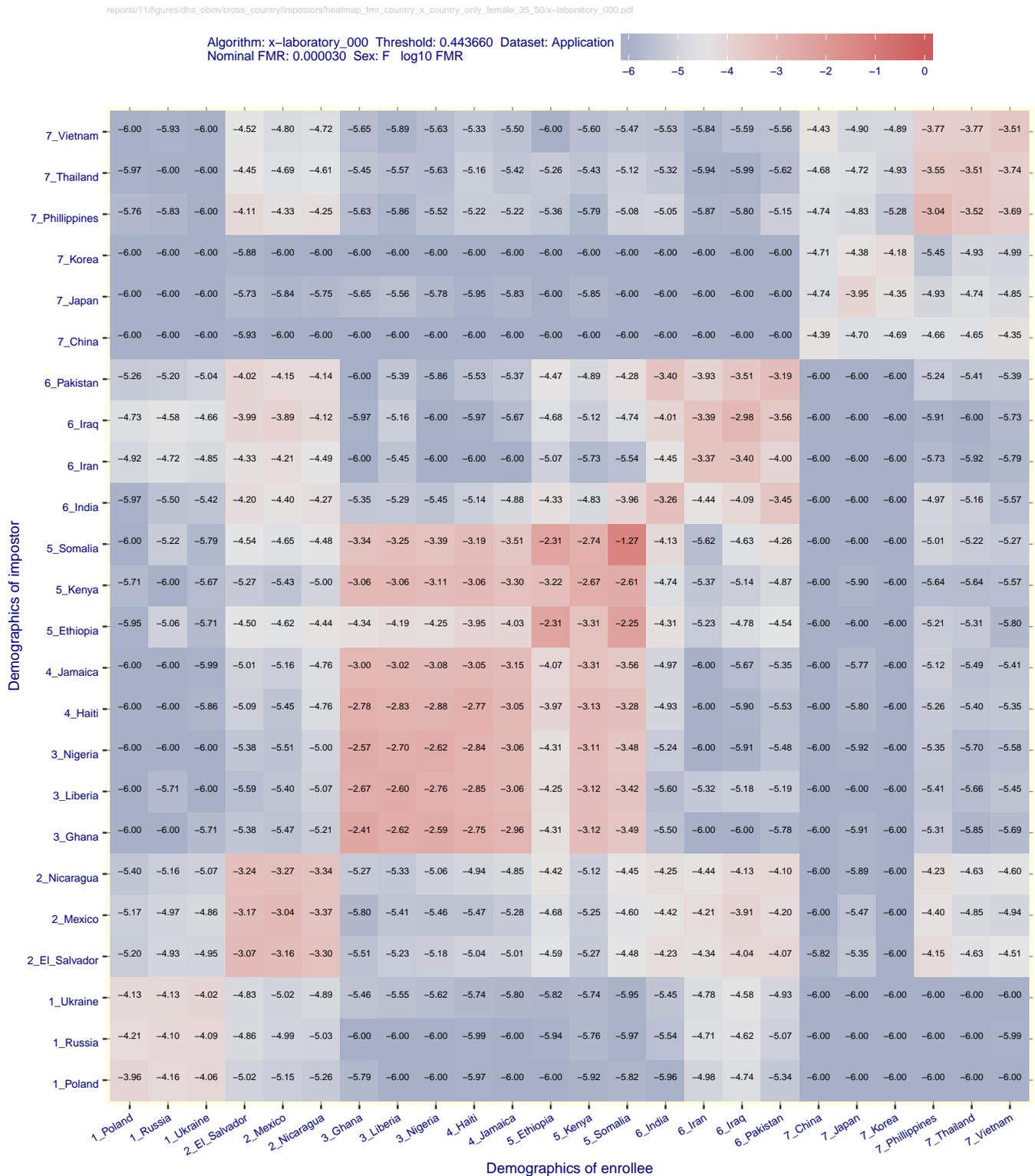
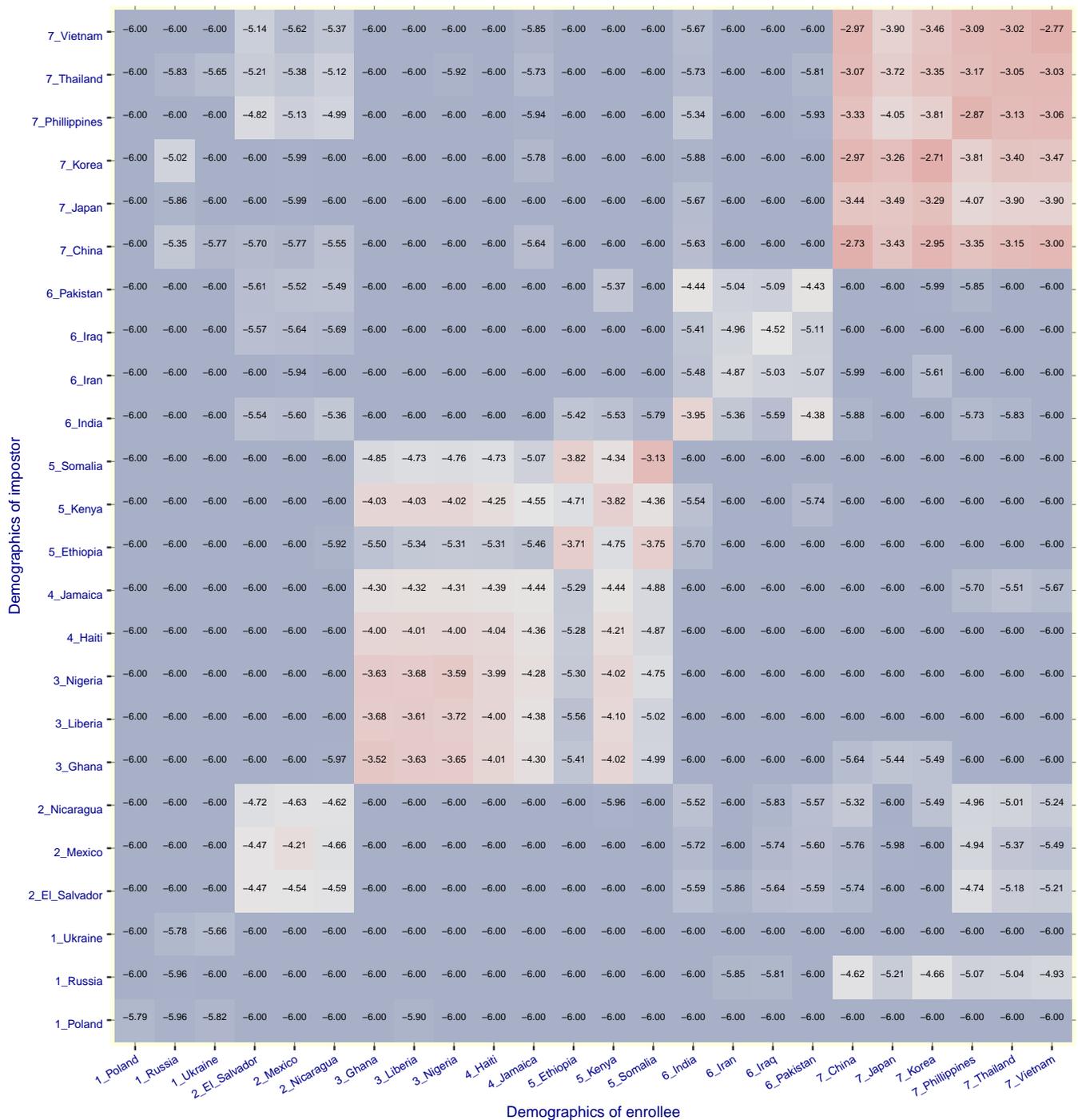
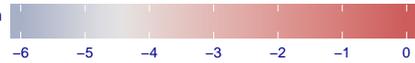


Figure 272: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/yisheng\_004.pdf

Algorithm: yisheng\_004 Threshold: 5.398399 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log10 FMR



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Figure 273: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_female\_35\_50/yisheng\_004.pdf

Algorithm: yisheng\_004 Threshold: 5.398399 Dataset: Application  
 Nominal FMR: 0.000030 Sex: F log<sub>10</sub> FMR

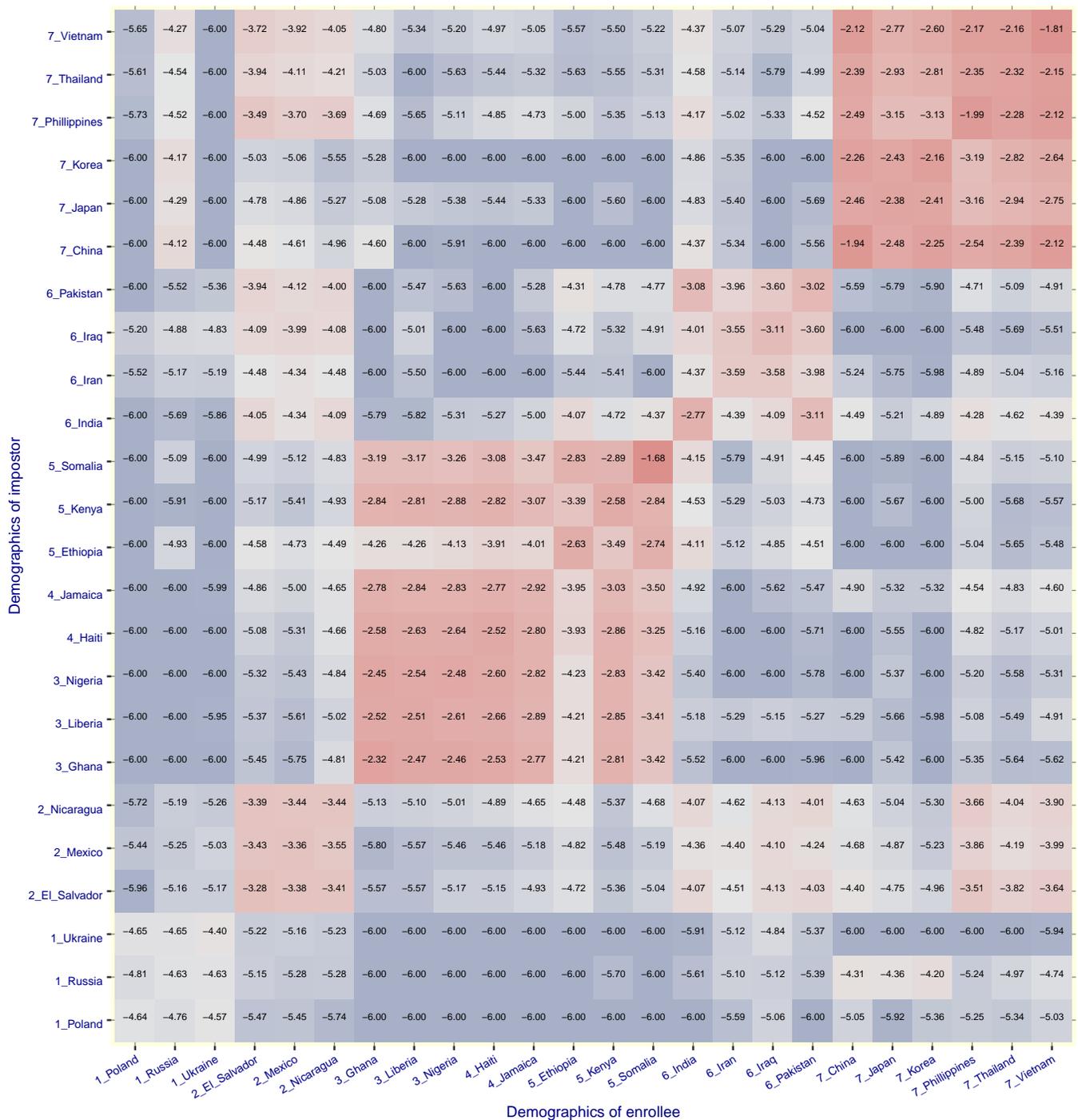


Figure 274: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

Links: [EXEC. SUMMARY](#) | [TECH. SUMMARY](#)

False positive: Incorrect association of two subjects  
 False negative: Failed association of one subject

1:1 FMR  
 1:1 FNMR

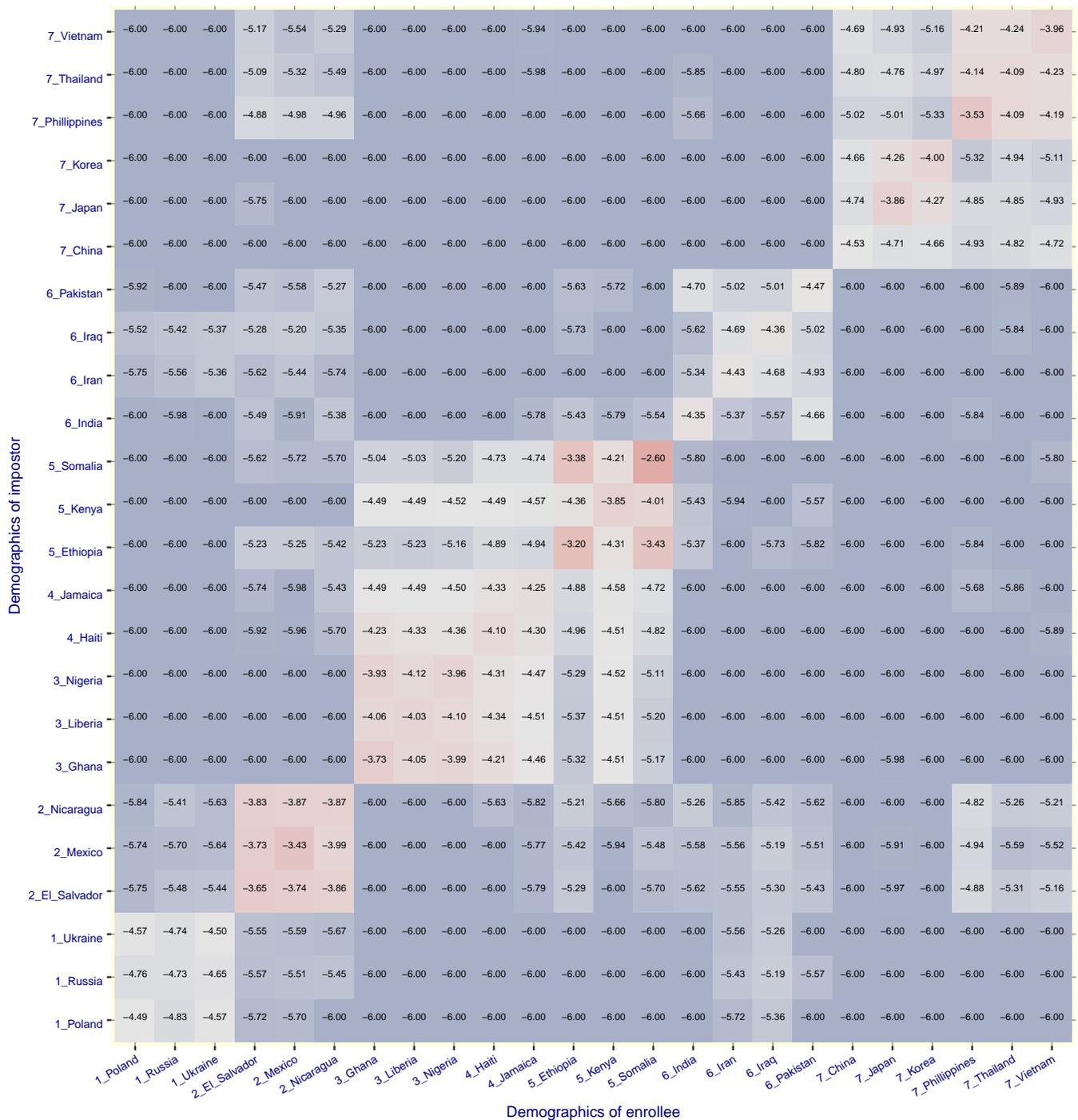
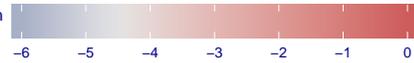
1:N FPIR  
 1:N FNIR

T ≥ 0 → FMR, FPIR → 0  
 → FNMR, FNIR → 1

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reports/11/figures/dhs\_obim/cross\_country/impostors/heatmap\_fmr\_country\_x\_country\_only\_male\_35\_50/yitu\_003.pdf

Algorithm: yitu\_003 Threshold: 37.785000 Dataset: Application  
 Nominal FMR: 0.000030 Sex: M log<sub>10</sub> FMR



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Figure 275: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged male subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is log<sub>10</sub>(FMR) with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

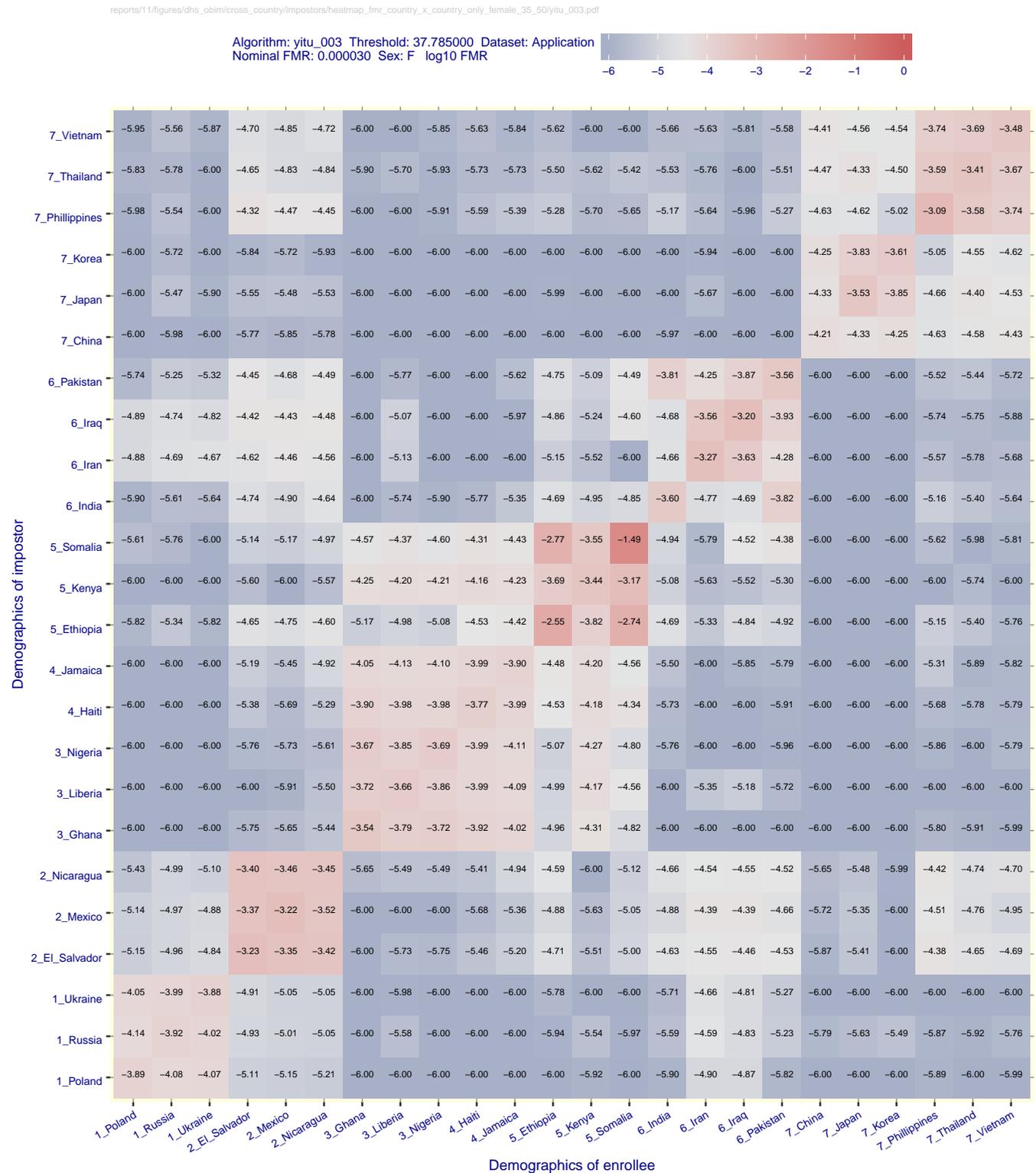


Figure 276: For 24 countries in seven regions the figure shows false positive rates when the given algorithm is used to compare single photos of mid-aged female subjects from the countries identified in the respective columns. The threshold is to a preset fixed value everywhere. Each cell depicts FMR on a logarithmic scale. The text value is  $\log_{10}(\text{FMR})$  with large negative values encoding superior false match rates. Annex 7 contains the corresponding figure for all algorithms.

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