**Appendix** **1:**

We searched hukou-reform policy documents in each prefecture-level city through Google and Baidu, including the government’s website and Baidu Wenku, an online archive platform. Some 59% of cities announced the policy in 2015, while 35.9% announced it in 2016, with only 1.3% announcing early in 2014 and 3% announcing in 2017 or later. In Appendix Table 1, we further compared the characteristics of cities[[1]](#footnote-1) that have retrievable policy documents and cities that do not have available policy documents. We found that cities with retrievable policy documents were more likely to be located in the Central region. These cities do not differ in other characteristics.

**Appendix Table 1. OLS Regression on Policy Document Availability**

|  |  |
| --- | --- |
|  | **Policy document availability** (1 = Yes; 0 = No) |
| Economic development | 0.009 |
|  (nightlight density) | (0.006) |
| Proportion of non-skilled workforce | 0.679 |
|   | (0.496) |
| CPS: Home province leader | -0.000 |
|  | (0.054) |
| CPS: Degree in social sciences | 0.048 |
|  | (0.048) |
| CPS: Secretary in government | 0.032 |
|  | (0.045) |
| Intensity of labor disputes | -0.428 |
|  | (0.364) |
| Population (in 10s of millions) | 0.032 |
|  | (0.125) |
| % of migrants | -0.001 |
|  | (0.004) |
| % of ethnic minorities | -0.001 |
|  | (0.002) |
| % elderly | 0.016 |
|  | (0.021) |
| College degree holders (in 10s of  | 0.485 |
|  millions) | (0.565) |
| Region (ref: East) |  |
|  Central | 0.315\*\* |
|  | (0.111) |
|  West | 0.164 |
|  | (0.140) |
| CPS as female | 0.065 |
|  | (0.079) |
| CPS’ education (ref: PhD degree) |  |
|  College/university | -0.097 |
|  | (0.075) |
|  Master’s degree  | -0.025 |
|  | (0.051) |
| Constant | -0.089 |
|  | (0.574) |
| N | 328 |
| Mean for outcome | 0.72 |

Notes: Each column is a separate ordinary least square regression model. Standard errors clustered by province are in brackets. *\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001.*

**Appendix 2:**

**Appendix Table 2. Definition of Policy Indicators**

|  |
| --- |
| **Panel 1: Selection Policies[[2]](#footnote-2)** |
| Selection policies (total)  | Total score of all policies |
|  High-skilled scheme | Total score of policies targeting high-skilled migrants (high-skilled workers, college graduates, overseas returnees, and investors of all kinds) |
|  Talent scheme  | Total score of policies adopting the talent scheme |
|  Investment scheme  | Total score of policies targeting investors (including both real estate and business investors) |
|  Non high-skilled scheme | Total score of policies targeting non-high-skilled migrants (all migrants & workers, low-skilled & model workers, all graduates, landless peasants, people with disabilities) |
|  Points system (stringent changes) | Total score of policies adopting the points system  |
|  Family reunification scheme  | Total score of policies targeting family members (spouse, children, parents, grandparents and illegitimate births) |
| **Panel 2: Redefinition Policies[[3]](#footnote-3)** |
| Redefinition policies (total)  | Total score of policies issuing the residential permit or aiming to unify the agricultural and non-agricultural *hukou* system |
|  Residential permit | Total score of policies issuing the residential permit |
|  Urban-rural unification  | Total score of policies aiming to unify the agricultural and non-agricultural *hukou* system |
| **Panel 3: Integration Policies[[4]](#footnote-4)** |
| Integration policies (total)  | Total score of all policies |
|  Access to education | Total score of policies offering easier access to pre-school, compulsory, vocational, high school, and continuing education; scholarship, subsidy, and tuition waiver; entrance examinations to high school and college |
|  Access to public services  | Total score of policies targeting the reform of employment, social insurance, social assistance, housing, healthcare, or old-age care service/benefit  |
|  Employment service(s) | Total score of policies adopting any of the following employment-related tools: unemployment registration, vocational training, entrepreneurship promotion, career service and protection of labor rights |
|  Social insurance(s) | Total score of policies offering easier access to social/medical/pension/unemployment/injury/maternity insurance(s) |
|  Social assistance(s)  | Total score of policies offering easier access to dibao, destitute support and medical/temporary/housing/educational/disaster assistance |
|  Housing  | Total score of policies offering easier access to any of the following: affordable/commercial/public (rental) housing, corporate dormitory, preferential housing subsidy and Housing Provident Fund |
|  Healthcare | Total score of policies offering easier access to healthcare  |
|  Old-age service/benefit(s) | Total score of policies aiming to improve the overall coverage of old-age service/benefit(s) |
|  Rural rights protection  | Total score of policies aiming to protect rural migrants’ rights to agricultural property (e.g. homestead, farmland) and family planning |
|  Rural property rights  | Total score of policies aiming to protect the property-related rights of rural emigrants |
|  Adaptation period  | Total score of policies reassuring rural migrants’ exemption from urban fertility regulation in urban areas upon first several years[[5]](#footnote-5) of arrival |

**Appendix 3. Coding Description for Policy Restrictiveness and Magnitude**

**Restrictiveness** of a policy change was assessed through five aspects: 1) whether the policy expands or shrinks the pool of migrants who are granted rights; 2) whether it lowers or raises the eligibility criteria for a particular group; 3) whether it simplifies or complicates the administrative procedure for a particular migrant group; 4) whether it increases or decreases the options available to the migrant group; and 5) whether it relaxes or intensifies the control over the migrants from a particular group (De Haas, Natter, & Vezzoli, 2015). Policies are coded as *less restrictive* (value = −1) if any of the former answers holds true and *more restrictive* (value = 1)otherwise.

The **magnitude** of change captures the degree of change and provides the weight for **restrictiveness** of each policy article. The magnitude of change is measured by the extent of coverage and radicalness. A policy is only considered to have *full* coverage if the whole category of a migrant group (e.g., all migrant workers or all investors) from all origins is targeted and *partial* otherwise (De Haas, Natter, & Vezzoli, 2015). The extent of radicalness is considered *fundamental* if the policy either establishes (a) brand new system(s) (e.g., introducing a points system) or abolishes (an) existing one(s) (e.g., eliminating requirements for spouses) and *non-fundamental* otherwise (e.g., lowering the residential years from five to three; De Haas, Natter, & Vezzoli, 2015). Considering both coverage and radicalness, we measured the **magnitude** of change with four categories: 1) a *major change* (weight = 4) with *full* coverage and a *fundamental* change; 2) a *mid-level change* (weight = 3) with *partial* coverage and a *fundamental* change; 3) a *minor change* (weight = 2) with *full* coverage and a *non-fundamental* change; and 4) a *fine-tuning change* (weight = 1) with *partial* coverage and a non-fundamental change (De Haas, Natter, & Vezzoli, 2015).

For example, in Beijing, a point system is implemented as a selection policy, with the point system serving as the policy tool. The applicable migrant category and migrant origin include all migrants. This policy is more restrictive in nature, representing a significant change, and it has full coverage. As a result, the policy score for the point system is 4. In the city of Shizuishan in Ningxia province, the policy aimed at attracting family members of migrants is categorized as a selection policy. The policy tool in this case is access to local hukou (household registration). The migrant category is family members, and the policy applies to migrants from all origins. Compared to the previous policy, this new approach is more lenient in its restrictiveness, representing a major change. Furthermore, it has full coverage. Consequently, the policy score for this family reunification scheme is -4.

**Appendix Table 3.1 Extent of Coverage**

|  |  |
| --- | --- |
|  | **Migrant category** |
| **Whole category** (e.g., All migrant workers, All graduates, Investors) | **Partial category**(e.g., High-skilled workers, College graduates, Real estate investors) |
| **Migrant origin** | **All origins** (e.g., Locals, Outsiders) | Full | Partial |
| **Part of origins** (e.g., Rural locals, Rural outsiders) | Partial | Partial |

**Appendix Table 3.2 Magnitude of policy change**

|  |  |
| --- | --- |
| Code | Magnitude |
| 1 | Fine-tuning | Measures that only affect part of a migrant category and only alter an existing policy instrument are defined as fine-tuning changes. |
| 2 | Minor | Measures that affect a whole migrant category yet only alter an existing policy instrument are defined as minor changes.  |
| 3 | Mid-level | Measures that affect only part of a migrant category but starts a new or abolishes an existing policy instrument are defined as mid-level changes. |
| 4 | Major | Measures that affect a whole migrant category and starts a new or abolishes an existing policy instrument are defined as major changes. |
| 0 | N/A | Measures categorized as “No change” in restrictiveness are assigned “N/A” in terms of magnitude. |
| 999 | Cannot be assessed | Consistent with the principle of restrictiveness, measures that do not give explicit instructions are labeled with this code.  |

**Appendix 4**. **Construction of the variable on labor dispute intensity covered in provincial media**

We collected media reports on migrant workers and measured the frequency of employer–migrant employee disputes on text data. The provincial daily newspaper series was selected as a data source because it is the official line of newspapers of the municipal CPSs, which are the primary source of newspapers in each province and the only newspapers available across all provinces in China (Jaros & Pan, 2018). This enables us to derive comparable data on the media environment.[[6]](#footnote-6) News articles were searched on China’s National Knowledge Infrastructure using five keywords: “农民工 (rural migrant workers),” “外来打工 (migrant workers),” “外来工 (migrant workers),” “外来务工(migrant workers)” as well as “外地人(outsiders).” In total, 3,214 articles were retrieved from 2010 to 2014,[[7]](#footnote-7) among which 10% were randomly sampled by year and constituted our training data (Alpaydin & Bach, 2014). We read each of the 321 training articles and labeled them as 1 if they mentioned infringement of labor rights (e.g., overwork, wage arrears, and safety accidents) and 0 otherwise. After this, we tokenized the text based on the Chinese corpora, *jieba*,[[8]](#footnote-8) and transformed it to the sparse matrix containing all unigrams free of stop words through Python’s Natural Language Toolkit package (Bird, Klein, & Loper, 2009). Further using its *scikit-learn* module, we split the training data (321 labeled articles) into 30% pseudo-test data and 70% pseudo-training data, the latter of which was fed into the logistic regression model with grid search of parameters[[9]](#footnote-9) to predict the former (Pedregosa et al., 2011). The predictions on the pseudo-test data were then compared with their actual label and the *roc\_auc* score measured the degree of accuracy.[[10]](#footnote-10) This process was completely random and repeated five times, hence generating five sets of *roc\_auc* scores with a mean value of 0.96, ascertaining the model’s great ability to distinguish between classes. We then applied this model to the entire training data (321 labeled articles) and obtained the coefficients to predict the remaining 90% (2,893) unlabeled articles. Eventually, all 3,214 binary labels were disaggregated by province and year, resulting in a continuous variable that captures labor dispute intensity falling between 0 and 1. A higher value of this variable represents greater tension between local employers and migrant employees.

**Appendix 5:**

**Appendix Table 5. Descriptive statistics for policy predictors**

|  |  |  |
| --- | --- | --- |
| **Indicators** | **Mean / %** | **SD** |
| **Economic Factors** |  |  |
| GDP growth | 12.4% |  |
| Economic development (nightlight density) | 7.85 | 9.63 |
| Proportion of non-skilled workforce | 81.4% |  |
| Unemployment rate | 3.3% |  |
| **Political Factors** |  |  |
| Top-down control |  |  |
|  Division of duties | 32.3% |  |
|  Timetable | 63.4% |  |
| Tenure of municipal CPS |  |  |
|  0–20 months | 42.4% |  |
|  21–40 months | 35.1% |  |
|  41–60 months | 18.3% |  |
|  61+ months | 4.2% |  |
| Home province leader | 65.4% |  |
| Years as CCP member | 30.46 | 4.23 |
| Degree in social sciences | 52.9% |  |
| Secretary in government | 24.1% |  |
| **Sociocultural Factors** |  |  |
| Intensity of labor disputes | 0.16 | 0.09 |
| Level of integration  | 0.09 | 0.35 |
| **Control Variables** |  |  |
| Population (in 10,000) | 207.00 | 158.13 |
| % of migrants | 11.0% |  |
| % of ethnic minorities | 6.6% |  |
| % elderly | 9.0% |  |
| College degree holders (in 10s of millions) | 0.05 | 0.07 |
| Proportion of welfare expenditure | 11.6% |  |
| Reliance on land conveyance income (log [10 thousand yuan])  | 13.3 | 1.5 |
| Region |  |  |
|  East | 36.1% |  |
|  Central | 44.0% |  |
|  West | 19.9% |  |
| CPS as female | 3.7% |  |
| CPS as male | 96.3% |  |
| CPS’ education |  |  |
|  College/university | 12.6% |  |
|  Master’s degree  | 61.8% |  |
|  PhD degree | 25.7% |  |
| CPS’ age | 53.6 | 3.4 |

**Appendix 6:**

**Appendix Table 6 Policy Scores by Policy Clusters**

|  |  |  |  |
| --- | --- | --- | --- |
|   | **Overall Policies** | **Selection Policies** | **Integration Policies** |
|   | Least Integrative Policies | Welcomes Selective & Integrative Policies | Selective Policies | Selective Policies | Welcomes High-Skilled Workers | Welcomes Non-High-Skilled Workers | Integrative Labor Market Policies | Integrative Social Welfare Policies | Least-Integrative Policies |
| **Selection policies (total)** | -12.07 | -20.07 | -0.39 | -5.83 | -15.92 | -28.36 |   |   |   |
|  High-skilled scheme | -5.55 | -6.51 | -3.06 | -3.23 | -10.75 | -10.64 |   |   |   |
|  Talent scheme | -0.48 | -0.18 | -0.06 | -0.03 | -2.58 | 0.00 |   |   |   |
|  Investment scheme | -2.45 | -2.59 | -1.30 | -1.13 | -4.17 | -5.50 |   |   |   |
|  Non high-skilled-specific scheme | -7.38 | -9.70 | -6.53 | -7.31 | -7.83 | -11.11 |   |   |   |
|  Points system (stringent changes) | 0.34 | 0.15 | 0.19 | 0.20 | 0.50 | 0.06 |   |   |   |
|  Family reunification scheme | -3.03 | -5.05 | -0.30 | -1.76 | -2.92 | -6.61 |   |   |   |
| **Redefinition policies (total)** | -3.48 | -5.07 | -5.21 |   |   |   | -4.14 | -5.30 | -3.60 |
| **Integration policies (total)** | -5.93 | -32.33 | -29.57 |   |   |   | -38.11 | -29.77 | -6.23 |
|  Access to education | -0.21 | -4.54 | -4.40 |   |   |   | -3.32 | -4.67 | -0.23 |
|  Access to public services | -0.62 | -15.41 | -13.20 |   |   |   | -22.04 | -13.03 | -0.73 |
|  Employment service(s) | -0.17 | -4.32 | -3.31 |   |   |   | -7.50 | -3.20 | -0.20 |
|  Social insurance(s) | 0.00 | -3.36 | -2.52 |   |   |   | -5.79 | -2.46 | 0.00 |
|  Social assistance(s) | -0.17 | -2.14 | -2.58 |   |   |   | -1.43 | -2.53 | -0.23 |
|  Housing | -0.14 | -2.97 | -2.18 |   |   |   | -4.64 | -2.21 | -0.17 |
|  Rural rights protection | -0.38 | -1.15 | -1.26 |   |   |   | -1.32 | -1.18 | -0.43 |

**Appendix Table 7. City by Policy Clusters**

| **Overall Policy**  | **Selection Policy** | **Integration Policy** |
| --- | --- | --- |
| **Selective** | **Welcoming** | **Least-integrative** | **Selective** | **Welcomes Non-high-skilled** | **Welcomes High-skilled** | **Integrative Social Welfare** | **Integrative Labor Market** | **Least-integrative** |
| 恩施州嘉兴铁岭嘉峪关乐山南京新余白山河池渭南舟山毕节邵阳宝鸡衢州定西梧州盘锦焦作六盘水枣庄抚顺泰安铜川天津辽阳黔南布依族苗族自治州辽宁鞍山固原咸阳大连辽源东营朔州潍坊眉山铜仁果洛州绍兴锦州宁波长治日照鹰潭吉林北海重庆商丘吕梁通化陇南贺州遵义无锡滨州宜昌金华朝阳荆门杭州淄博玉树州贵阳安庆广安黄冈松原博尔塔拉州沈阳三门峡白城来宾长春广州临沂新乡红河哈尼族彝族自治州雅安呼和浩特本溪许昌衡水十堰池州阿坝州临汾阜新海东地区资阳贵港黔西南州芜湖桂林内江平顶山西宁云浮揭阳忻州安康濮阳吴忠德州台州长沙安顺巴中西安 | 晋中德宏州景德镇上饶乌兰察布梅州信阳黔东南苗族侗族自治州拉萨连云港百色淮北廊坊淮南保定永州秦皇岛凉山州亳州岳阳宿州邯郸衡阳常德六安湘西州张家界钦州佛山黄石庆阳珠海宜宾淮安宜春赤峰昭通益阳湛江温州萍乡临沧商洛常州吉安怀化榆林安阳宣城南宁扬州包头黄山马鞍山沧州滁州徐州延安中山赣州河源惠州玉林娄底汕头白银东莞苏州肇庆武汉驻马店巴彦淖尔南通阳江咸宁普洱抚州鄂尔多斯太原鹤岗晋城盐城昆明郴州保山汕尾铜陵韶关株洲蚌埠兴安盟葫芦岛合肥阜阳 | 阳泉茂名丹东漯河哈尔滨自贡乌海石家庄开封深圳鹤壁石嘴山鄂州上海泰州成都泸州清远青岛呼伦贝尔北京荆州湖州银川曲靖洛阳防城港南昌襄阳 | 东莞秦皇岛梅州岳阳资阳定西商丘吴忠邵阳滁州常州焦作信阳乌兰察布梧州凉山州北京西安六安长沙辽阳盘锦恩施州濮阳清远银川揭阳温州玉林益阳渭南潍坊保山贵港曲靖固原金华黔西南州忻州芜湖德宏州呼和浩特临汾红河哈尼族彝族自治州驻马店泰州广州长春黔南布依族苗族自治州白城新余松原博尔塔拉州沈阳淮安雅安云浮桂林台州咸阳本溪连云港阿坝州娄底海东地区十堰巴彦淖尔杭州黄山宝鸡苏州泰安平顶山衢州东营嘉兴吉林新乡果洛州昭通贵阳晋中绍兴舟山扬州衡阳普洱玉树州遵义锦州鄂州延安陇南通化商洛天津哈尔滨阜新眉山永州铜仁贺州乐山廊坊宣城庆阳兴安盟亳州乌海嘉峪关德州大连鹰潭铜陵阳泉郴州成都长治安康毕节滨州河池宁波吕梁辽源马鞍山湛江安顺丹东重庆宜昌抚顺枣庄铁岭中山徐州日照汕尾白山常德张家界许昌淄博来宾拉萨广安宜宾洛阳鹤岗湖州南京内江北海三门峡池州朝阳阳江巴中辽宁鞍山西宁无锡六盘水韶关黄石漯河钦州河源沧州南通白银咸宁晋城铜川临沧太原衡水泸州鹤壁珠海安庆上海朔州自贡 | 惠州百色保定南昌汕头景德镇邯郸湘西州抚州怀化榆林淮南鄂尔多斯萍乡南宁昆明蚌埠安阳石家庄葫芦岛包头防城港合肥临沂吉安宿州宜春石嘴山株洲荆州开封茂名上饶赣州黔东南苗族侗族自治州赤峰 | 黄冈盐城青岛淮北襄阳佛山肇庆呼伦贝尔武汉荆门深圳阜阳 | 信阳朝阳临沧六安岳阳白银恩施州濮阳毕节西宁绍兴巴中阳江太原池州郴州阜阳南京三门峡宜宾张家界许昌汕尾博尔塔拉州西安内江桂林松原阿坝州铜陵资阳本溪庆阳黔南布依族苗族自治州无锡安阳辽阳昭通上饶白山永州阜新日照天津辽源韶关普洱衡阳玉树州亳州商洛陇南芜湖景德镇衢州临汾宝鸡益阳百色十堰常德安顺马鞍山广安长春汕头眉山驻马店安康宣城德宏州通化安庆忻州临沂黔西南州中山吉安吴忠泰安佛山果洛州滁州鹰潭湘西州南宁雅安遵义河源北海潍坊新余白城咸阳渭南东莞珠海来宾黄冈抚顺红河哈尼族彝族自治州温州六盘水荆门嘉峪关玉林台州杭州商丘长治新乡延安拉萨邵阳钦州淮南铁岭宜春盘锦铜仁宜昌合肥榆林固原贵阳东营贺州黄山铜川咸宁贵港黔东南苗族侗族自治州河池德州梧州娄底揭阳保山抚州赣州舟山昆明重庆平顶山吉林辽宁鞍山海东地区凉山州萍乡兴安盟蚌埠鹤岗沈阳枣庄焦作黄石晋中乐山株洲朔州云浮梅州肇庆嘉兴惠州广州锦州宁波定西长沙淄博怀化大连 | 鄂尔多斯淮北徐州保定沧州扬州巴彦淖尔淮安乌兰察布呼和浩特湛江南通吕梁苏州包头葫芦岛常州盐城廊坊宿州邯郸武汉滨州秦皇岛衡水晋城赤峰连云港 | 荆州青岛哈尔滨湖州防城港漯河阳泉泰州茂名鄂州金华石嘴山开封清远泸州成都丹东上海深圳南昌洛阳乌海北京银川自贡石家庄呼伦贝尔鹤壁襄阳曲靖 |

**Appendix 8:**

We relaxed the assumption that GDP growth and economic development have linear relationships with outcomes. We ran models coding these variables as categories and presented the results in Appendix Figure 8.1-8.3. We found evidence that higher levels of GDP growth are associated with a higher likelihood of adopting integrative labor market policies, and lower GDP growth is associated with lower likelihood of adopting integrative labor market policies.

**Appendix Figure 8.1 Marginal Effects of Adopting Overall Policies**



**Appendix Figure 8.2 Marginal Effects of Adopting Selection Policies**



**Appendix Figure 8.3 Marginal Effects of Adopting Integration Policies**



Note: Reference group: Middle 50%. X-axis: Predicted probabilities.

**Appendix 9.**

**Appendix Table 9. Summaries of findings**

|  |  |
| --- | --- |
| **Hypotheses** | **Findings** |
| (H1.1) Cities intending to maintain economic growth are more likely to adopt lenient requirements in selecting migrants to receive local hukouto fulfill the local demand for labors. | Supported |
| (H1.2) Cities with higher levels of economic development are more likely to adopt stricter requirements in selecting eligible migrants to acquire local hukou and are more reluctant to provide welfare and services available for locals to migrants. | Partially Supported (Selection policy) |
| (H1.3) Cities with high levels of economics hardship (e.g., high unemployment) are more likely to adopt stringent migration policies while cities not in economic distress are more likely to enact pro-migration policies.  | Supported |
| (H1.4) A high demand for low-skilled workers is related to lenient selection policies and stringent integration policies. | Unsupported |
| (H2.1) City governments facing superior governments with stronger top-down control forces are more like to adopt policies consistent with the central government’s policy direction. | Supported |
| (H2.2) City communist party secretaries (CPSs), the main leader of municipal affairs under CCP, in earlier or later years of their first term would adopt more policy reform measures than those in midst of their first term or in their second term. | Supported  |
| (H2.3) CPSs who work in their home regions will adopt more generous integration measures if their favoritism extends beyond local residents to migrant populations. | Supported |
| (H2.4) CPSs having a longer history in CCP and having educational and work experiences in public administration are more likely to select policies consistent with central government’s policy direction. | Partially supported  |
| (H3) Public’s higher receptivity toward migrants and fewer migrant-related conflicts are associated with more lenient selection and integration policies. | Partially supported (Conflicts) |

Note: The supported hypotheses are in parenthesis.

**Appendix 10:**

We conducted several sensitivity analyses to account for additional factors and to test the robustness of our findings on the determinants of hukou reform policies. The results are presented in Appendix Tables 10.1–10.3. First, we controlled for pre-existing labor market environments in which migrant workers are embedded through two indicators: the proportion of working migrants covered by employer-provided social insurance and the share of employed migrants with a job contract. Second, we included the number of *Dibao* program recipients in the city in 2013 as an alternative measure for economic hardship to replace unemployment rates. Third, in the model predicting selection policy approaches, we controlled for integration policy approaches; and in the model predicting integration policy approaches, we controlled for selection policy approaches. Overall, our main findings were not sensitive to the above specifications.

References:

Grossback, L. J., Nicholson-Crotty, S., & Peterson, D. A. (2004). Ideology and learning in policy diffusion. *American Politics Research, 32*(5), 521-545.

Shi, X., & Xi, T. (2018). Race to safety: Political competition, neighborhood effects, and coal mine deaths in China. *Journal of Development Economics, 131*, 79-95.

Yu, J., Zhou, L. A., & Zhu, G. (2016). Strategic interaction in political competition: Evidence from spatial effects across Chinese cities. *Regional Science and Urban Economics, 57*, 23-37.

**Appendix Table 10.1 Sensitivity Analyses – Multinomial Regression Results on Determinants of Overall Hukou Reform Policies**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Ref: Selective** |  |  |  |
|  | **Welcoming**  |  | **Non-integrative** |  |
|  | Preexisting integration | Alternative economic hardship | Preexisting integration | Alternative economic hardship |
| Model | (1) | (2) | (1) | (2) |
| Economic Factors |  |  |  |  |
| GDP growth | -0.163 | -0.171 | 0.229 | 0.198 |
|  | (0.098) | (0.100) | (0.211) | (0.190) |
| Economic development | 0.012 | 0.018 | -0.027 | -0.014 |
|  (nightlight density) | (0.036) | (0.037) | (0.058) | (0.096) |
| Proportion of non-skilled  | 8.113 | 8.601 | 4.781 | 4.803 |
|  workforce | (5.819) | (5.357) | (7.573) | (5.229) |
| Unemployment rate | -0.570 |   | 1.942 |   |
|  | (0.498) |   | (1.174) |   |
| Political Factors |   |   |   |   |
| Division of duties | 2.736\*\*\* | 2.107\*\* | -1.138 | -0.865 |
|  | (0.732) | (0.643) | (1.145) | (1.119) |
| Timetable | 1.217 | 0.906 | -2.086\* | -1.159 |
|  | (0.755) | (0.734) | (1.037) | (0.968) |
| Tenure of municipal CPS (21–40 months) |   |   |   |   |
|  0–20 months | 0.974 | 0.959\* | 0.004 | 0.486 |
|  | (0.526) | (0.471) | (0.838) | (0.983) |
|  41–60 months | -0.212 | -0.028 | 1.336 | 1.066 |
|  | (0.573) | (0.535) | (0.762) | (1.044) |
|  61+ months | 0.869 | 0.894 | -15.749\*\*\* | -14.514\*\*\* |
|  | (1.343) | (1.008) | (2.026) | (2.771) |
| Home province leader | 0.997 | 1.097\* | -0.156 | -0.083 |
|  | (0.528) | (0.440) | (0.905) | (0.945) |
| Years as CCP member | 0.174\* | 0.150 | 0.204 | 0.253 |
|  | (0.080) | (0.079) | (0.198) | (0.166) |
| Degree in social sciences | 1.579\*\* | 1.430\*\* | 0.597 | 0.875 |
|  | (0.496) | (0.518) | (0.517) | (0.646) |
| Secretary in government | 0.533 | 0.606 | 0.637 | 0.167 |
|  | (0.547) | (0.495) | (0.976) | (0.800) |
| Sociocultural Factors |   |   |   |   |
| Intensity of labor disputes | -0.958 | -1.298 | 11.359\* | 12.716\*\* |
|  | (5.019) | (4.873) | (4.691) | (4.483) |
| Level of integration  | -0.800 | -1.366 | -1.595 | -1.835 |
|  | (0.757) | (0.797) | (1.439) | (1.320) |
| Control Variables |  |  |  |  |
| Population (in 10,000) | -0.006 | -0.004 | 0.011\* | 0.012 |
|  | (0.006) | (0.004) | (0.005) | (0.008) |
| % migrants covered by employer- | -1.311 |   | -0.914 |   |
|  provided social insurance | (2.166) |   | (3.423) |   |
| % migrant workers with  | 0.333 |   | -3.759 |   |
|  job contract  | (1.836) |   | (1.970) |   |
| Dibao recipients (in 10,000) |   | 0.008 |   | -0.017 |
|  |   | (0.086) |   | (0.138) |
| Constant | -4.709 | -7.291 | 14.395 | 7.781 |
|  | (5.583) | (5.369) | (13.718) | (9.234) |
| N | 175 | 182 | 175 | 182 |

Notes: Each two columns are based on a multinomial regression model. Coefficients are presented, and standard errors clustered by province are in brackets. Each model controls for population, % of migrants, ethnic minorities, and elderly, the number of college degree holders, region, proportion of welfare expenditure, reliance on land conveyance income, and CPS’ gender, education, age, and hukou reform policies from neighboring regions. Coefficients are presented, and standard errors clustered by province are in brackets.

*\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001*.

**Appendix Table 10.2 Sensitivity Analyses – Multinomial Regression Results on Determinants of Hukou Reform Selection Policies**

|  |  |
| --- | --- |
|  | **Ref: Selective**  |
|  | **Welcomes Non-high-skilled** | **Welcomes High-skilled** |
|  | Preexisting integration | Integration clusters  | Alternative economic hardship | Preexisting integration | Integration clusters  | Alternative economic hardship |
| Model | (1) | (2) | (3) | (1) | (2) | (3) |
| Economic Factors |  |  |  |  |  |  |
| GDP growth | -0.005 | 0.081 | 0.037 | 0.907\* | 0.840\* | 1.158 |
|  | (0.175) | (0.191) | (0.183) | (0.373) | (0.418) | (0.640) |
| Economic development | -0.116\*\* | -0.100\* | -0.097\* | 0.112\* | 0.066\* | 0.127 |
|  (nightlight density) | (0.040) | (0.047) | (0.040) | (0.053) | (0.032) | (0.104) |
| Proportion of non-skilled  | 1.409 | 2.659 | 1.908 | -3.463 | -9.125 | -7.896 |
|  workforce | (5.585) | (5.437) | (4.812) | (14.105) | (11.665) | (12.235) |
| Unemployment rate | -0.277 | -0.417 |   | 0.066 | -0.482 |   |
|  | (0.637) | (0.762) |   | (2.181) | (1.999) |   |
| Political Factors |   |   |   |   |   |   |
| Division of duties | 2.582\*\*\* | 2.004\* | 1.533\* | -3.331 | -2.048 | -4.112 |
|  | (0.559) | (0.869) | (0.674) | (2.640) | (4.226) | (3.404) |
| Timetable | -0.102 | -0.157 | -0.227 | -0.555 | -0.751 | -0.858 |
|  | (1.093) | (1.143) | (1.049) | (3.215) | (3.370) | (2.795) |
| Tenure of municipal CPS (21–40 months) |   |   |   |   |   |   |
|  0–20 months | -0.726 | -0.344 | -0.263 | -0.161 | 0.343 | -0.506 |
|  | (0.925) | (0.703) | (0.684) | (0.850) | (0.668) | (0.573) |
|  41–60 months | 0.773 | 0.550 | 0.580 | -1.143 | -0.749 | -2.406 |
|  | (0.734) | (0.971) | (0.760) | (2.767) | (2.426) | (2.825) |
|  61+ months | 2.353 | 2.077 | 1.519 | -1.468 | 0.078 | -1.643 |
|  | (1.979) | (1.667) | (1.688) | (2.821) | (2.549) | (2.612) |
| Home province leader | 0.868 | 0.755 | 0.481 | 0.889 | 1.291 | 2.770\*\* |
|  | (1.013) | (0.960) | (0.875) | (1.038) | (1.043) | (1.013) |
| Years as CCP member | 0.120 | 0.128 | 0.128 | 0.227 | 0.349 | 0.202 |
|  | (0.153) | (0.153) | (0.139) | (0.205) | (0.199) | (0.123) |
| Degree in social sciences | -0.037 | 0.427 | 0.377 | 2.775 | 1.935 | 2.268 |
|  | (0.803) | (0.825) | (0.835) | (2.315) | (1.927) | (2.829) |
| Secretary in government | 0.889 | 0.426 | 0.438 | 0.767 | 1.507 | 0.521 |
|  | (0.752) | (0.764) | (0.709) | (0.841) | (0.933) | (1.025) |
| Sociocultural Factors |   |   |   |   |   |   |
| Intensity of labor disputes | 0.245 | -1.633 | 1.596 | 1.284 | -8.477 | -1.174 |
|  | (4.107) | (4.354) | (3.777) | (7.491) | (7.577) | (5.303) |
| Level of integration  | 1.280 | 1.045 | 0.654 | -0.210 | 0.592 | 0.724 |
|  | (1.167) | (1.225) | (1.046) | (1.169) | (1.005) | (1.307) |
| Control Variables |  |  |  |  |  |  |
| Population (in 10,000) | 0.010 | 0.008 | 0.008 | 0.002 | 0.003 | 0.004 |
|  | (0.006) | (0.006) | (0.005) | (0.003) | (0.003) | (0.002) |
| % migrants covered by employer- | -0.637 |   |   | 7.813 |   |   |
|  provided social insurance  | (4.114) |   |   | (4.164) |   |   |
| % migrant workers with  | -2.119 |   |   | -0.227 |   |   |
|  job contract  | (1.440) |   |   | (2.271) |   |   |
| Dibao recipients (in 10,000) |   |   | -0.045 |   |   | 0.603\*\*\* |
|  |   |   | (0.074) |   |   | (0.158) |
| Integration policies (ref: Integrative social welfare policies) |  |  |  |  |  |  |
|  Integrative labor market policies |   | 0.932 |   |   | 1.893\* |   |
|   |   | (1.289) |   |   | (0.891) |   |
|  Non-integrative policies  |   | 2.002\*\*\* |   |   | 3.379\* |   |
|   |   | (0.554) |   |   | (1.324) |   |
| Constant | 2.976 | -2.419 | -0.629 | -8.960 | -9.426 | -8.957 |
|  | (10.428) | (10.293) | (8.857) | (10.224) | (12.933) | (10.707) |
| N | 175 | 181 | 182 | 175 | 181 | 182 |

Notes: Each two columns are based on a multinomial regression model. Coefficients are presented, and standard errors clustered by province are in brackets. Each model controls for population, % of migrants, ethnic minorities, and elderly, the number of college degree holders, region, proportion of welfare expenditure, reliance on land conveyance income, and CPS’ gender, education, age, and hukou reform policies from neighboring regions. Coefficients are presented, and standard errors clustered by province are in brackets.

*\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001*.

**Appendix Table 10.3 Sensitivity Analyses – Multinomial Regression Results on Determinants of Hukou Reform Integration Policies**

|  |  |
| --- | --- |
|  | **Ref: Integrative Social Welfare** |
| **Integrative Labor Market**  | **Non-integrative** |
| Preexisting integration | Selection clusters  | Alternative economic hardship | Preexisting integration | Selection clusters  | Alternative economic hardship |
| Model | (1) | (2) | (3) | (1) | (2) | (3) |
| Economic Factors |  |  |  |  |  |  |
| GDP growth | -0.243 | -0.284 | -0.202 | 0.234 | 0.178 | 0.197 |
|  | (0.145) | (0.181) | (0.212) | (0.153) | (0.157) | (0.188) |
| Economic development | 0.028 | -0.013 | 0.003 | -0.044 | 0.006 | -0.012 |
|  (nightlight density) | (0.073) | (0.060) | (0.066) | (0.059) | (0.069) | (0.061) |
| Proportion of non-skilled  | 10.401 | 11.506 | 8.844 | 10.463 | 7.428 | 4.705 |
|  workforce | (8.250) | (8.555) | (6.045) | (10.520) | (9.463) | (5.413) |
| Unemployment rate | -0.294 | -1.390 |   | 3.171 | 2.754\* |   |
|  | (0.906) | (1.066) |   | (1.747) | (1.192) |   |
| Political Factors |   |   |   |   |   |   |
| Division of duties | -1.120 | -1.299 | -1.275 | -3.239\* | -3.949\*\*\* | -2.080 |
|  | (1.383) | (1.198) | (1.046) | (1.373) | (1.123) | (1.262) |
| Timetable | 2.948\* | 3.018\* | 2.448 | -2.571\* | -3.002\* | -1.333 |
|  | (1.484) | (1.291) | (1.262) | (1.189) | (1.279) | (1.020) |
| Tenure of municipal CPS (21–40 months) |   |   |   |   |   |   |
|  0–20 months | 1.610\* | 1.074 | 0.710 | 0.189 | 0.567 | 0.259 |
|  | (0.779) | (1.245) | (0.891) | (0.783) | (0.855) | (1.012) |
|  41–60 months | 0.574 | 0.118 | 0.024 | 1.976\*\* | 1.843\* | 1.159 |
|  | (1.213) | (0.946) | (0.847) | (0.763) | (0.767) | (0.777) |
|  61+ months | -0.450 | 0.722 | 0.509 | -18.287\*\*\* | -20.357\*\*\* | -16.648\*\*\* |
|  | (1.584) | (1.375) | (1.439) | (2.117) | (2.712) | (1.922) |
| Home province leader | -0.983 | -0.574 | -0.290 | -1.781 | -1.414 | -1.023 |
|  | (1.123) | (0.821) | (1.151) | (0.996) | (1.013) | (0.555) |
| Years as CCP member | 0.030 | -0.161 | -0.029 | -0.026 | -0.014 | 0.042 |
|  | (0.116) | (0.114) | (0.141) | (0.143) | (0.138) | (0.127) |
| Degree in social sciences | 1.991 | 0.956 | 1.005 | 0.331 | -0.241 | 0.232 |
|  | (1.233) | (0.745) | (0.677) | (0.545) | (0.659) | (0.587) |
| Secretary in government | 0.017 | 0.180 | 0.543 | 0.218 | -0.809 | -0.058 |
|  | (1.225) | (0.750) | (0.962) | (1.041) | (1.097) | (0.885) |
| Sociocultural Factors |   |   |   |   |   |   |
| Intensity of labor disputes | 20.950\* | 19.342\* | 12.201 | 16.229\*\* | 14.401\*\* | 15.392\*\* |
|  | (8.260) | (9.642) | (6.749) | (5.304) | (4.396) | (5.549) |
| Level of integration  | 1.232\* | 0.459 | 0.642 | -1.539 | -1.559 | -1.740 |
|  | (0.618) | (0.702) | (0.772) | (1.689) | (1.390) | (1.552) |
| Control Variables |  |  |  |  |  |  |
| Population (in 10,000) | -0.004 | -0.005 | -0.005 | 0.010\*\* | 0.007 | 0.008 |
|  | (0.007) | (0.008) | (0.005) | (0.003) | (0.005) | (0.007) |
| % migrants covered by employer- | 1.332 |   |   | 1.711 |   |   |
|  provided social insurance  | (3.193) |   |   | (3.806) |   |   |
| % migrant workers with  | 5.712 |   |   | -2.822 |   |   |
|  job contract  | (3.842) |   |   | (2.337) |   |   |
| Dibao recipients (in 10,000) |   |   | -0.175 |   |   | -0.007 |
|  |   |   | (0.121) |   |   | (0.126) |
| Selection policies (ref: Selective policies) |  |  |  |  |  |  |
|  Welcomes non-high-skilled  |   | 2.362\* |   |   | 3.048\*\*\* |   |
|   |   | (0.959) |   |   | (0.733) |   |
|  Welcomes high-skilled  |   | 3.743\* |   |   | 3.656\*\* |   |
|   |   | (1.516) |   |   | (1.185) |   |
| Constant | -16.621 | -5.953 | -7.724 | 3.052 | 0.109 | 2.516 |
|  | (8.742) | (10.205) | (9.701) | (7.142) | (7.545) | (7.922) |
| N | 175 | 181 | 182 | 175 | 181 | 182 |

Notes: Each two columns are based on a multinomial regression model. Coefficients are presented, and standard errors clustered by province are in brackets. Each model controls for population, % of migrants, ethnic minorities, and elderly, the number of college degree holders, region, proportion of welfare expenditure, reliance on land conveyance income, and CPS’ gender, education, age, and hukou reform policies from neighboring regions. Coefficients are presented, and standard errors clustered by province are in brackets.

*\* p < 0.05; \*\* p < 0.01; \*\*\* p < 0.001*.

1. We included characteristics that have data available for most cities. [↑](#footnote-ref-1)
2. All the indicators falling in this scope focus exclusively on the policy area of selection. [↑](#footnote-ref-2)
3. All the indicators falling in this scope focus exclusively on the policy area of redefinition. [↑](#footnote-ref-3)
4. All the indicators falling in this scope focus exclusively on the policy area of integration. [↑](#footnote-ref-4)
5. Depending on specific prefectural-level cities, it normally ranges from 2 to 5 years. [↑](#footnote-ref-5)
6. Although collecting data at the city-level would have been ideal, it is not practical because many cities do not have a unique newspaper. [↑](#footnote-ref-6)
7. 977, 909, 559, 419, and 350 news articles were retrieved in the 5 years from 2010 to 2014, respectively. [↑](#footnote-ref-7)
8. GitHub repo: https://github.com/fxsjy/jieba [↑](#footnote-ref-8)
9. The L2 regularization with C = 0.001 was automatically chosen by grid search as the optimal parameter. [↑](#footnote-ref-9)
10. The *roc\_auc* score is a comprehensive measurement of a model’s classification ability, quantifying the area under the curve (*auc*) plotted with the true positive rate (true positive/[true positive + false negative]) as the y-axis against the false positive rate (false positive/[true negative + false positive]) as the x-axis (Fawcett, 2006). A larger *roc\_auc* value indicates a higher true positive rate and a lower false positive rate, thus a higher degree of accuracy. [↑](#footnote-ref-10)