

6-2016

Introduction of Net-migration Rate in Three Different County Typologies in South Dakota

Wei Gu

South Dakota State University, wei.gu@sdstate.edu

Follow this and additional works at: https://openprairie.sdstate.edu/census_data_newsreleases

 Part of the [Community-Based Research Commons](#), [Demography, Population, and Ecology Commons](#), and the [Social Statistics Commons](#)

Recommended Citation

Gu, Wei, "Introduction of Net-migration Rate in Three Different County Typologies in South Dakota" (2016). *Census Data Center News Releases*. 9.

https://openprairie.sdstate.edu/census_data_newsreleases/9

This Report is brought to you for free and open access by Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Census Data Center News Releases by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact michael.biondo@sdstate.edu.

Introduction of Net-migration Rate in Three Different County Typologies in South Dakota

-- Wei Gu¹

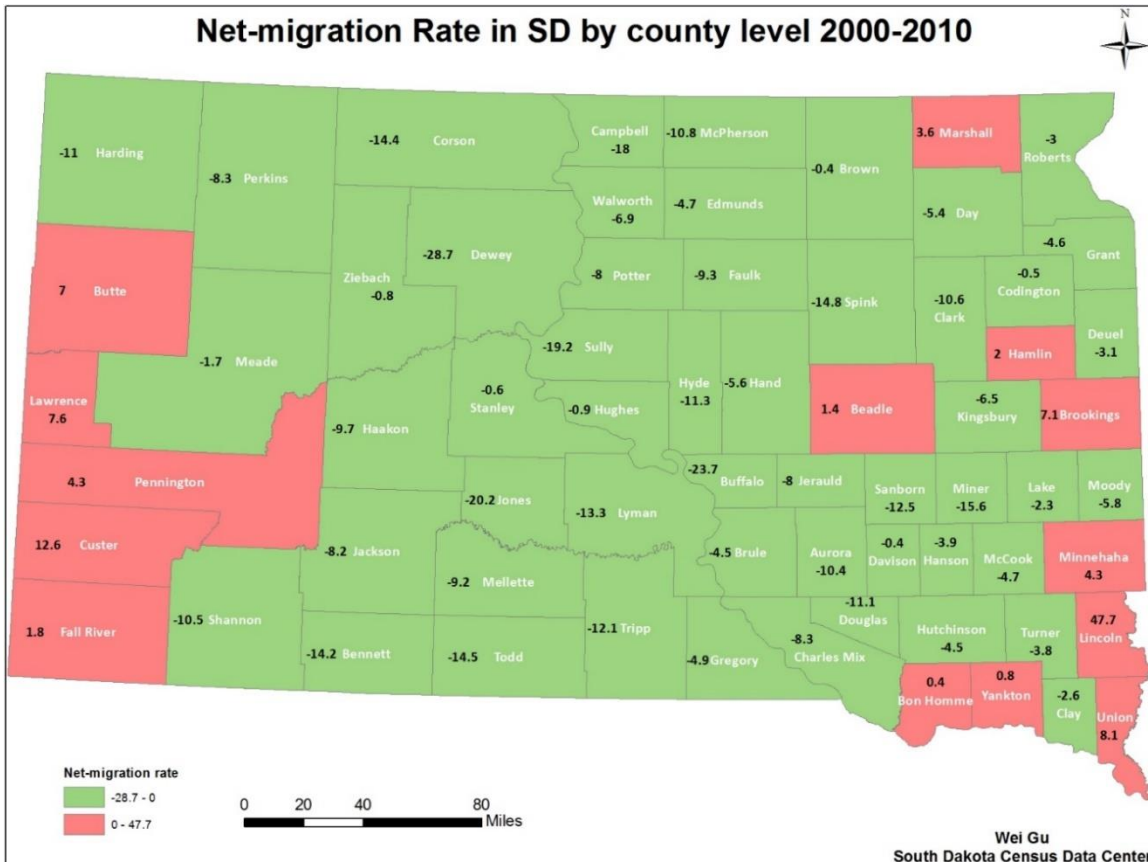
Introduction

According to Philippine Statistics Authority, the net-migration defined as “the ratio of the difference between the in-migrants and out-migrants in a population to the mid-year population during the same period”. It also can be represented as below formula:

$$NMR = [(IM - OM) / POP_m] \times 100$$

Where, IM =Total number of in-migrants; OM =total number of out-migrants; POPm =Mid-year population size.

In South Dakota, the net-migration pattern was different in different counties in the period from 2000 to 2010. The map below shows the differences of the net migration rate in South Dakota by counties. The areas shaded with red denote counties with positive net migration, while the green areas represent counties with negative migration. In addition, the migration rate for each county is displayed on the map. The map indicates that most counties in South Dakota had more population moved out than moved in. However, some South-eastern counties and Western counties had relatively high positive net migration rate, which means more people moved in than moved out. Besides, it seems that most of those red zones that represent positive rates were metropolitan counties and green zones with negative rates were rural counties and Indian reservation counties.



¹ Graduate Research Assistant, State Data Center, South Dakota State University

Hence, I divided South Dakota counties in three groups according to the USDA 2004 County Typology codes and American Indian population proportion. These three types of counties are farm dependence counties—named as group 1; main Indian population counties (Indian population over 30%)—named as group 2; other counties which include metro counties, manufacturing-dependent counties, State government-dependent counties, services-dependent counties—named as group 3. This paper will introduce the net-migration rates of three different county typologies, and whether they have some differences and similarities.

By using the census data, I found that farm dependence counties and majority Indian population counties had more population moved out than moved in between 2000 and 2010. On the contrary, other code counties had more people moved in than moved out.

Net-migration rate in farm dependence counties (group 1)

In group 1 -- farm dependence counties, almost all counties had more moved out migrations. Specifically, the total net-migration rates of all the farm dependence counties were -6.73 in the decade from 2000 to 2010, which meant that they lost about 7 migrations averagely per 100 persons in these areas. While, there were only three counties (Bon Homme, Hamlin, Marshall) gain small numbers of migrations in the same decade.

Note: The columns explanation for below three net migration rate tables, '2000' and '2010' mean the population in this year; 'midpoint' means the average population of the year 2000 and 2010; 'nature increase' equals the birth population minus the death population from 2000 to 2010; 'potential 2010 pop' represents the potential population only considering nature increase; the difference of the actual population in 2010 and the potential population in 2010 represents 'net migration' between 2000 and 2010.

| Farm dependence Counties | | | | | | | |
|--------------------------|----------------|---------------|---------------|------------------|--------------------|---------------|--------------------|
| Counties Name | 2000 | 2010 | midpoint | natural increase | potential 2010 pop | net-migration | net-migration rate |
| Jones County | 1,193 | 1006 | 1099.5 | 35 | 1,228 | -222 | -20.19 |
| Sully County | 1,556 | 1373 | 1464.5 | 98 | 1,654 | -281 | -19.19 |
| Campbell County | 1,782 | 1466 | 1624 | -23 | 1,759 | -293 | -18.04 |
| Miner County | 2,884 | 2389 | 2636.5 | -83 | 2,801 | -412 | -15.63 |
| Spink County | 7,454 | 6415 | 6934.5 | -15 | 7,439 | -1024 | -14.77 |
| Corson County | 4,181 | 4050 | 4115.5 | 463 | 4,644 | -594 | -14.43 |
| Bennett County | 3,574 | 3431 | 3502.5 | 353 | 3,927 | -496 | -14.16 |
| Lyman County | 3,895 | 3755 | 3825 | 367 | 4,262 | -507 | -13.25 |
| Sanborn County | 2,675 | 2355 | 2515 | -5 | 2,670 | -315 | -12.52 |
| Tripp County | 6,430 | 5644 | 6037 | -57 | 6,373 | -729 | -12.08 |
| Hyde County | 1,671 | 1420 | 1545.5 | -77 | 1,594 | -174 | -11.26 |
| Douglas County | 3,458 | 3002 | 3230 | -98 | 3,360 | -358 | -11.08 |
| Harding County | 1,353 | 1255 | 1304 | 46 | 1,399 | -144 | -11.04 |
| McPherson County | 2,904 | 2459 | 2681.5 | -156 | 2,748 | -289 | -10.78 |
| Clark County | 4,143 | 3691 | 3917 | -38 | 4,105 | -414 | -10.57 |
| Aurora County | 3,058 | 2710 | 2884 | -49 | 3,009 | -299 | -10.37 |
| Haakon County | 2,196 | 1937 | 2066.5 | -59 | 2,137 | -200 | -9.68 |
| Faulk County | 2,640 | 2364 | 2502 | -44 | 2,596 | -232 | -9.27 |
| Perkins County | 3,363 | 2982 | 3172.5 | -119 | 3,244 | -262 | -8.26 |
| Potter County | 2,693 | 2329 | 2511 | -163 | 2,530 | -201 | -8.00 |
| Jerauld County | 2,295 | 2071 | 2183 | -50 | 2,245 | -174 | -7.97 |
| Kingsbury County | 5,815 | 5148 | 5481.5 | -308 | 5,507 | -359 | -6.55 |
| Moody County | 6,595 | 6486 | 6540.5 | 268 | 6,863 | -377 | -5.76 |
| Hand County | 3,741 | 3431 | 3586 | -108 | 3,633 | -202 | -5.63 |
| Day County | 6,267 | 5710 | 5988.5 | -231 | 6,036 | -326 | -5.44 |
| Gregory County | 4,792 | 4271 | 4531.5 | -297 | 4,495 | -224 | -4.94 |
| Edmunds County | 4,367 | 4071 | 4219 | -98 | 4,269 | -198 | -4.69 |
| McCook County | 5,832 | 5618 | 5725 | 53 | 5,885 | -267 | -4.66 |
| Grant County | 7,847 | 7356 | 7601.5 | -139 | 7,708 | -352 | -4.63 |
| Brule County | 5,364 | 5255 | 5309.5 | 129 | 5,493 | -238 | -4.48 |
| Hutchinson County | 8,075 | 7343 | 7709 | -387 | 7,688 | -345 | -4.48 |
| Hanson County | 3,139 | 3331 | 3235 | 317 | 3,456 | -125 | -3.86 |
| Turner County | 8,849 | 8347 | 8598 | -176 | 8,673 | -326 | -3.79 |
| Deuel County | 4,498 | 4364 | 4431 | 3 | 4,501 | -137 | -3.09 |
| Roberts County | 10,016 | 10149 | 10082.5 | 438 | 10,454 | -305 | -3.03 |
| Stanley County | 2,772 | 2966 | 2869 | 210 | 2,982 | -16 | -0.56 |
| Bon Homme County | 7,260 | 7070 | 7165 | -219 | 7,041 | 29 | 0.40 |
| Hamlin County | 5,540 | 5903 | 5721.5 | 250 | 5,790 | 113 | 1.98 |
| Marshall County | 4,576 | 4656 | 4616 | -87 | 4,489 | 167 | 3.62 |
| Total | 170,743 | 159579 | 165161 | -56 | 170,687 | -11108 | -6.73 |

Net-migration in majority Indian population counties (group 2)

In group 2 – main Indian population counties, each county in group 2 had negative migration rates which meant that every county in group 2 experienced more people moved out comparing to the moved in population. In general, the total net-migration rate in all these counties were -11.57 from the same period, it represented that in every 100 person there were approximately 15 migration gone. So, the net-migration in group 2 counties have one similarity with farm dependence counties, that is both of them experienced migrant population missing in the same period. However, the total net migration rate of group 2 was almost as twice as that of group 1. Therefore, the migrant population losing strength of main Indian population counties was much higher than the farm dependence counties.

Note: The Indian population proportion calculated based on the 2010 Census Summary File 1.

| Indian Population over 30% Counties | | | | | | | |
|-------------------------------------|---------------|--------------|----------------|------------------|--------------------|---------------|--------------------|
| Counties Name | 2000 | 2010 | midpoint | natural increase | potential 2010 pop | net-migration | net-migration rate |
| Dewey County | 5,972 | 5301 | 5636.5 | 944 | 6,916 | -1615 | -28.65 |
| Buffalo County | 2,032 | 1912 | 1972 | 347 | 2,379 | -467 | -23.68 |
| Todd County | 9,050 | 9612 | 9331 | 1911 | 10,961 | -1349 | -14.46 |
| Corson County | 4,181 | 4050 | 4115.5 | 463 | 4,644 | -594 | -14.43 |
| Bennett County | 3,574 | 3431 | 3502.5 | 353 | 3,927 | -496 | -14.16 |
| Lyman County | 3,895 | 3755 | 3825 | 367 | 4,262 | -507 | -13.25 |
| Shannon County | 12,466 | 13586 | 13026 | 2487 | 14,953 | -1367 | -10.49 |
| Mellette County | 2,083 | 2048 | 2065.5 | 154 | 2,237 | -189 | -9.15 |
| Charles Mix County | 9,350 | 9129 | 9239.5 | 547 | 9,897 | -768 | -8.31 |
| Jackson County | 2,930 | 3031 | 2980.5 | 344 | 3,274 | -243 | -8.15 |
| Roberts County | 10,016 | 10149 | 10082.5 | 438 | 10,454 | -305 | -3.03 |
| Ziebach County | 2,519 | 2801 | 2660 | 302 | 2,821 | -20 | -0.75 |
| Total | 68,068 | 68805 | 68436.5 | 8657 | 76725 | -7920 | -11.57 |

Net-migration in other code counties (group 3)

Unlike farm dependence counties and main Indian population counties, the average total net-migration rate of other code counties which including metro counties, manufacturing-dependent counties, state government-dependent counties and services-dependent counties was a positive value -- 5.69. It meant that they gain averagely 6 people per 100 persons on migration. Although most of group 3 counties had positive net-migration rates, some counties still had negative net-migration rates (such as Clay, Lake, Meade and Walworth counties). Moreover, some counties had extremely high migration rate such as Lincoln (NMR=47.68). Custer also had a relatively high net-migration rate than other counties in this group (NMR=12.58).

| Other dependence codes counties (Metro, Manufacturing, State government, Services) | | | | | | | |
|---|----------------|---------------|-----------------|-------------------------|---------------------------|----------------------|---------------------------|
| Counties Name | 2000 | 2010 | midpoint | natural increase | potential 2010 pop | net-migration | net-migration rate |
| Lincoln County | 24,131 | 44828 | 34479.5 | 4257 | 28,388 | 16440 | 47.68 |
| Custer County | 7,275 | 8216 | 7745.5 | -33 | 7,242 | 974 | 12.58 |
| Union County | 12,584 | 14399 | 13491.5 | 721 | 13,305 | 1094 | 8.11 |
| Lawrence County | 21,802 | 24097 | 22949.5 | 540 | 22,342 | 1755 | 7.65 |
| Brookings County | 28,220 | 31965 | 30092.5 | 1596 | 29,816 | 2149 | 7.14 |
| Butte County | 9,094 | 10110 | 9602 | 341 | 9,435 | 675 | 7.03 |
| Minnehaha County | 148,281 | 169468 | 158874.5 | 14360 | 162,641 | 6827 | 4.30 |
| Pennington County | 88,565 | 100937 | 94751 | 8338 | 96,903 | 4034 | 4.26 |
| Fall River County | 7,453 | 7094 | 7273.5 | -493 | 6,960 | 134 | 1.84 |
| Beadle County | 17,023 | 17398 | 17210.5 | 137 | 17,160 | 238 | 1.38 |
| Yankton County | 21,652 | 22438 | 22045 | 607 | 22,259 | 179 | 0.81 |
| Davison County | 18,741 | 19504 | 19122.5 | 835 | 19,576 | -72 | -0.38 |
| Brown County | 35,460 | 36531 | 35995.5 | 1209 | 36,669 | -138 | -0.38 |
| Codington County | 25,897 | 27227 | 26562 | 1465 | 27,362 | -135 | -0.51 |
| Hughes County | 16,481 | 17022 | 16751.5 | 688 | 17,169 | -147 | -0.88 |
| Meade County | 24,253 | 25456 | 24854.5 | 1633 | 25,886 | -430 | -1.73 |
| Lake County | 11,276 | 11200 | 11238 | 182 | 11,458 | -258 | -2.30 |
| Clay County | 13,537 | 13864 | 13700.5 | 680 | 14,217 | -353 | -2.58 |
| Walworth County | 5,974 | 5438 | 5706 | -143 | 5,831 | -393 | -6.89 |
| Total | 537,699 | 607192 | 572445.5 | 36920 | 574,619 | 32573 | 5.69 |

Summary

In summary, both farm dependence counties and main Indian population counties had more people moving out than moving in during this decade. Additionally, the out-migration from reservation counties doubled the extent of the out-migration from farm dependence counties. The other counties had more people moved in than moved out on average. More interestingly, there were still some counties of group 3 lost population on migration such as Lake, Clay, and Walworth County. A few counties had significantly large volume of in-migration compared to their counterparts in group 3.

Why the migration rate in South Dakota were so different between those three different typologies counties? Why reservation counties had higher negative net-migration rate than farm dependence counties? Why some counties in other code group still had negative migration rate based on an average relatively high migration rate in this group, but some others had extremely high positive rate in net migration? What's the possible factors influence those differences? In next Issues of the New Letter, I will look further into these factors.

References

2000 Census Summary File 1.

2010 Census Summary File 1.

South Dakota Department of Health, Health statistics & Data report.

“2004 ERS County Typology Codes” USDA, Economic Research Service, <http://www.ers.usda.gov>.

“Net Migration Rate”. Philippine Statistics Authority.

<http://www.nscb.gov.ph/ru11/glossary/population/NMR.htm>.