Intergenerational Mobility between and within Canada and the United States

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‘Inclusive growth’ is economic and social development of relatively more advantage to the relatively disadvantaged

Equality of economic opportunities is an aspect of inclusive growth

1. For instrumental reasons
   - equal opportunity means greater efficiency and productivity
2. For intrinsic reasons
   - equal opportunity might be seen as being ‘fair,’ leading to less concern about resulting inequality of outcomes

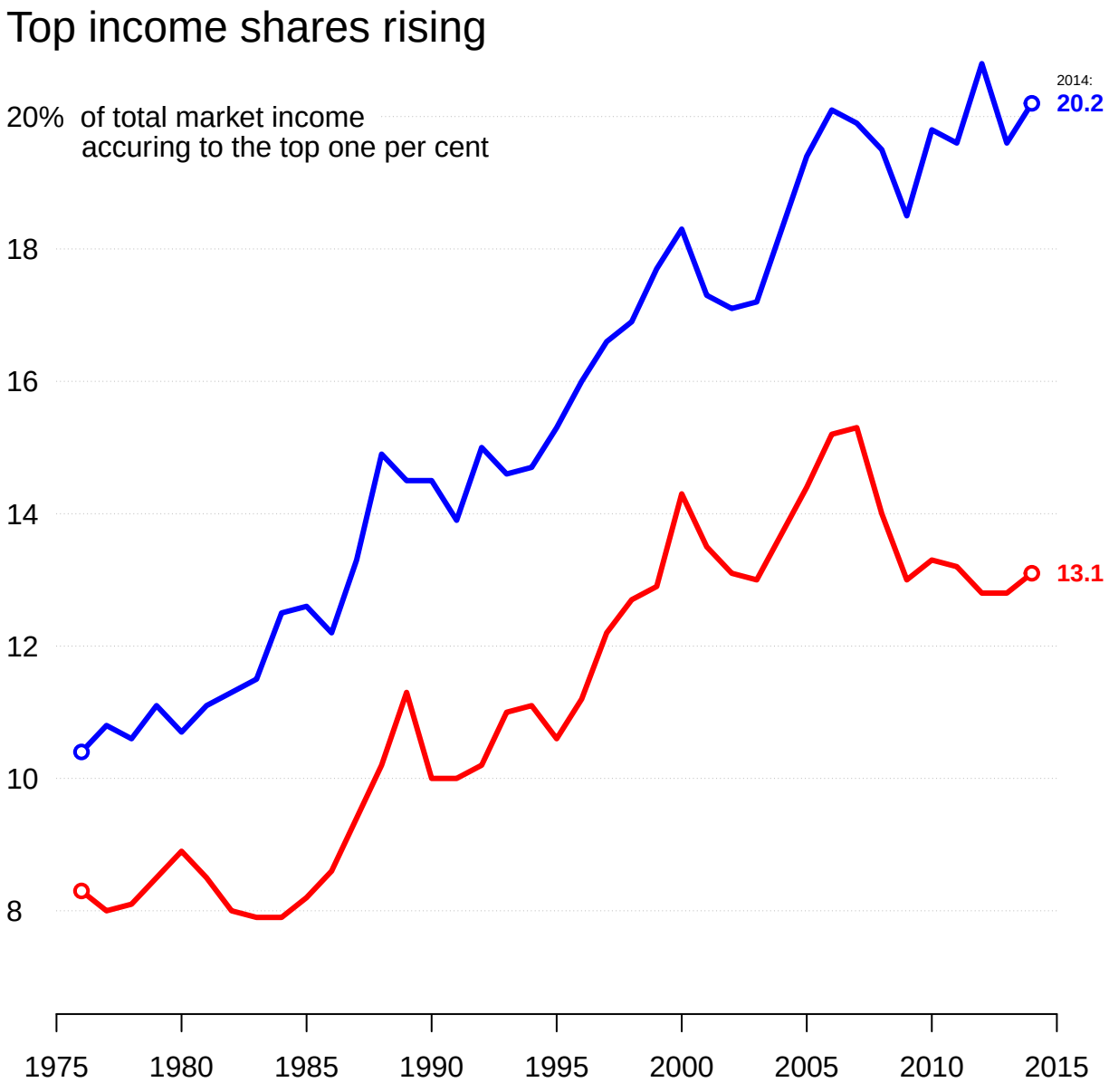
‘Inclusive growth’ is economic and social development of relatively more advantage to the relatively disadvantaged

Equality of economic opportunities is an aspect of inclusive growth

Bottom line for public policy

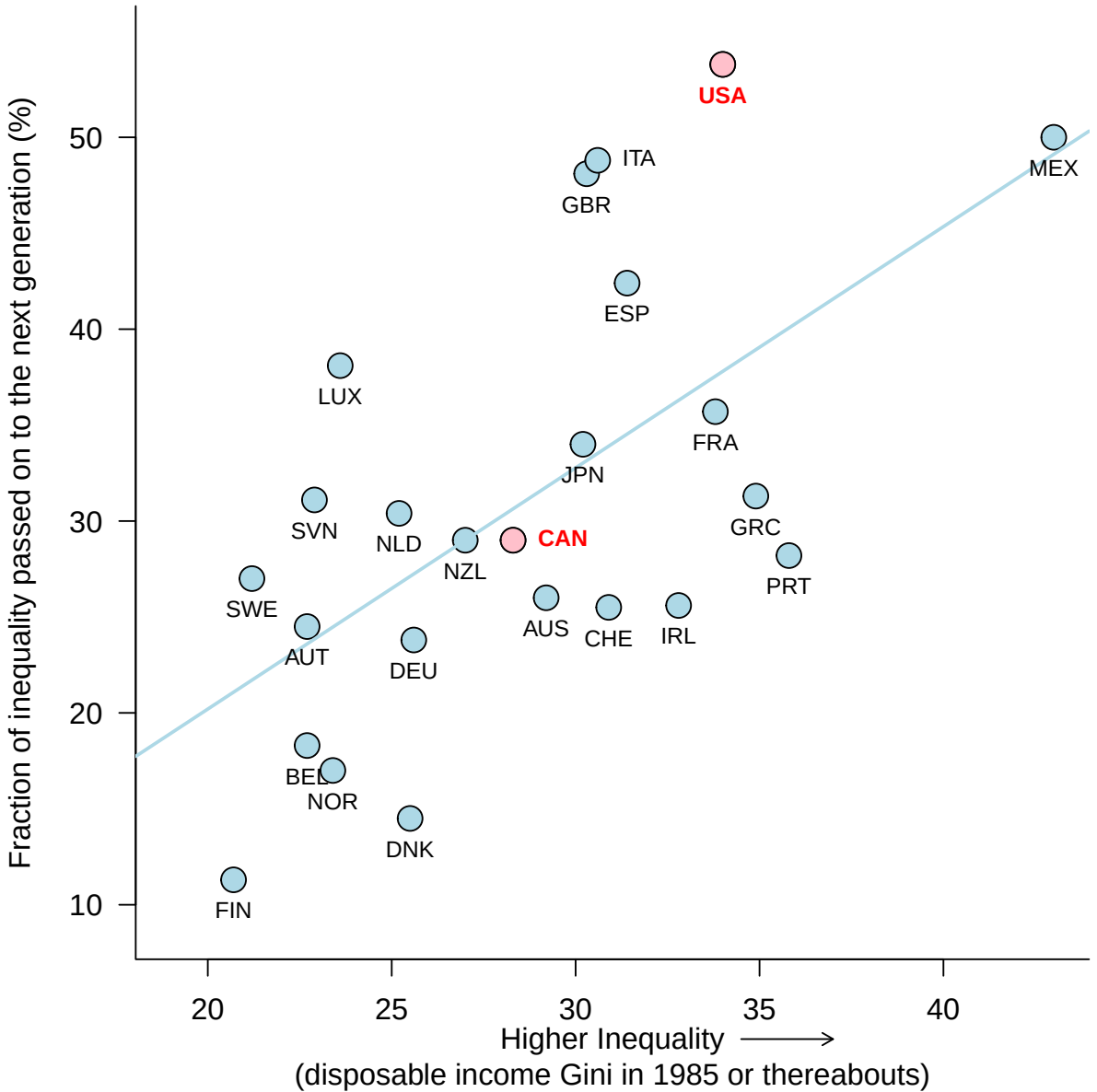
don’t let inequality increase in the bottom half of the income distribution, indeed strive to reduce it in a way that encourages labour market and social engagement

Three motivating pictures



Three motivating pictures

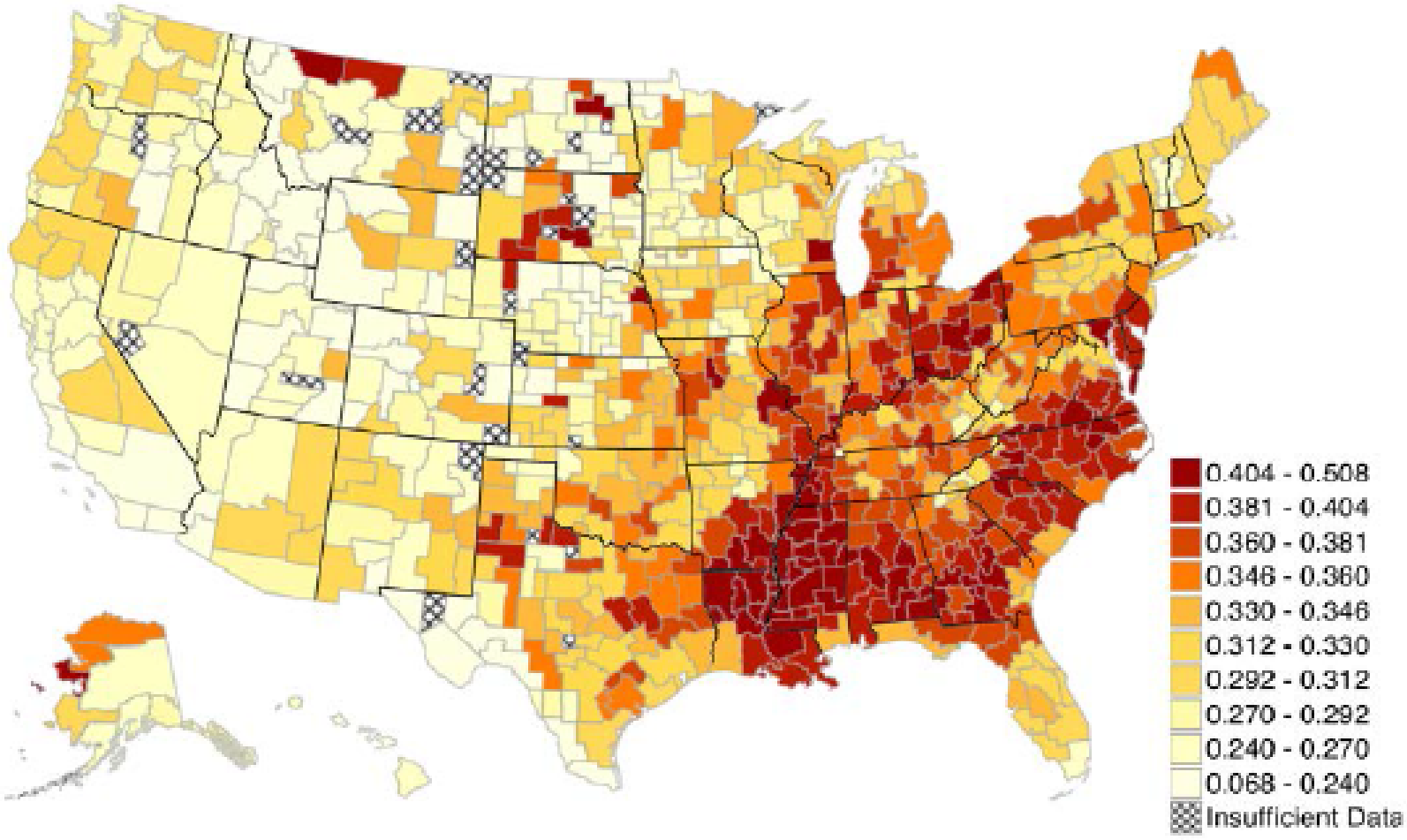
2. Intergenerational mobility varies across countries



Three motivating pictures

3. Intergenerational mobility varies within the US

B. Relative Mobility: Rank-Rank Slopes $(\bar{r}_{100} - \bar{r}_0)/100$ by CZ



Corr. with baseline $\bar{r}_{25}$ = -0.68 (unweighted), -0.61 (pop-weighted)

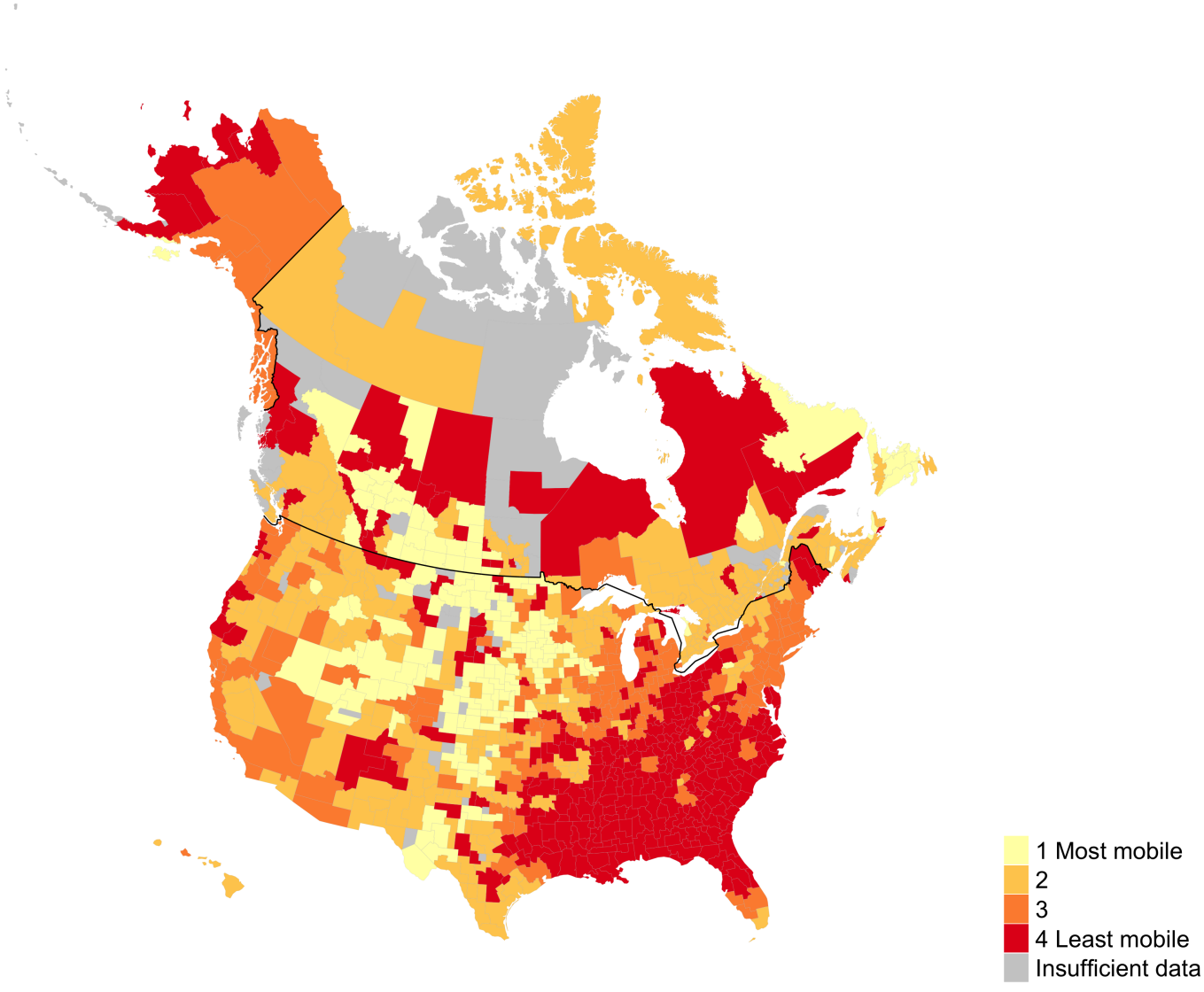
Three concluding pictures

1. Whether or not we should worry about the top 1% having an impact on social mobility will depend

- upon the intergenerational transmission of wealth
- the impact they have on public policy for the broad majority

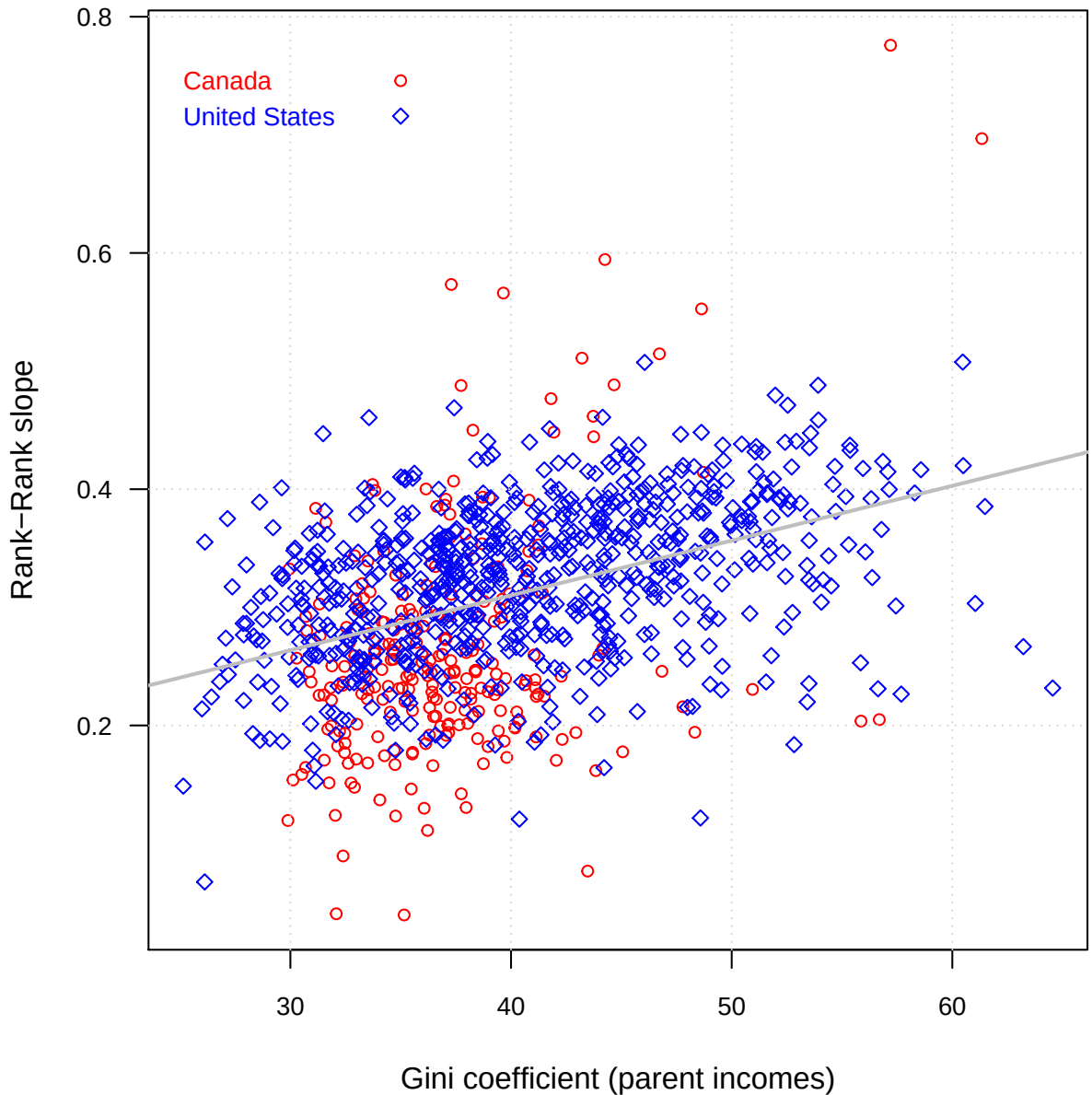
Three concluding pictures

2. Only a partial border is discernable



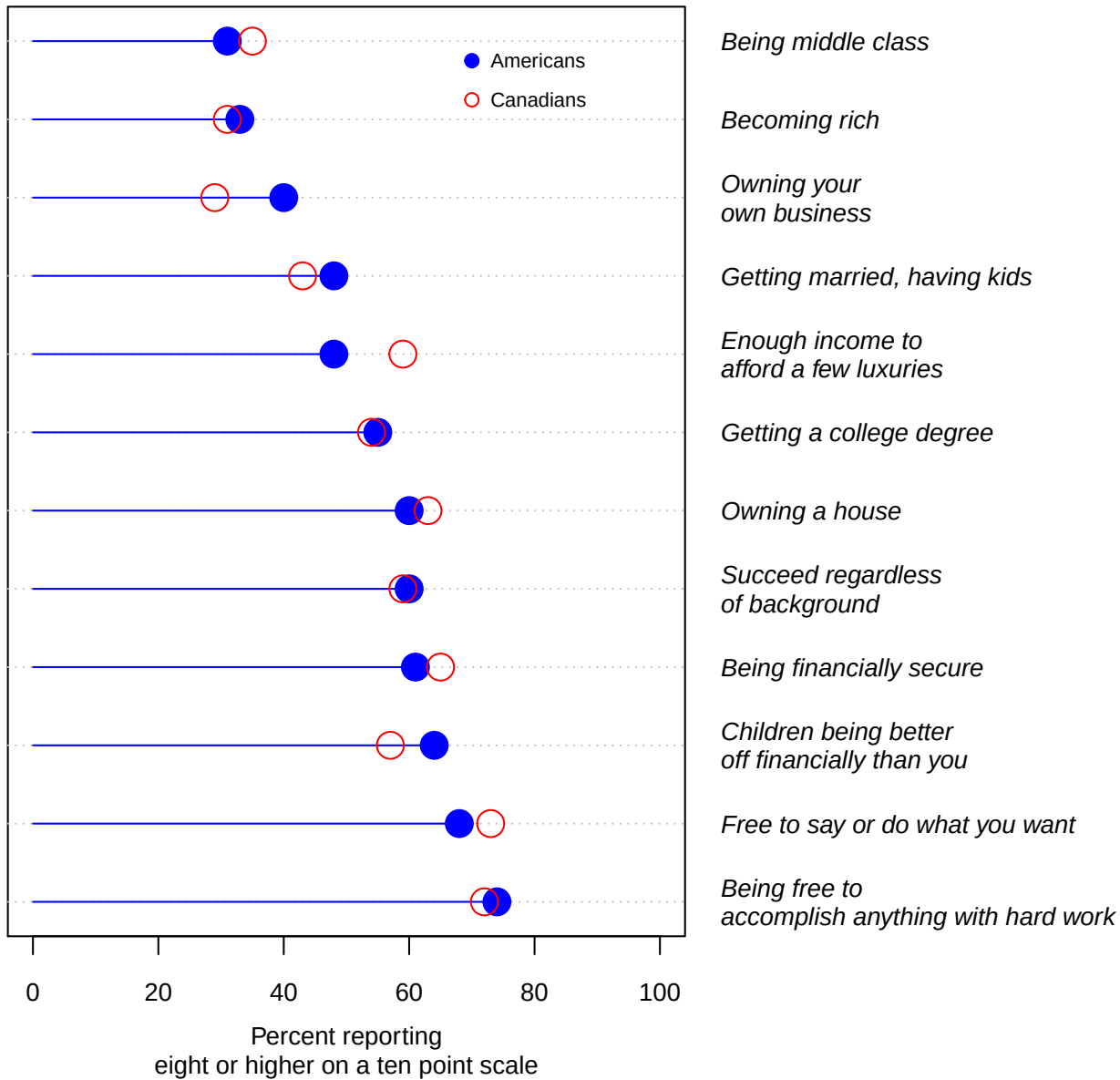
Three concluding pictures

3. The Great Gatsby Curve for Canada and the US



A Canada - US comparison may be as salient as any others

The 'American Dream' means the same thing to Canadians



But citizens have different views on the role of the state

A notable difference between the two countries concerns the role of government as a means to influence economic mobility. When asked if the government does more to help or more to hurt people trying to move up the economic ladder, respondents in both countries lacked strong proclivities. However, 46 percent of Canadians feel that government does more to help than to hurt, compared to 36 percent of Americans. On the other hand, 46 percent of Americans feel government does more to hurt versus 39 percent of Canadians. The difference in the responses to this question was among the largest of all questions asked

Corak 2010, "Chasing the Same Dream, Climbing Different Ladders: Economic Mobility in the United States and Canada," Washington DC: Pew Charitable Trusts, page 17.

Three measures of intergenerational mobility we care about

1. incomes

- average incomes of children from different communities vary for at least three statistical reasons related to differences in absolute mobility, relative mobility, and average incomes of their parents

$$lnY_{i,t} = \alpha_j + \beta_j lnY_{i,t-1} + \varepsilon_{i,j}$$
$$\bar{Y}_t = e^{\alpha_j} \bar{Y}_{t-1}^{\beta_j}$$

- measurement and estimation must address some concerns to avoid bias
- we avoid focusing on income mobility because child outcomes are measured in the early 30s

Canadian tax data for those born in 1980 and 1982

Chetty et al. (2014) use US 1980, 1981, and 1982 birth cohorts

Canadian Sample Selection rule	Unweighted sample size
Full sample	2,517,101
Birth year 1980 and 1982	619,872
Birth year matches longitudinal birth year	619,696
Matched at age 19 or less (2001 cohort only)	564,551
Postal code present	562,761
Parental income over US$500	559,368

Three measures of intergenerational mobility we care about

1. incomes
2. position

- the average rank in the national income distribution of children from different communities also depends upon absolute rank mobility and on relative rank mobility

$$y_{i,t} = a_j + b_j y_{i,t-1} + \epsilon_{i,j}$$

- measurement issues raise even more concerns to avoid bias
- child outcomes are averged over only two years, 2011 and 2012

Table 2: *Selected percentiles of the parent and child income distributions in Canada and the United States: US (2012) dollars*

	Parents		Children	
Percentile	Canada	United States	Canada	United States
1	1,593	1,700	-10,456	-43,800
5	8,379	9,200	0	0
10	12,944	15,000	179	2,300
20	22,194	24,900	13,575	11,000
50	52,122	59,500	44,663	34,600
80	87,972	107,900	81,703	74,400
90	111,475	144,500	102,852	99,900
95	137,335	194,300	122,165	125,300
99	242,279	420,100	169,247	193,300
100	586,026	1,408,800	277,608	408,400

Source: Authors' calculations, Chetty et al (2014) online tables.

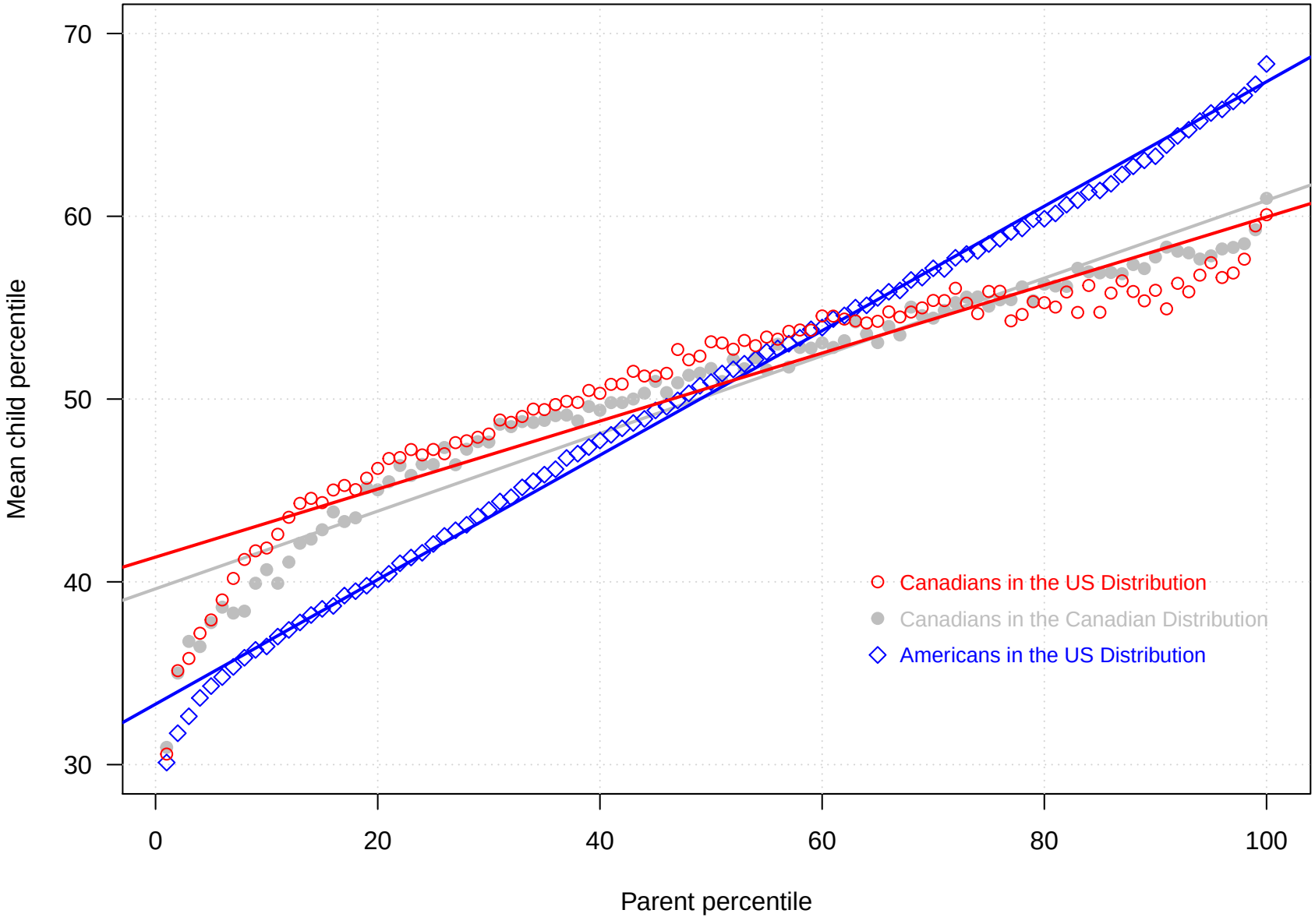


Figure 3: Intergenerational rank mobility in Canada and the United States

Three measures of intergenerational mobility we care about

1. incomes
2. position
3. upward mobility, avoiding poverty

- moving up the income distribution may reflect a non linear process, and an interaction with the chances of being stuck in the bottom, and of falling out of the top
- transition probabilities, and particularly three specific quintile transition probabilities

$$P_{1,5} = \Pr\{Y_t \in top | Y_{t-1} \in bottom\}$$
$$P_{1,1} = \Pr\{Y_t \in bottom | Y_{t-1} \in bottom\}$$
$$P_{5,5} = \Pr\{Y_t \in top | Y_{t-1} \in top\}$$

- measurement and estimation must address non-classical errors

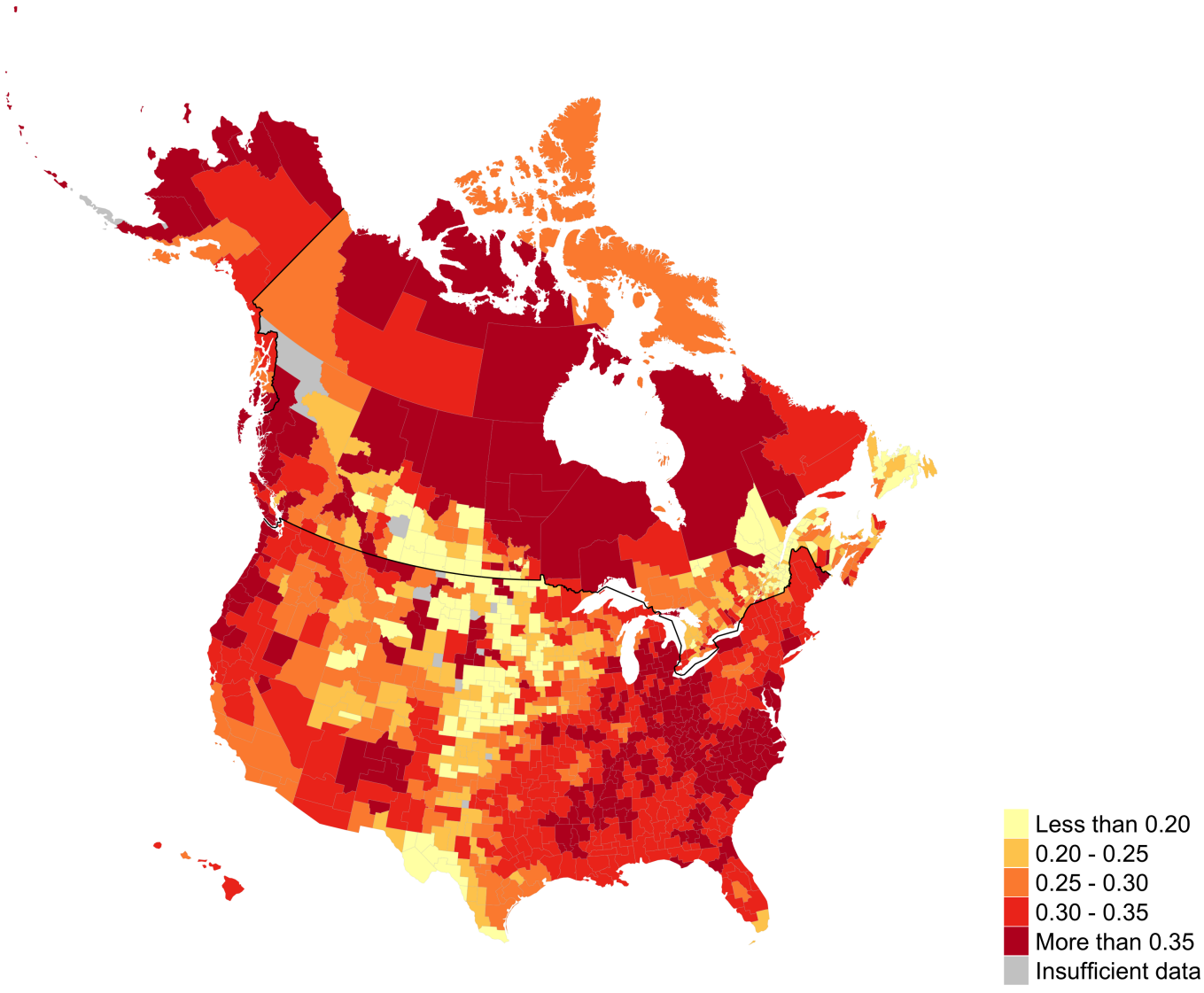


Figure 4: The intergenerational cycle of low income: Bottom to bottom quintile transition probabilities

Clustering communities together by unsupervised machine learning

Five parameters related to three alternative measures

- $\bar{Y}_{t-1}$
- a, b
- $P_{1,1}$, $P_{1,5}$

K-means involves using pre-defined number of clusters

- Two clusters leads us to ask: is there a border?
- Settle on four clusters to represent the Canada-US landscape

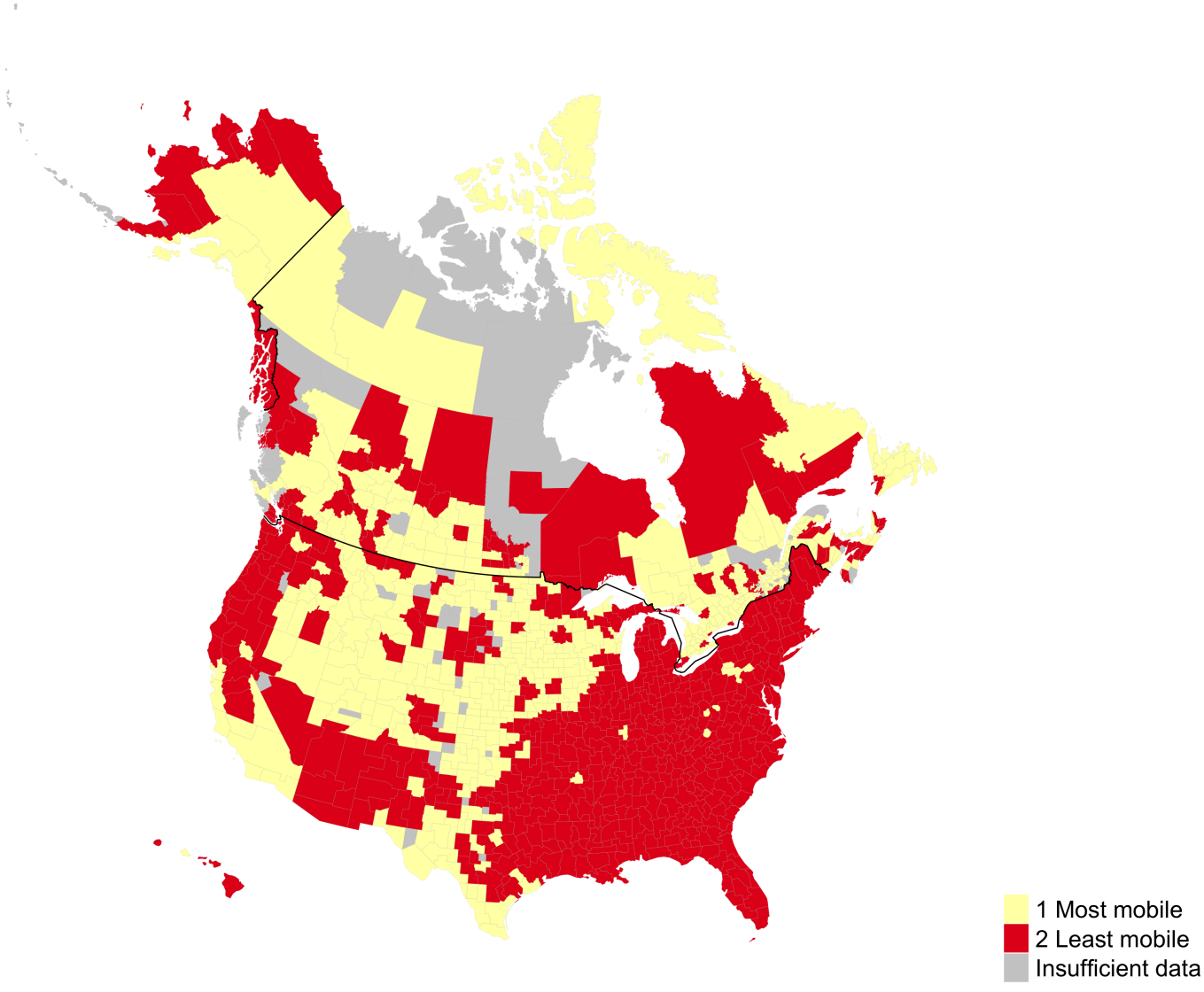


Figure 5: The Canada-United States border would not be chosen by a machine learning algorithm minimizing within-cluster variance of five indicators of intergenerational mobility

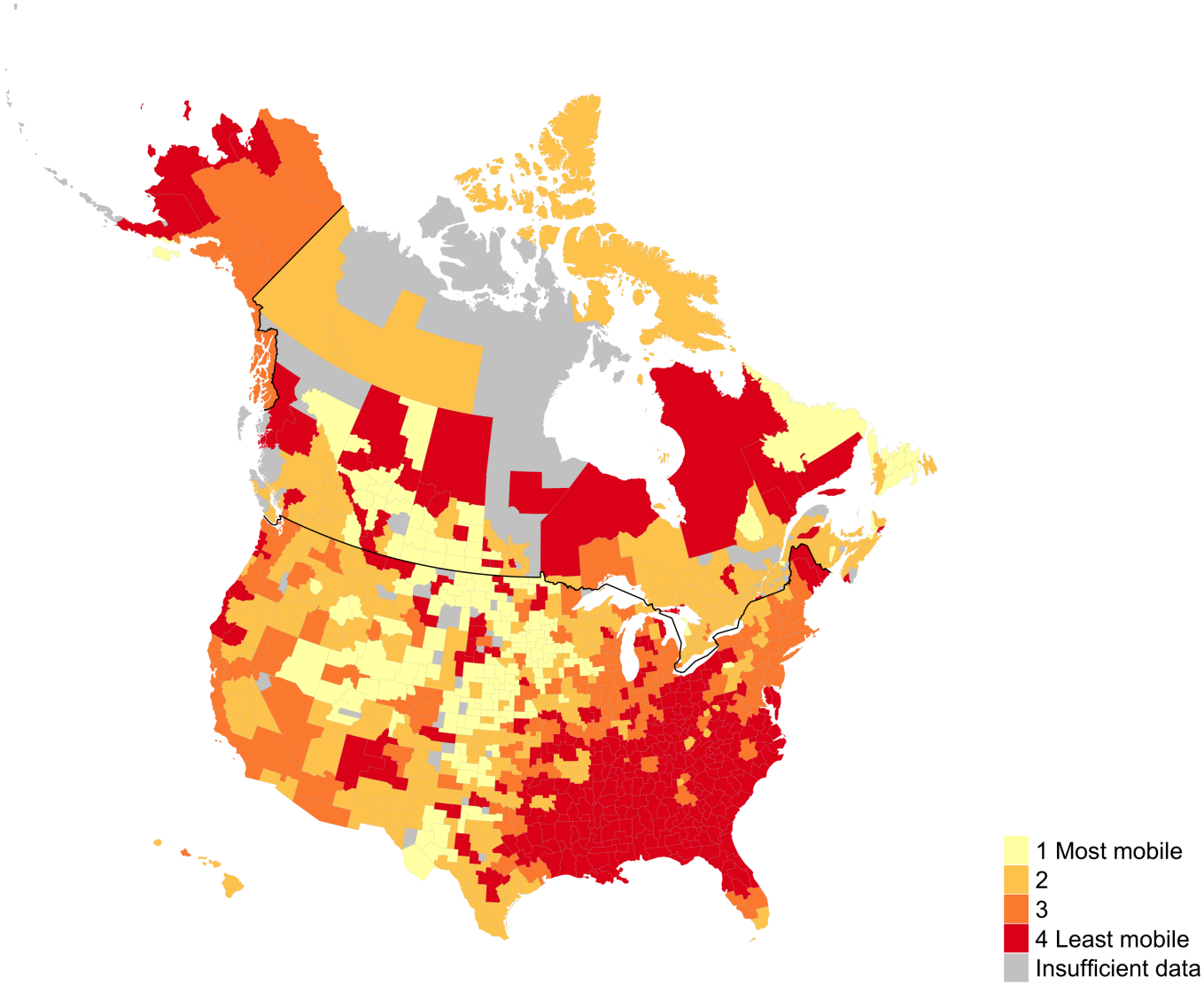


Figure 6: A four cluster mapping shows that some regions lie largely on either side of the Canada-United States border but that others are not confined to one country

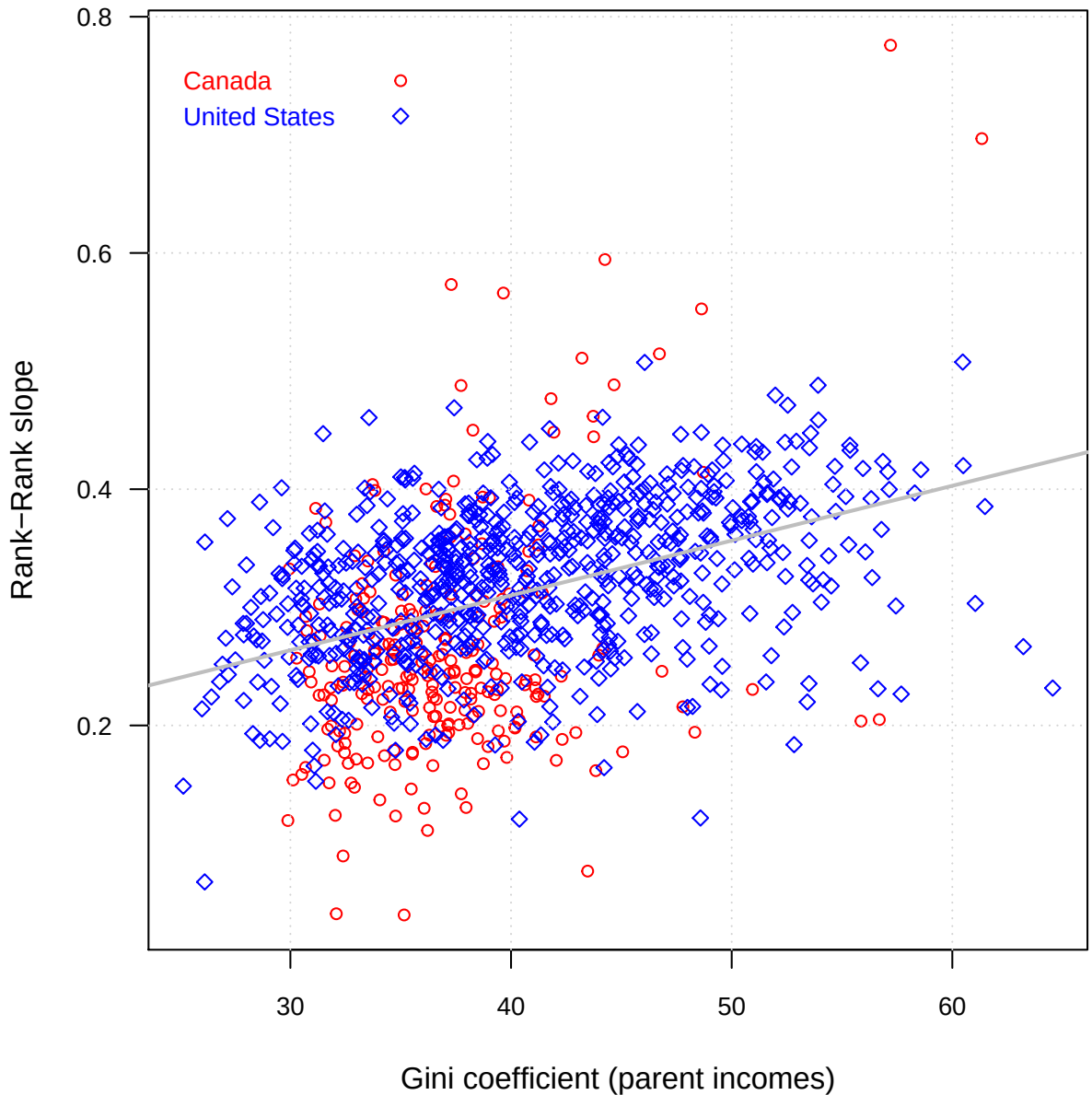
Table 3: *Summary statistics of intergenerational mobility measures, for clusters of Canadian Census Divsions and American Community Zones as determined by K-means*

Cluster identifier	Number of regions	Total population (thousands)	Rank mobility absolute a	Rank mobility relative b	Transition probability P_{15}	Transition probability P_{11}	Average Parent Income
1. Two clusters							
1	415	66,371	41.8	0.233	12.8	26.1	74,027
2	549	245,170	32.4	0.347	7.6	34.1	89,412
2. Four clusters							
1	222	16,198	48.2	0.210	18.0	21.2	67,810
2	324	49,433	38.4	0.278	10.3	28.8	65,467
3	152	186,872	33.7	0.327	8.5	33.2	100,336
4	266	59,039	29.3	0.378	5.8	35.9	65,546

Note: Popluation refers to population totals from the 2001 and 2000 Censuses, and other table entries are weighted means.

Correlates of mobility

The Great Gatsby Curve for Canada and the US



Correlates of economic opportunity

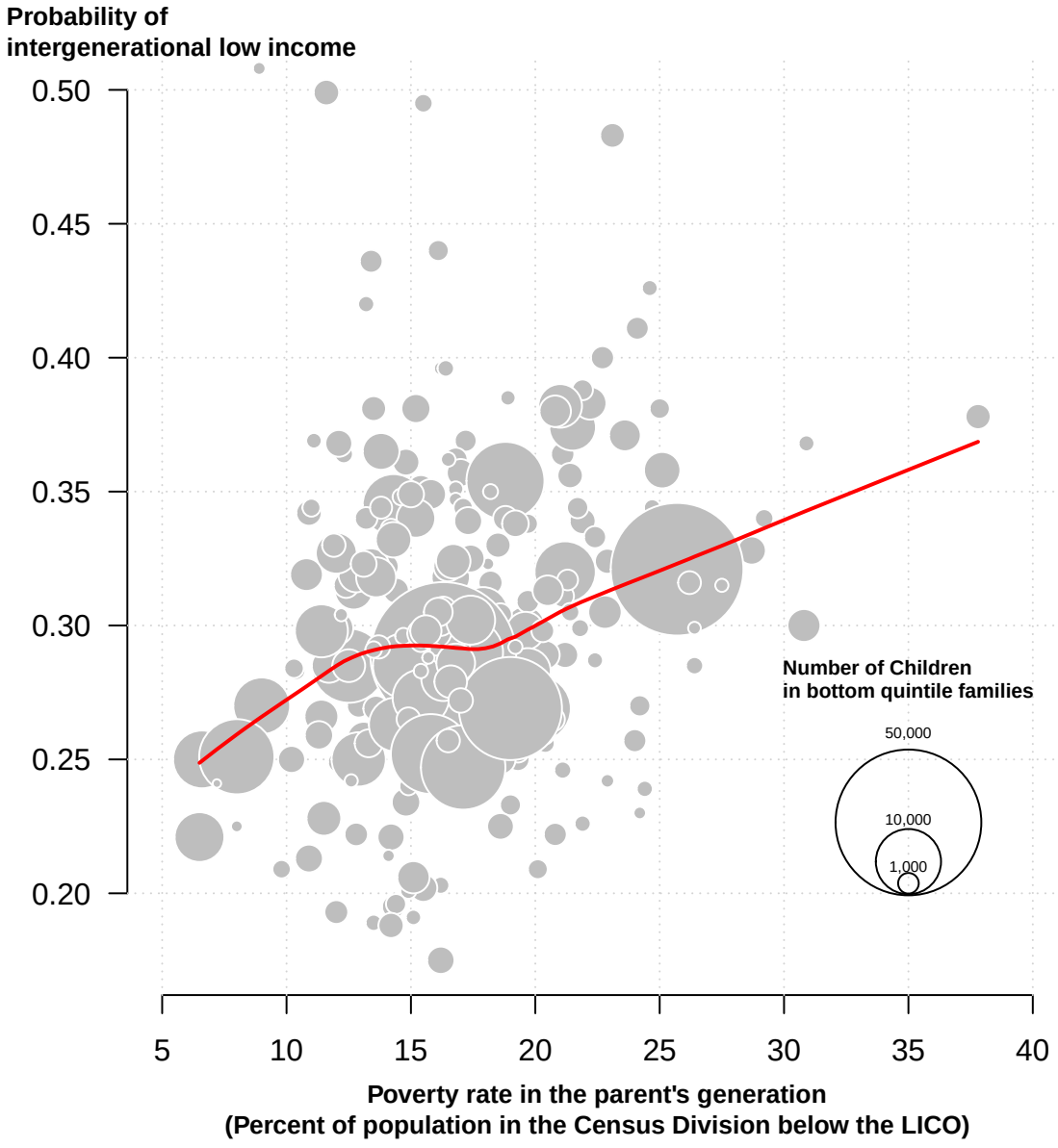


Table 4: *Correlation coefficients between mobility indicators and community characteristics*

Community characterisitc	Canada		United States		Both countries	
	estimate	s.e.	estimate	s.e.	estimate	s.e.
1. Relative rank mobility						
Gini coefficient	0.425	0.054	0.345	0.035	0.381	0.029
Fraction single mothers	0.142	0.059	0.641	0.029	0.498	0.028
Fraction divorced	-0.200	0.058	0.158	0.037	0.175	0.031
Fraction married	-0.190	0.058	-0.370	0.035	-0.122	0.032
Fraction black	-0.140	0.059	0.631	0.029	0.473	0.028
Fraction visible minority	-0.102	0.059	-0.260	0.036	-0.078	0.032
Fraction indigenous	0.520	0.051	0.022	0.038	0.215	0.031
Fraction white	-0.475	0.052	-0.225	0.037	-0.357	0.030
Fraction foreign born	-0.202	0.058	-0.247	0.036	-0.260	0.031
Fraction high school dropout	0.417	0.054	0.378	0.035	0.009	0.032
Fraction university degree	-0.263	0.057	-0.263	0.036	-0.012	0.032
Teenage labour force participaton	-0.061	0.059	-0.516	0.032	-0.296	0.030
Unionization rate	0.091	0.061	-0.138	0.037	-0.293	0.031
Manufacturing employment share	-0.194	0.058	0.393	0.035	0.165	0.031
Resource employment share	0.207	0.058	-0.354	0.035	-0.157	0.031

Major messages

Between country comparisons can complement within country comparisons

1. National differences between Canada and the United States reflect
   - a much larger share of the popuation in the least mobile American communities
   - differences in the nature of labour markets and inequality in two nationally distinct regions
2. Promoting more upward mobility in the United States would
   - be about more than just efficient cream-skimming of the most innately talented children of the least advantaged
   - involve raising the chances of escaping low income across the entire population of the relatively disadvantaged, and encouraging more inclusive labour markets elsewhere

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The full paper and associated appendices will soon be available at

MilesCorak.com/equality-of-opportunity

Rank mobility at two points in the life cycle

Province / Territory	At 35 to 48 years of age			At 31 and 32 years of age		
	Absolute (a_j)	Relative (b_j)	Expected Rank	Absolute (a_j)	Relative (b_j)	Expected Rank
Newfoundland and Labrador	35.3	0.273	40.8	33.2	0.277	38.7
Prince Edward Island	35.1	0.245	40.0	35.3	0.239	40.1
Nova Scotia	32.6	0.251	37.6	32.0	0.249	37.0
New Brunswick	31.6	0.280	37.2	31.1	0.286	36.8
Quebec	36.7	0.249	41.7	36.9	0.240	41.7
Ontario	41.0	0.225	45.5	43.4	0.215	47.7
Manitoba	31.2	0.325	37.7	29.9	0.320	36.3
Saskatchewan	41.5	0.226	46.0	37.7	0.236	42.4
Alberta	44.4	0.206	48.5	41.1	0.203	45.2
British Columbia	39.6	0.184	43.3	39.9	0.185	43.6
Yukon	36.3	0.248	41.3	38.5	0.176	42.0
Northwest Territories, Nunavut	34.1	0.281	39.7	31.4	0.283	37.1
Canada	38.3	0.242	43.1	38.4	0.240	43.2

Source: Least squares estimates using Statistics Canada, Intergenerational Income Data as described in text.

Table 5: Absolute and relative intergenerational rank mobility