| Method | Average MCC scores | | | |
| --- | --- | --- | --- | --- |
| IR < 10 | 10 ≤ IR < 30 | IR ≥ 30 | ALL |
| 1. RF with no sampling | 67.6556 | 50.6669 | 40.4831 | 53.9504 |
| 1. ROS | 68.4453 | 59.0486 | 42.3317 | 57.4248 |
| 1. ADASYN | 66.6317 | 57.5994 | 48.9715 | 58.3478 |
| 1. SMOTE | 68.4780 | 56.2975 | 46.8830 | 57.9959 |
| 1. Borderline-SMOTE | 66.8481 | 56.7566 | 45.6772 | 57.1459 |
| 1. Polynom-fit-SMOTE | 68.7153 | 59.6327 | 49.3480 | 59.8860 |
| 1. ProWSyn | 67.1571 | 56.5078 | 49.2264 | 58.2874 |
| 1. SMOTE-IPF | 68.0929 | 57.5526 | 48.8170 | 58.8396 |
| 1. SMOBD | 68.1830 | 55.9325 | 48.5586 | 58.2908 |
| 1. G- SMOTE | 68.2207 | 58.4023 | 45.7059 | 58.1863 |
| 1. CCR | 64.9599 | 49.9223 | 45.5440 | 54.2674 |
| 1. LEE | **69.5995** | 57.9977 | 46.6672 | 58.8820 |
| 1. LVQ-SMOTE | 66.1570 | 58.0008 | 51.7078 | **59.1415** |
| 1. Assembled-SMOTE | 67.8934 | 57.5967 | 46.9704 | 58.2045 |
| 1. RUS | 62.8466 | 50.9698 | 39.5832 | 51.9410 |
| 1. NC | 68.2460 | 54.6524 | 42.9226 | 56.1683 |
| 1. ENN | 67.1091 | 53.5512 | 41.9704 | 55.0998 |
| 1. CNN | 65.3988 | 52.4464 | 40.8200 | 53.7512 |
| 1. OSS | 67.2108 | 51.4952 | 39.4544 | 53.7195 |
| 1. Tomek-Link | 68.4159 | 51.6779 | 40.8344 | 54.6616 |
| 1. Near-Miss | 47.2432 | 32.8239 | 30.4928 | 37.5698 |
| 1. SMOTE-ENN | 65.4524 | 58.7210 | **49.8293** | 58.5148 |
| 1. SMOTE-Tomek | 68.3949 | 56.1696 | 47.3205 | 58.0605 |
| 1. BRF | 64.5724 | 54.0610 | 40.5768 | 53.8633 |
| 1. Balanced-Bagging | 62.6736 | 52.8011 | 40.6634 | 52.7790 |
| 1. Over-Bagging | 64.2763 | 52.0729 | 38.1633 | 52.3850 |
| 1. SMOTE-Bagging | 65.7740 | 51.4461 | 41.5806 | 53.8749 |
| 1. RUSBoost | 57.1440 | 52.8859 | 39.2745 | 50.2768 |
| 1. Over-Boost | 63.5572 | 58.5065 | 43.7280 | 55.8358 |
| 1. Easy Ensemble | 60.0863 | 53.0360 | 36.3134 | 50.5205 |
| 1. Cost-Sensitive RF | 67.0366 | 52.2709 | 40.0523 | 53.7749 |