

Without feature selection:

Precision:

{ (0.1, 'اقتصاد'): 0.2958057395143488, (0.1, 'سیاسی'): 0.6301369863013698, (0.1, 'ادب و هنر'): 0.6301369863013698, (0.1, 'اجتماعی'): 0.2328767123287671, (0.3, 'اقتصاد'): 0.2977777777777777, (0.3, 'سیاسی'): 0.6388888888888888, (0.3, 'ادب و هنر'): 0.6388888888888888, (0.3, 'اجتماعی'): 0.2537313432835821, (0.5, 'اقتصاد'): 0.2615384615384615, (0.5, 'سیاسی'): 0.5974025974025974, (0.5, 'ادب و هنر'): 0.2615384615384615, (0.5, 'اجتماعی'): 0.29977628635346754, (0.5, 'اقتصاد'): 0.36486486486486486, (0.5, 'سیاسی'): 0.5918367346938775, (0.5, 'ادب و هنر'): 0.36486486486486486, (0.5, 'اجتماعی'): 0.5918367346938775 }

Recall:

{ (0.1, 'اقتصاد'): 0.3383838383838384, (0.1, 'سیاسی'): 0.2541436464088398, (0.1, 'ادب و هنر'): 0.2541436464088398, (0.1, 'اجتماعی'): 0.17525773195876287, (0.3, 'اقتصاد'): 0.34096692111959287, (0.3, 'سیاسی'): 0.2555555555555555, (0.3, 'ادب و هنر'): 0.2555555555555555, (0.3, 'اجتماعی'): 0.18681318681318682, (0.5, 'اقتصاد'): 0.3435897435897436, (0.5, 'سیاسی'): 0.2486486486486486, (0.5, 'ادب و هنر'): 0.2486486486486486, (0.5, 'اجتماعی'): 0.19101123595505617, (0.5, 'اقتصاد'): 0.28125, (0.5, 'سیاسی'): 0.18831168831168832, (0.5, 'ادب و هنر'): 0.18831168831168832, (0.5, 'اجتماعی'): 0.19101123595505617 }

F-measure:

{ (0.1, 'اقتصاد'): 0.31566548881036516, (0.1, 'سیاسی'): 0.36220472440944884, (0.1, 'ادب و هنر'): 0.36220472440944884, (0.1, 'اجتماعی'): 0.19999999999999999, (0.3, 'اقتصاد'): 0.31791221826809013, (0.3, 'سیاسی'): 0.36507936507936506, (0.3, 'ادب و هنر'): 0.36507936507936506, (0.3, 'اجتماعی'): 0.21518987341772153, (0.5, 'اقتصاد'): 0.3201911589008363, (0.5, 'سیاسی'): 0.35114503816793896, (0.5, 'ادب و هنر'): 0.35114503816793896, (0.5, 'اجتماعی'): 0.2207792207792208, (0.5, 'اقتصاد'): 0.3176470588235294, (0.5, 'سیاسی'): 0.28571428571428575, (0.5, 'ادب و هنر'): 0.28571428571428575, (0.5, 'اجتماعی'): 0.2207792207792208 }

{(0.1, 'Macro_precision'): 0.43319968135993864, (0.1, 'Macro_recalls'): 0.24961888492837972, (0.1, 'Macro_f_measure'): 0.29977987202008854, (0.3, 'Macro_precision'): 0.4273827694108642, (0.3, 'Macro_recalls'): 0.25053248056773564, (0.3, 'Macro_f_measure'): 0.300001184765749, (0.5, 'Macro_precision'): 0.4230837889706538, (0.5, 'Macro_recalls'): 0.2505622633010273, (0.5, 'Macro_f_measure'): 0.29909535247716224}

{(0.1, 'Micro_precision'): 0.4541951181356884, (0.1, 'Micro_recalls'): 0.26676712014509435, (0.1, 'Micro_f_measure'): 0.31756273566522875, (0.3, 'Micro_precision'): 0.44584990425472687, (0.3, 'Micro_recalls'): 0.265971514595125, (0.3, 'Micro_f_measure'): 0.3155838352520028, (0.5, 'Micro_precision'): 0.439024562342585, (0.5, 'Micro_recalls'): 0.2652623517527489, (0.5, 'Micro_f_measure'): 0.3134761569186655}

With feature selection:

Precision:

```
{ (0.1, 'اقتصاد'): 0.38271604938271603, (0.1, 'سیاسی'): 0.6363636363636364, (0.1, 'ادب و هنر'): 0.32075471698113206, (0.1, 'اجتماعی'): 0.21518987341772153, (0.3, 'اقتصاد'): 0.384297520661157, (0.3, 'سیاسی'): 0.631578947368421, (0.3, 'ادب و هنر'): 0.3181818181818182, (0.3, 'اجتماعی'): 0.8857142857142857, (0.5, 'اقتصاد'): 0.38271604938271603, (0.5, 'سیاسی'): 0.631578947368421, (0.5, 'ادب و هنر'): 0.3163538873994638, (0.5, 'اجتماعی'): 0.8857142857142857 }
```

Recall:

```
{ (0.1, 'اقتصاد'): 0.34701492537313433, (0.1, 'سیاسی'): 0.5121951219512195, (0.1, 'ادب و هنر'): 0.3296398891966759, (0.1, 'اجتماعی'): 0.22794117647058823, (0.3, 'اقتصاد'): 0.34831460674157305, (0.3, 'سیاسی'): 0.509090909090909, (0.3, 'ادب و هنر'): 0.17, (0.3, 'اجتماعی'): 0.22794117647058823, (0.5, 'اقتصاد'): 0.3269230769230769, (0.5, 'سیاسی'): 0.509090909090909, (0.5, 'ادب و هنر'): 0.17, (0.5, 'اجتماعی'): 0.34701492537313433, (0.5, 'اقتصاد'): 0.3232876712328767, (0.5, 'اجتماعی'): 0.22794117647058823 }
```

F-measure:

```
{ (0.1, 'اقتصاد'): 0.36399217221135033, (0.1, 'سیاسی'): 0.5675675675675675, (0.1, 'ادب و هنر'): 0.32513661202185795, (0.1, 'اجتماعی'): 0.3625730994152046, (0.3, 'اقتصاد'): 0.36542239685658157, (0.3, 'سیاسی'): 0.5637583892617449, (0.3, 'ادب و هنر'): 0.32249322493224936, (0.3, 'اجتماعی'): 0.3625730994152046, (0.5, 'اقتصاد'): 0.36399217221135033, (0.5, 'سیاسی'): 0.5637583892617449, (0.5, 'ادب و هنر'): 0.3197831978319783, (0.5, 'اجتماعی'): 0.3625730994152046 }
```

```
{(0.1, 'Macro_precision'): 0.48814771237189836, (0.1, 'Macro_recalls'): 0.3163679313361877, (0.1, 'Macro_f_measure'): 0.36121652760583345, (0.3, 'Macro_precision'): 0.4886913564903995, (0.3, 'Macro_recalls'): 0.31645395384522945, (0.3, 'Macro_f_measure'): 0.3614857857295197, (0.5, 'Macro_precision'): 0.4880094760782404, (0.5, 'Macro_recalls'): 0.31546693643350165, (0.5, 'Macro_f_measure'): 0.36065773538041923}
```

```
defaultdict(<function <lambda> at 0x0000019F0E6C4158>, {(0.1, 'Micro_precision'): 0.5093143376672499, (0.1, 'Micro_recalls'): 0.34598173916221375, (0.1, 'micro_f_measure'): 0.3888158016638782, (0.3, 'Micro_precision'): 0.5084803879774393, (0.3, 'Micro_recalls'): 0.345192368771885, (0.3, 'micro_f_measure'): 0.38800955759635386, (0.5, 'Micro_precision'): 0.5076077616307789, (0.5, 'Micro_recalls'): 0.34390968822990103, (0.5, 'micro_f_measure'): 0.3869401813416962})
```