Relationships between Economics, Welfare, Social Network Factors, and Net Migration in the United States

Lee-Joy Cheng*

ABSTRACT

By using economics, welfare and social network factors as frames of reference, this study aims to explore the relationship between these three factors and net migration to various US states. Adopting related variables collected from official aggregate data, this study first utilizes Logit Regression analysis to draw out seven variables that best explain net migration to the various states, then employs these variables in LISREL analyses to build a model explaining the factors influencing net migration to the various US states. Concretely, this research obtained the following findings: (1) the seven variables – the average rate of net migrants of 2002–2005, Medicaid, federal aid, employment rate, non-poverty population rate, and SSI subsidy – all significantly affected (p < 0.01 or p < 0.05) net migration in 2006; (2) the main influences on net migration for the various states are, from highest to lowest, social network, economic, and welfare factors. More specifically, a better explanation is that, through the social network factor, economic and welfare factors exert an increased influence on the net number of migrants; and (3) as for the influence of social network factors on the number of net migrants, the social network factor for the previous year was found to best explain domestic migration flows, while the social network factor for the previous three-to-four years best explained international migration flows.

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INTRODUCTION

This study analyses the determinants of both internal and international migration. In fact, numerous factors influence the migration to various US states, some of which are related to internal migration, while others are related to international migration. Nevertheless, most of the prior literature has emphasized the relationship between economic and welfare subsidizations factors and migration decisions, with social network factor receiving little attention. This study argues that economic and welfare subsidizations are decisive influences on migration decisions, and help explain migration decisions through the intervention of the social network factor. Therefore, the framework of this study is based primarily on the social network factor, and supplemented by economic and welfare subsidization factors. These factors are employed to examine the influence each has on domestic and international migration to various US states.

The following reasons justify relying on the social network factor in this analysis. First, owing to the rapid development of globalization, international immigration has increased enormously. This increase has influenced the literature examining the influences on domestic and international migration as well as various migration theories. Although the contents of migration literature and major theories differ, in actuality, all pinpoint the push and pull factors identified as the primary influences on migration. Second, regardless of type, the push-pull factors are basically static. Only through the processes associated with dynamic social network activities are the push-pull factors best explained and able to increase their influence on migration decisions. Third, the previous literature contains few empirical studies of the relationship between social network factors and migration decision, and no prior studies have simultaneously discussed the influence of economic, welfare and social network factors on migration. This study treats social network factors as intervening factors and further examines the influence of the different economic and social welfare conditions of individual states on the number of immigrants entering those states through social network factors. This study used data collected from the Statistical Abstract of the United States for the period 1990 to 2006 to answer the above questions.

LITERATURE REVIEW

Why do people migrate to other regions or immigrate to another country? A vast literature exists based on empirical evidence and theoretical
perspectives. With regards to studies of internal migration, most researchers have concentrated on the cumulative evidence of the macro level data of the geographic distribution and migration of residents within a region (Hall, Ogden, and Hill, 1999; Jarvis, 1999). On the other hand, studies of international migration have stressed the status of immigrants as well as the exploration and discussion of their experiences (Ogden, 1998, 1999, 2000; Yeoh and Khoo, 1998; Boyle, Halfacree and Robinson, 1998). Though both these types of literature offer different focuses and explanations of the factors that influence migration, they all reach the same conclusion: migration decisions are typically rational. Besides being influenced by economic factors, migration decisions are also influenced by non-economic factors. Among these non-economic factors, social networks have recently attracted considerable attention.

With regard to the studies of the influences on migration, current domestic migration literature can be divided into two categories based on perspective. One category is based on the Harris-Todaro model (Harris and Todaro, 1970), which views economic opportunity as the main consideration of people seeking to migrate (also see Becker, 1962; Sjaastad, 1962; Schultz, 1961; Jackman and Savouri, 1992). The other builds on the Tiebout model (Tiebout, 1956), and emphasizes regional variances in the comfort level of non-economic factors in determining individual migration decisions (also see Wolpert, 1966; Rosen, 1974; Roback, 1988; Cragg and Kahn, 1997; Kohler, 1997; Gyourko, Linneman, and Wachter, 1999; Knapp, White, and Clark 2001; Wall, 2001). As for factors influencing international migration, the related literature can also be grouped into economic and non-economic factor studies. The former refers to a higher income or wage (Borjas, 1989a; Sjaastad, 1962) while the latter represents factors such as war, natural disasters, social networks, etc. (Hunter, 2005; Massey and Zenteno, 1999; Stark, 1991; Stark and Bloom, 1985). Nevertheless, due to economic globalization and the ease of transportation, flows of goods, capital, technology and information have recently become increasingly frequent and international. Globalization has not only reduced the gulfs of time and space, but has also decreased the financial and time costs associated with population migration. As a result, international migration increasingly resembles domestic migration (Sassen, 1988, 1991). Numerous well-known immigration theories, such as neoclassical economics, world systems, new economics, dual labour market, and social network theories, do not classify the factors that influence international migration and internal migration separately. Instead, most of these theories simultaneously utilize push and pull factors in their explanations.
The push-pull theory, proposed by Lee (1966) and Bogue (1969), suggests that push and pull forces in the country or region of origin and destination respectively are causes of migration. "Push" factors refer to poverty, unemployment, riots and so on in the country or region of origin. "Pull" factors refer to good employment and income opportunities, and better living conditions, education, welfare, environment and public security of the destination country or region. Scholars of neoclassical economic theory, as represented by Sjaastad (1962), stress that immigration originates from the variance in economic supply and demand between the origin country and destination countries. The dual labour market theory school of thought, represented by Piore (1975, 1979) emphasizes the influence of "pull" factors on immigration. This theory maintains that a dual labour market exists in developed countries, with local workers being unwilling to perform many menial or poorly paid jobs, thus in turn frequently creating an urgent need for foreign labour. On the contrary, both the world system theory developed by Sassen (1988, 1991) and the new economics immigration theory presented by Stark and Bloom (1985) emphasize the "push" factors. Their views differ in that the former stress that immigration results from the influence of a globalized economy, while the latter indicates that immigration decisions are often driven by a desire to maximize family income in order to improve the survival prospects of the family. Therefore, the main subject of immigration is not the "individual", but the "family".

As stated in the introduction, this study does not distinguish between international migration and internal migration. This study concurs with the aforementioned push-pull theory and uses it as a basis to collect related variables and construct a framework for further analysis. Within the push-pull factors, this study incorporates welfare factors in addition to economic ones. While there is growing interest in whether welfare maximization drives immigration decisions, the research results remain inconclusive. Schram, Nitz and Krueger (1998) have broken down welfare and migration into three stages. The earliest stage began in the 1960s and utilized primary data, but failed to find evidence of welfare benefits driving migration (e.g., Beale, 1971; Cebula, 1979; Long, 1974; Piven and Cloward, 1971; Steiner, 1971; Sternlieb and Indik, 1973); the second stage of research occurred during the 1970s and employed cross-sectional analysis. Occupational status, educational levels, marital status, fertility and other post-migration prediction indexes were used instead of pre-migration prediction indexes (refer to Cebula 1979 for a review of the relevant literature) and the research results reveal a correlation between the provision of benefits by a state and attraction of

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poor migrants. As related information increased in the third stage, research on welfare migrants made greater use of secondary data and empirical studies. However, whether individual migration decisions are based on welfare factors remains unclear. The evidence regarding this point is lacking or weak. (e.g., Hanson and Hartman, 1994; Levine and Zimmerman, 1995; Schram, Nitz, and Krueger, 1998; Tyler and Walker, 1994).

Nevertheless, some researchers have reached contradictory conclusions. For instance, Enchautegui (1997) found that social welfare subsidies have a huge influence on internal migration. Taking the Aid to Families with Dependent Children (AFDC) programme as an example, Enchautegui indicated that the US$ 25 differential in subsidies between states exerted a significant 44 per cent impact on migration decisions made by single women. On the other hand, Meyer (2000) pointed out that in making domestic migration decisions, welfare subsidy differences influenced only 2 per cent of mothers with low levels of education. As a matter of fact, prior to comprehensive welfare reform in the 1990s, states offering higher welfare subsidies usually attracted or kept more individuals and families with lower income than did other states (Peterson and Rom, 1990). As for the influence of social welfare factors on international immigration, it was also pointed out in Borjas’ research (1994) that in 1990, some 10 per cent of families receiving public assistance were foreign-born, and together they received 13 per cent of total cash assistance distributed, despite foreign-born families comprising just 8 per cent of total American families. Public assistance and welfare subsidy factors thus may be the main factors attracting foreign immigrants, resulting in the formation of magneto mechanical effects.

Enactment of The Personal Responsibility and Work Opportunity Reconciliation Act in 1996 re-provoked an argument on the influence of the welfare system of the United States on factors attracting internal migrants (Frey et al., 1996; Long, 1974; Schram, Nitz, and Krueger, 1998; Schram and Soss, 1999). Welfare migration theorists suggest that poor migrants are attracted by states that offer greater welfare benefits. However, treating welfare subsidies as the only significant variable is unconvincing. Under the new federalism, there are varieties of welfare assistance payments, entitlement requirements and limitations differently regulated among the 50 states. For example, the Aid to Families with Dependent Children (AFDC) programme has been strengthened in some states, maintained in others, and cut back in others, possibly influencing welfare migration (De Jong and Graefe, 2002; De Jong, Graefe, and
As yet, no consensus has been reached on the theory of welfare migration.

The main reason for the incorporation of social network factors in this study is that the author argues that all the push-pull factors inducing migration are static factors, and are inadequate in explaining the majority of migration phenomena. However, the intervening social network factor can increase the influence of push and pull factors on migration. In fact, all migration decisions are basically products of dynamic processes. In the dynamic decisionmaking process, the social network factor plays a critical role in extending static factors in the destination country or region that influence migration. However, empirical evidence regarding the influence of social network factors on migration decisionmaking is rare. This study finds that in the United States, a country with a long history of immigration, immigration decisions cannot be explained simply by economic or welfare factors. Through the effect of the social network factors, the role of economic and welfare factors has greater explanatory power with regards to immigration decisions.

Scholars of social network theory, represented by Massey (1990a, 1990b), assert that the factors influencing both international and internal migration are not limited to external variances in incomes, employment opportunities and population growth rates within the region. The decisions of residents to migrate are related to their social networks and blood relationships with pioneering earlier immigrants to the destination country. Two types of social networks generally exist, with one being chain migration and networks. Chain migration and networks are often used to describe how early pioneer migrants are followed by other migrants from similar families or communities, sometimes leading to a partial reconstruction of a hometown community in a new country (Price, 1963), deeply influencing population distribution, production, and changes in social structure (Harris and Todaro, 1970; Hatton and Williamson, 1994). Recent research on chain migration and networks have tended to focus on social capital (Bourdieu and Wacquant, 1992) with a view towards networks providing people with a migration route to the new country and assistance in obtaining jobs, homes, and other needs arising from migration (Boyd, 1989); these links indisputably provide crucial resources for individuals and groups (Liang and Ma, 2005).

The second type of social network is characterized by the clustering of family and community, and is takes the view that the decisions of migrants are usually made not by individuals, but rather by families.
Migration is intended not only to consider income variance, but also involves reducing the risks of survival and seeking greater well-being and benefits for families (Stark and Bloom, 1985; Massey et al., 1993; Hugo, 1994). This second type of social network emphasizes family survival strategies and long-term employment (Taylor, 1987). Bittles and Egerbladh (2005) found that the main consideration of nineteenth century migrants from northern Sweden was rejoining networks of relatives. Fussell (2003) considered that a shared way of life, measures of child growth, and social strategies are the main influences on social network formation.

**RESEARCH DESIGN**

The literature presenting empirical evidence of the influence of social network factors on migration to various states within the United States is inadequate. Additionally, the literature has rarely examined the influences of economic, welfare and the social network factors on inter-state migrants, or on foreign migrants who chose to immigrate simultaneously to the different states of America. Accordingly, this study treats social network factor as the intervening factor to examine the influence of economic and welfare factors on the number of net migrants via social network factors.

**Variable definitions and measurements**

This study focuses on discussing key influences on the net volume of migrants into a state. Table 1 lists the various definition variables and measurement methods used in the empirical model.

**Data collection**

The independent variables for this research are all derived from the theoretical or empirical literature. The independent variable data were sourced and collected primarily from the Statistical Abstract of the United States, and the 50 states were used as the units of analysis. The dependent variables in this study are the various states’ net migrants for 2006, namely, the number of immigrants to the state in 2006 minus the number of emigrants from the state in 2006. First, this study uses logit regression to select the independent variables that are at significant level. Then, Structural Equation Modeling, LISREL\(^3\) (LISREL is an acronym for the *L*Iinear *S*tructural *R*ELationships model) is utilized to
analyse the relationship between the various independent variables. The main reason for applying LISREL is that even though regression analysis can determine whether each independent variable significantly influences the dependent variable, it still cannot recognize the “web-like” relationship between the variables. However, the LISREL approach can simultaneously deal with latent and observable variables. The objective of using logit regression analysis is to enhance the overall LISREL model fitness and then increase the explanatory power of the model.

Regarding the data-calculation, considering that the antecedent dependent variables should have a time lag effect of at least three years, the independent variables of social and welfare factors used are averages for the period 1999 to 2001. Additionally, the net migration for years previous to 2006, the dependent variable in this research, is used as the social

<table>
<thead>
<tr>
<th>Factors</th>
<th>Variables</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>Personal Income</td>
<td>The average personal income of the state between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>Employment Rate</td>
<td>100 per cent minus the average unemployment rate of the states between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>Rate of Home Ownership</td>
<td>The average rate of home ownership of the states between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>Non-Poverty Population Rate</td>
<td>100 per cent minus average poverty population of the state between 1999–2001</td>
</tr>
<tr>
<td>Indirect Payments</td>
<td>Transfer Payments</td>
<td>The average amount of transfer payment of the state for each person between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>Federal Aid</td>
<td>The average amount of subsidy from the federal government to each person of the state between 1999–2001</td>
</tr>
<tr>
<td>Social Network</td>
<td>Rate of Net Migrants, 2002–2005</td>
<td>The number of immigrants of the state between 2002–2005 minus the number of emigrants, then divided by the total population of the state</td>
</tr>
<tr>
<td>Direct Payments</td>
<td>TANF (Temporary Assistance for Needy Families)</td>
<td>The average amount of subsidy that the state pays to each successful TANF applicant between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>SSI (Supplemental Security Income)</td>
<td>The average amount of subsidy that the state pays to each successful SSI applicant between 1999–2001</td>
</tr>
<tr>
<td></td>
<td>Medicaid (Medical Aid)</td>
<td>The average amount of subsidy that the state pays to each successful Medicaid applicant to the between 1999–2001</td>
</tr>
</tbody>
</table>
network variable, indicating that migration during the earlier years influences migration in subsequent years. Social network variables may appear to be dependent variables, but in fact indicate the influence of migration in previous years. Consequently, social network variables are treated as intervening factors in the following LISREL analysis. The findings of the empirical LISREL analysis demonstrate the number of years of delay owing to social network factors that can be best explained by the model and help identify the optimal time lag effect of social network factors. To discover the optimal time lag effect of social network factors, the rate of the net flow of migrants in 2005 (one year previous to 2006), and in 2004 (two years previous to 2006), 2003 (three years previous) and 2002 (four years previous) are used, respectively, as the independent variables. As for data analysis, the dependent variable is further classified into domestic interstate migrants and international immigrants from outside of the United States.

**Logit regression**

Logit regression analysis is used to test whether the various explanatory variables significantly influence net migration into a state as well as the direction of such an influence. In the process of model construction, if the number of net migrants into the state is positive then the dependent variable Y equals 1; if the number of net migrants into the state is negative, then the dependent variable Y equals 0.

The Logit regression analysis model is formulated as follows:

\[
P(Y_i = 1) = \frac{1}{1 + \exp(-(a + bX_i))}
\]

where the \(P(Y_i = 1)\) is the probability of net flow of foreign immigrants into the state, \(a\) denotes the intercept parameter, \(b\) represents the vector of the regression coefficient, and \(X_i\) is the observed value for vector \(X\) of the \(i\)th independent variable (i.e., explanatory variable). Since the coefficient of the independent variable in the Logit regression model can only be used to distinguish the direction of its effect on the dependent variables, and can not express its marginal effect on the dependent variables to understand the relative importance of each independent variable on the level of influences, the variables must be distinguished via the standardized regression coefficient.

In this study, Pearson correlation analyses are also performed on the various explanatory variables in order to understand whether high correlations exist between the explanatory variables (independent variables),
thereby influencing the estimation of results caused by multicollinearity. Table 2 shows the correlations of eleven explanatory variables. All correlation coefficients of the explanatory variables are below 0.39 except for the slightly high correlation coefficient (0.47) between the SSI and Medicaid variables, indicating that no covariance is attributable to these low-related explanatory variables, and hence demonstrating the appropriateness of further logit regression analysis.

Analysis

Table 3 presents the results of the logit regression analysis. Table 3 shows that the test result of the logit regression model reaches a 0.01 (-2LogL = 40.01, p = 0.0013 < 0.01) statistically significant level and the concordant rate of the sample is 90.7 per cent, indicating that the model has a high degree of explanatory power on the choices of rate of net immigration. In the constructed logit regression model, the probability of $P(Y_i = 1) = \frac{1}{1 + \exp(-a + bX_i)}$ increases with increasing value of the independent variable. Consequently, when the parameter estimate (the logit regression parameter) of the independent variable is positive, the factor exerts a positive effect in terms of attracting outside migrants; likewise, when it is negative it indicates the opposite situation. Furthermore, the Wald $\chi^2$ statistic test and P-value were utilized to test whether linear correlation existed between the two independent variables or not. A P-Value below 0.05 indicates the existence of a linear correlation and that the independent variables significantly influence the dependent variables.

I. Economic factor

1. Personal income: the parameter estimation is positive, and passes the significance test ($p < 0.01$), meaning that the personal income significantly influences migration decisions. Generally, residents of states with higher per capita incomes enjoy a better quality of life. As a result, such states attract more migrants.

2. Employment rate: the parameter estimation is positive and significant ($p < 0.01$), indicating that employment rate is an important influence on the state net migration rate. States with higher employment rate are more attractive to the unemployed or those who wishing to change jobs.

3. Rate of home ownership: the parameter estimation is positive indicates that the states with higher rates of home ownership see less outwards migration. However, the parameter estimation of this variable did not pass the significance test, indicating that rate of
<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
<th>(7)</th>
<th>(8)</th>
<th>(9)</th>
<th>(10)</th>
<th>(11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Income</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment Rate</td>
<td>0.23</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of Home Ownership</td>
<td>0.20</td>
<td>0.19</td>
<td>0.07</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Poverty Population Rate</td>
<td>0.15</td>
<td>0.24</td>
<td>0.07</td>
<td>0.05</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer Payment</td>
<td>0.09</td>
<td>0.04</td>
<td>0.20</td>
<td>0.10</td>
<td>0.05</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Rate of Net Migrants, 2002–2005</td>
<td>0.17</td>
<td>0.09</td>
<td>0.20</td>
<td>0.10</td>
<td>0.05</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rate of Net Migrants, 2006</td>
<td>0.26*</td>
<td>0.15</td>
<td>0.20</td>
<td>0.10</td>
<td>0.05</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Rate of Net Migrants, 2002–2005</td>
<td>0.22*</td>
<td>0.14</td>
<td>0.18</td>
<td>0.05</td>
<td>0.03</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TANF Subsidy</td>
<td>0.10</td>
<td>0.15</td>
<td>0.16</td>
<td>0.15</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSI Subsidy</td>
<td>0.16</td>
<td>0.15</td>
<td>0.16</td>
<td>0.15</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td>0.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medicaid Subsidy</td>
<td>0.18</td>
<td>0.13</td>
<td>0.20</td>
<td>0.19</td>
<td>0.03</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>0.04</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Note: * = statistically significant at p < 0.05 and ** = p < 0.01, respectively.
home ownership did not significantly influence state net migration rate.

4. Rate of non-poverty population: the parameter estimation is positive and $p < 0.01$, indicating that the rate of non-poverty population significantly influences the increase in net migration rate.

**II. Indirect payment factor**

1. Transfer payments: the parameter estimation did not pass the significance test. The explanation for this may be that since the transfer payment is not given directly to the people it is difficult for them to sense any direct benefit. The general public is unable to evaluate the amount of the transfer payment and therefore its influence is insignificant.

2. Federal aid: the parameter estimation is positive and $p < 0.01$, indicating that federal subsidies significantly influence the choice of the net migration rate. The federal subsidy is calculated by averaging the federal subsidy of each resident and mostly goes to fund welfare assistance. The benefits extended to residents are easily discerned by the public, and as people are attracted by

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**TABLE 3**

LOGIT REGRESSION ANALYSIS ON THE INFLUENCING FACTORS OF THE NET FLOW OF MIGRANTS

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Estimated coefficient</th>
<th>Wald-$\chi^2$</th>
<th>P-Value</th>
<th>Standardized Regression Coefficient</th>
<th>Odds Ratio$^a$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>2.0999</td>
<td>0.6433</td>
<td>0.5019</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Personal Income</td>
<td>3.1024</td>
<td>4.0808</td>
<td>0.0021**</td>
<td>1.6824 (5)</td>
<td>13.64</td>
</tr>
<tr>
<td>Employment rate</td>
<td>3.2575</td>
<td>6.1324</td>
<td>0.0010**</td>
<td>1.7109 (4)</td>
<td>15.01</td>
</tr>
<tr>
<td>Rate of Home Ownership</td>
<td>0.6587</td>
<td>1.9127</td>
<td>0.3050</td>
<td>0.3512 (9)</td>
<td>1.47</td>
</tr>
<tr>
<td>Non-Poverty Population Rate</td>
<td>2.8896</td>
<td>3.4591</td>
<td>0.0079**</td>
<td>1.5924 (6)</td>
<td>14.46</td>
</tr>
<tr>
<td>Transfer Payment</td>
<td>0.8952</td>
<td>1.6325</td>
<td>0.1022</td>
<td>0.9315 (8)</td>
<td>6.33</td>
</tr>
<tr>
<td>Federal Aid</td>
<td>3.6354</td>
<td>6.7354</td>
<td>0.0001**</td>
<td>1.8627 (3)</td>
<td>15.44</td>
</tr>
<tr>
<td>Average Rate of Net Migrants, 2002–2005</td>
<td>4.0130</td>
<td>8.4469</td>
<td>0.0001**</td>
<td>2.3245 (1)</td>
<td>19.98</td>
</tr>
<tr>
<td>TANF Subsidy</td>
<td>0.2658</td>
<td>1.4526</td>
<td>0.3784</td>
<td>0.2754 (10)</td>
<td>0.76</td>
</tr>
<tr>
<td>SSI Subsidy</td>
<td>1.1210</td>
<td>3.1524</td>
<td>0.0455*</td>
<td>1.3444 (7)</td>
<td>8.76</td>
</tr>
<tr>
<td>Medicaid Subsidy</td>
<td>3.7016</td>
<td>6.9645</td>
<td>0.0001**</td>
<td>2.1366 (2)</td>
<td>17.77</td>
</tr>
<tr>
<td>$-2\text{LogL} = 40.01 (p = 0.0013**)$</td>
<td></td>
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</tr>
<tr>
<td>Concordant = 90.7%</td>
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</tr>
</tbody>
</table>

Note: *, **statistically significant at $p < 0.05$ and $p < 0.01$, respectively. The figures in the parentheses indicate the order places of importance for each factor.

$^a$It refers to the number of times increased by the dependent variables as the independent variable has increased one unit.
subsidized welfare assistance, high subsidies generally attract people to migrate to a state.

III. Direct payment factors

1. TANF subsidy: the parameter estimation is positive, which indicates that the average TANF subsidy for each recipient has benefited the net migration of the state. However, since this variable did not pass the significance test, owing to foreign immigrants only being allowed to apply for TANF after having been in the country for five years, the coverage rate of the TANF is not significantly differentiated.

2. SSI subsidy: as the theoretical model predicted, coincidentally, the parameter estimation value of this variable is positive and passes the significance test (p < 0.05), which indicates that a positive relationship between increasing average per person SSI subsidy and net migration into a state.

3. Medicaid subsidy: the parameter estimation value is positive and significant (p < 0.01), indicating that states with higher Medicaid subsidies are more attractive to migrants.

IV. Social network factors

The parameter estimation of the average rate of net migration between 2002 and 2005 is positive and passes the significance test (p < 0.0001). As this has the highest standard logit regression coefficient – 2.3245 – in the logit model, this indicates that the variable has the greatest explanatory power on the net flow of migration into the state. Since this variable represents the average rate of four year (2002–2005) net migration, to further examine the annual average flow variances of domestic and international migrants, this variable is classified into eight models in the following LISREL analysis.

Logit regression analysis revealed that seven variables are present, ranked as follows in order of value of standardized logit regression coefficients: average rate net migration between 2002–2005 (2.3245), Medicaid subsidy (2.1366), federal aid (1.8627), employment rate (1.7109), personal income (1.6824), rate of non-poverty population (1.5924), and SSI subsidy (1.3444). All of these variables significantly influenced net migration of the state (p < 0.01 or p < 0.05). The relative importance of the absolute value of the standardized logit regression coefficient increased with its relative importance. Furthermore, the odds ratio result
indicates the rate of positive net migration of the state or the country for each factor. For example, an odds ratio of personal income is 13.64 indicates that when the personal income of the state doubles, foreign immigration to the state will increase by 13.64 times.4

To further understand the correlations between the seven variables in this research, personal income, employment rate, and the non-poverty populations are categorized under economic factors, while federal aid and Medical aid are grouped under welfare subsidy factors; furthermore, the net migrants in 2002, 2003, 2004, and 2005 are classified as the social network factors. The dependent variable is the net migrants for the year 2006. In this study, it is hypothesizes that economic and welfare subsidy factors influence the net migration for 2006 via social network factors (net migration in 2002, 2003, 2004, and 2005); the related research hypotheses and framework (see Figure 1) are listed below:

H1: a significantly positive relationship exists between the economic and social network factors.

H2: a significantly positive relationship exists between the economic factor and net migration.

FIGURE 1
THE ANALYSIS FRAMEWORK OF THIS RESEARCH

X1: Personal income
X2: Unemployment rate
X3: Non-poverty population rate
X4: Federal aid
X5: Medicaid subsidy

Economic factor

Welfare subsidy factor

Social network factor

Net migration

Y1: Migration conditions
Y2: Migrated in 2006 (migrated in 2005)
H3: a significantly positive relationship exists between the welfare subsidy and social network factors.

H4: a significantly positive relationship exists between the welfare subsidy factor and net migration.

H5: a significantly positive relationship exists between the social network factor and net migration.

The dependent variable in this study is net migration in 2006. To further understand annual flow variances between domestic and international migrations, the data of net migrants of 2006 will be classified into two dependent variable groups, that is, Y2a and Y2b, which indicates the net domestic migration and international migration respectively. Likewise, the Y1 independent variables, that is, the social network factor, are separated into internal and international migrations for the year before 2006 (2005), two years before 2006 (2004), three years before 2006 (2003), and four years before 2006 (2002). Thus the eight following results of the LISREL analytical models are presented in this study.

LISREL analysis results are summarized in Table 4. As shown in Table 4, all eight social network models exhibit good model fit. First, the results of net domestic migration indicate that, besides the fit indexes of the model of the four years before 2006 (2002) (with $\chi^2/df^5$ exceeding 3.0, the GFI, AGFI, and CFI were all below 0.90, while RMR was lower than 0.05) had not reached the excellent fit, the other three models, with an overall fitness of $\chi^2/df$ below 3.0, and with GFI, AGFI, CFI all greater than 0.90, and RMR lower than 0.05, all display significantly better fit. Among them, the overall fit indexes of the model for the year before 2006 (2005) confirming an excellent fit of the model to the data, outperforming the other three models in explaining the scenario with an overall fitness of $\chi^2/df=1.65$, GFI = 0.95, AGFI = 0.93, CFI = 0.93, and RMR = 0.0019. The LISREL analysis of net domestic migration suggests that combining the economic and welfare subsidy factors, and the social network factor for the previous year can best explain domestic migration flow.

Second, the fit indicators of the four models of net international migration, with an overall fitness of $\chi^2/df$, are all below 3.0, while GFI, AGFI, CFI all exceed 0.90, and RMR is below 0.05, all exhibiting an quite well overall confirmation fit. Further comparison analysis indicated that the overall fit indexes of the social network factor of 2003, for the
three years prior to 2006, with an overall fitness of $\chi^2/df = 1.99$, $GFI = 0.94$, $AGFI = 0.94$, $CFI = 0.93$, and $RMR = 0.023$, confirming excellent model fit to the data, and indicating that the model provides the best explanation of net international migration inflow in 2006. As shown, the overall fit indexes of the four net international migration models provide significantly outstanding fits which well explain and predict the net flow of international migration.

To verify the stability of the above findings, net migrants in 2001 to 2004 are grouped as the social network factor, and net migrants of 2005 are treated as the dependent variable to retest the overall model fitness. The results of the net domestic migration of 2005, presented in Table 4 in italics, revealed that the social network factor for the previous year (2004) displayed the highest overall model fitness ($\chi^2/df = 1.84$, $GFI = 0.94$, $AGFI = 0.92$, $CFI = 0.92$, and $RMR = 0.023$). Likewise, the analysis of net international migration of 2005, demonstrated that the overall model fit of the previous three-year period (2002) of social

<table>
<thead>
<tr>
<th>Model A: Dependent Variable (Y2a) Net Domestic Migration of 2006/(Net Domestic Migration of 2005)</th>
<th>$\chi^2/df$</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>RMR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y1: 2005</td>
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<td>0.95</td>
<td>0.93</td>
<td>0.93</td>
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<tr>
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<td>0.92</td>
<td>0.92</td>
<td>0.023</td>
</tr>
<tr>
<td>Y1: 2004</td>
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<td>0.92</td>
<td>0.93</td>
<td>0.92</td>
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<td>(Y1: 2003)</td>
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<td>0.92</td>
<td>0.91</td>
<td>0.024</td>
</tr>
<tr>
<td>Y1: 2003</td>
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<td>0.91</td>
<td>0.90</td>
<td>0.89</td>
<td>0.042</td>
</tr>
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<td>(Y1: 2002)</td>
<td>2.34</td>
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<td>0.91</td>
<td>0.90</td>
<td>0.041</td>
</tr>
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<td>Y1: 2002</td>
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<td>0.88</td>
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<td>(Y1: 2001)</td>
<td>2.98</td>
<td>0.89</td>
<td>0.88</td>
<td>0.86</td>
<td>0.047</td>
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<th>Model B: Dependent Variable (Y2b) Net International Migration of 2006/(Net International Migration of 2005)</th>
<th>$\chi^2/df$</th>
<th>GFI</th>
<th>AGFI</th>
<th>CFI</th>
<th>RMR</th>
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<td>0.91</td>
<td>0.91</td>
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<td>(Y1: 2004)</td>
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<td>0.89</td>
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<td>Y1: 2004</td>
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<td>0.92</td>
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<tr>
<td>(Y1: 2003)</td>
<td>2.35</td>
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<td>0.91</td>
<td>0.90</td>
<td>0.038</td>
</tr>
<tr>
<td>Y1: 2003</td>
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<td>0.94</td>
<td>0.93</td>
<td>0.023</td>
</tr>
<tr>
<td>(Y1: 2002)</td>
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<td>0.93</td>
<td>0.93</td>
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<td>Y1: 2002</td>
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<td>(Y1: 2001)</td>
<td>2.73</td>
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<td>0.92</td>
<td>0.91</td>
<td>0.037</td>
</tr>
</tbody>
</table>

Note: The figures in italics represent the overall model fitness results of using domestic and international migration of 2001–2004 as the social network independent variables with 2005 internal and international migration data as the dependent variable Y2a as well as Y2b separately.
network factors also showed the highest overall model fitness ($\chi^2/df = 1.84$, GFI = 0.94, AGFI = 0.92, CFI = 0.92, and RMR = 0.023).

Additionally, the internal fit of the eight models is examined to further investigate the correlation between the variable. As shown in Table 5, the result indicates that the loadings of all indicators of variables are statistically positive and significant (p < 0.001). Regardless of which net migration figures provide the dependent variable, 2006 or 2005, the positive correlation among the variables, with factor loadings ranging from 0.66 to 0.92, displays a high correlation between the various factors. Thus, the five hypotheses of this study were all confirmed by the internal fit result.

First, this study examines the model in which net migration in 2006 is the dependent variable and compares it with the variances of domestic and international migration. With respect to domestic migration, it is

### TABLE 5
RESULT OF MODEL’S INTERNAL OF FIT

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<td>$\gamma_{11}$</td>
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<td>$\gamma_{12}$</td>
<td>$\gamma_{22}$</td>
<td>$\beta_{21}$</td>
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</table>

**Model A:** Dependent Variable (Y2a) Net Domestic Migration of 2006/(Net Domestic Migration of 2005)

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<tbody>
<tr>
<td>2005</td>
<td>0.69***</td>
<td>0.73***</td>
<td>0.74***</td>
<td>0.83***</td>
<td>0.86***</td>
<td></td>
</tr>
<tr>
<td>(Y1: 2004)</td>
<td>0.71***</td>
<td>0.74***</td>
<td>0.75***</td>
<td>0.82***</td>
<td>0.85***</td>
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</tr>
<tr>
<td>2004</td>
<td>0.69***</td>
<td>0.72***</td>
<td>0.75***</td>
<td>0.85***</td>
<td>0.81***</td>
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<tr>
<td>(Y1: 2003)</td>
<td>0.70***</td>
<td>0.71***</td>
<td>0.73***</td>
<td>0.84***</td>
<td>0.83***</td>
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</tr>
<tr>
<td>2003</td>
<td>0.71***</td>
<td>0.70***</td>
<td>0.88***</td>
<td>0.81***</td>
<td>0.79***</td>
<td></td>
</tr>
<tr>
<td>(Y1: 2002)</td>
<td>0.72***</td>
<td>0.71***</td>
<td>0.83***</td>
<td>0.76***</td>
<td>0.80***</td>
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</tr>
<tr>
<td>2002</td>
<td>0.69***</td>
<td>0.69***</td>
<td>0.74***</td>
<td>0.73***</td>
<td>0.74***</td>
<td></td>
</tr>
<tr>
<td>(Y1: 2001)</td>
<td>0.67***</td>
<td>0.70***</td>
<td>0.72***</td>
<td>0.74***</td>
<td>0.74***</td>
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**Model B:** Dependent Variable (Y2b) Net International Migration of 2006/(Net International Migration of 2005)

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<tbody>
<tr>
<td>2005</td>
<td>0.69***</td>
<td>0.73***</td>
<td>0.69***</td>
<td>0.80***</td>
<td>0.91***</td>
<td></td>
</tr>
<tr>
<td>(Y1: 2004)</td>
<td>0.69***</td>
<td>0.73***</td>
<td>0.66***</td>
<td>0.77***</td>
<td>0.91***</td>
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</tr>
<tr>
<td>2004</td>
<td>0.68***</td>
<td>0.74***</td>
<td>0.67***</td>
<td>0.80***</td>
<td>0.88***</td>
<td></td>
</tr>
<tr>
<td>(Y1: 2003)</td>
<td>0.71***</td>
<td>0.72***</td>
<td>0.67***</td>
<td>0.81***</td>
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<td></td>
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<tr>
<td>2003</td>
<td>0.67***</td>
<td>0.74***</td>
<td>0.71***</td>
<td>0.88***</td>
<td>0.93***</td>
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<tr>
<td>(Y1: 2002)</td>
<td>0.72***</td>
<td>0.75***</td>
<td>0.73***</td>
<td>0.86***</td>
<td>0.92***</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>0.64***</td>
<td>0.70***</td>
<td>0.71***</td>
<td>0.87***</td>
<td>0.92***</td>
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</tr>
<tr>
<td>(Y1: 2001)</td>
<td>0.66***</td>
<td>0.71***</td>
<td>0.76***</td>
<td>0.87***</td>
<td>0.91***</td>
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</tr>
</tbody>
</table>

Note: The figures in italics represent the overall model fitness results of using domestic and international migration of 2001–2004 as the social network independent variables with 2005 domestic and international migration data as the dependent variable Y2a as well as Y2b separately.
interesting to note the influence of the welfare factor on the social network factor, especially in the three years before 2006 (2003) during which the social network factor had the highest impact ($\gamma_{12} = 0.88^{***}$). As for the effect of social network factor on net migration, the social network factor had the greatest impact ($\beta_{21} = 0.86^{***}$) during the year previous to 2006 (2005). Furthermore, among all the factors influencing net migration, social network factor (with $\beta_{21}$ from 0.74*** to 0.86***) and social welfare factor (with $\gamma_{22}$ from 0.73*** to 0.85***) have a higher impact, but the economic factor has the lowest impact (with $\gamma_{21}$ from 0.69*** to 0.73***) of the three.

A similar result is also obtained from the net international migration analysis. Among all the factors, social network factor has the strongest influence on net migration, and the previous three years before 2006 (2003) of the social network factor exerts the highest impact (with $\beta_{21} = 0.93^{***}$) on net international migration particularly. With regard to the effects of economic factor on social network factor (with $\gamma_{11} = 0.69^{***}$) and on net migration (with $\gamma_{21} = 0.77^{***}$), the model of the year previous to 2006 (2005) revealed that the social network factor has the highest impact. As for the effect of the welfare factor on the social network factor in the three to four years prior to 2006 (with $\gamma_{12} = 0.71^{***}$), the social network factor has the highest impact on net international migration. The effect of welfare factor on net migration factor (with $\gamma_{22} = 0.88^{***}$) shows that in the three years before 2006 (2003) the social network factor has the greatest impact on net migration.

Second, this study examines the model in which net migration during 2005 is the dependent variable, and further compares the variances of domestic and international migration. With regard to domestic migration (as shown in Table 5 in italics), the effect of welfare factor on net migration factor is strongest during the previous two years before 2005 (2003) (with $\gamma_{22} = 0.84^{***}$). As for the effect of the social network factor on net migration, the influence of social network factor is strongest in the year before 2005 (2004) (with $\beta_{21} = 0.85^{***}$). Furthermore, among all the factors influencing net migration, the strongest influences on net migration are social network (with $\beta_{21}$ from 0.74*** to 0.85***) and welfare (with $\gamma_{22}$ from 0.74*** to 0.84***) factors, with economic factor (with $\gamma_{21}$ from 0.70*** to 0.74***) being the weakest of the three.

A comparison of the model with net migration of 2005 as the dependent variable yielded similar findings in the net international migration analysis. The social network factor exerts the strongest influence on net
migration, and the impact is strongest for the three years before 2005 (2002) (with $\beta_{21} = 0.92^{***}$). Regarding the effect of the economic factor on the social network factor (with $\gamma_{11} = 0.72^{***}$) and on the net migration factor (with $\gamma_{21} = 0.75^{***}$), the impact of the social network factor was strongest for the three years before 2005. With respect to the effect of the welfare factor on the social network factor (with $\gamma_{12} = 0.73^{***}, 0.76^{***}$ respectively), the impact of the social network factor is highest for the three-to-four years previous to 2005. The effect of the welfare factor on the net migration factor (with $\gamma_{22} = 0.87^{***}, 0.87^{***}$ at the same time), shows that in the three-to-four years before 2005, the social network factor has the greatest influence.

In conclusion, a re-examination of the model fit using net migration for 2005 and 2006 as the dependent variable provided supported the same conclusion. For the net domestic migration, the model of the year previous to 2006 or 2005 has the greatest explanatory power. With respect to net international migration, the models of the previous three to four years exert the greatest explanatory powers. Figure 2 illustrates the LISREL model of the influences on net domestic and international migration in the United States.

**DISCUSSION**

The official data of the United States was used for this study in order to establish an empirical model of influences on migration and contribute to the related literature. With regard to the economic factor, although the importance of the influence of wage differentials on migration decisions was pointed out to in prior literature (see Borjas, 1989b; Bauer and Zimmermann, 1995; Öberg, 1997), wages are just one of the variables contributing to the economic factor. This study examines the influences of personal income, employment opportunities, non-poverty population and other economic variables on migration, and hypothesizes that higher personal income and employment rates, and lower non-poverty population will attract migrants. The empirical results support the hypotheses of this study. However, compared with the explanatory power of all factors, this study found that the economic factor had lower explanatory variance on migrations than did the welfare and social network factors. Nevertheless, the empirical findings of this study did not violate its consistency with neoclassical economic theories, indicating that people look for job opportunities in richer states and may settle in such states, despite this tendency exacerbating existing population
imbalances between rich and poor states, which policymakers should devote greater attention to. The implications of the relevant policies lead to an improvement in the economic condition of the poor states, where efforts should be dedicated to reducing unemployment rate and increasing personal incomes, since the poverty population rate needs to be decreased to prevent outwards immigration.

With regards to the welfare assistance factor, Blau (1984), Borjas and Trejo (1991), Borjas and Hilton (1996), and Van Hook and Bean (1999), all point out that welfare assistance standards significantly influence

FIGURE 2
LISREL MODEL OF THE FACTORS OF INFLUENCING THE NET DOMESTIC AND INTERNATIONAL MIGRATION OF THE UNITED STATES

Note:
1. All values represent the factor loadings.
2. The figures in standard form represent the LISREL model results of using net migration of 2006 as the dependent variable and previous one year before 2006 (2005), for domestic migration, as well as previous three years before 2006 (2003), for international migration, of the social network factor as the independent variables respectively. The figures in parenthesis stand for previous three years before 2006 (2003) the social network factor for international migration.
3. The figures in italics represent the LISREL model results of using net migration of 2005 as the dependent variable and previous one year before 2005 (2004), for domestic migration, as well as previous three years before 2005 (2002), for international migration, of the social network factor as the independent variables respectively. The figures in parenthesis stand for previous three years before 2005 (2002) the social network factor for international migration.
4. *, **, and *** stand for $p < 0.05$, $p < 0.01$, and $p < 0.001$ separately.
migration decisions, especially for single mothers (and others who place a high emphasis on welfare) (also see, Gelbach, 2004). Therefore, the hypotheses of this study suggest that the cross-state differences in federal aid, supplemental security income (SSI) and Medicaid subsidies influence the migration decisions of welfare recipients, with locations with higher subsidies being more attractive migration destinations. The empirical findings of this study prove that various state welfare policies explain variances in migrations, consistent with the previous literature and the study hypotheses. Much of the economic research encourages the conclusion that a state government policy will strongly influence the policies of its neighbouring states (e.g., Gramlich and Laren, 1984; Case, Hines, and Rosen, 1989; Case, Rosen, and Hines, 1993; Baicker, 2001). The passage of the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) could lead to a race to the bottom in cutting recipient welfare assistance, and given the potential negative outcomes this possibility deserves serious attention. Moreover, owing to the fact that the welfare subsidy factors are closely related to economic factors in a broad sense, the result indicating that welfare subsidy factors affect net migration outcomes is not surprising. Since welfare subsidies are also affected by economic factors, for decisionmakers, sound migration policies should mean that creating a positive economic environment factor is more important than building up beneficial welfare assistance systems.

In the view of Borjas and Hilton (1996), social networks affect migration decisions through their ability to spread welfare information (see also, Tilly, 1990). The results of this study also prove that the social network factor have an impact on migration. It was found in this research that, with respect to the internal migration, the effect of the social network factor is the strongest for the one-year period previous to 2006 (2005). As for international migration, social network factor had the greatest effect on migration for the three to four years prior to 2006. That is, in relation to internal migration, the migration of the period one-year previous affects migration during the subsequent year. The effect of the social network factor on migration reduces with increasing time period interval. With regard to international migration, the effects of the previous three-to-four years are much greater than those of other periods. This phenomenon indicates that prior migrants establish social networks and attract later migrants. Owing to the influences of longer preparation and application periods associated with immigration from abroad, therefore, the time lag effect of three-to-four years is reasonable. The empirical results of this study demonstrate that while social network factors, or the so-called chain migration factor exist, they have a
minimal long-term effect and their influence is better perceived in the short term. In a word, the influence of the social network factor on net internal migration is strongest after a one-year lag, while its influence on net international migration peaks after a lag of three-to-four years.

The findings of this study indicate that both economic and welfare factors are significant influences on migration among all the “push-pull” factors, yet their direct explanatory powers on illustrating migration is not high enough. Nevertheless, the intervention of social network factor significantly improves the explanatory power of economic and welfare factors on migration decision. This study proves that regardless of the type of “push-pull” factor involved, each factor is static in nature. Moreover, only through the intervention of dynamic social network activities can push-pull factors increase their influences on migration decisions. The findings of this study of social network factor should serve as a reference for decisionmakers in shaping future population policies.

LIMITATIONS AND FUTURE RESEARCH

Although many studies have analysed the factors influencing migration, an interdisciplinary perspective has seldom been adopted. Given the current rapid pace of globalization, migration is set to attract increasing attention and considerable space exists in future for further research on this topic. This study divided migration into domestic and international. However, the data collection suffered some limitations: for example, this study was unable to distinguish between first-time and repeat migration. If such limitations could be avoided in the future, a more detailed and precise analysis would be possible. Topics related to social network activities and migration decisions also deserve further micro-level study and discussion. Finally, it is believed that the American Community Survey (ACS) database proposed by Mather, Rivers and Jocobsen (2005) will be able to provide future researchers with more relevant data for empirical studies on migration.

NOTES

1. It is believed that with the existence of blood relationships and social network relationships between populations of the country of origin and the country of destination, the risks, costs, and uncertainties of immigration decrease, thus encouraging the entrance of population.
2. Massey and Zenteno (1999) further integrated networks with the social capital theory and proposed the models of migration.

3. LISREL is a versatile and powerful method, developed by Jöreskog and his colleagues (Jöreskog, 1978; Jöreskog and Sörbom, 1982, 1984) that combines features of factor analysis and multiple regressions for studying both the measurement and the structural properties of theoretical models. It allows for the estimation of causal relationships among latent (unobserved) variable, and permits for measurement errors and correlated residuals. Since the late 1970s and early 1980s, the number of researchers using a covariance structure modeling approach (primarily LISREL) has been growing steadily in various social science fields, including sociology, psychology, communication, education, child development, marketing, and political science. This study tries to explore the relationships between economics, welfare, social network factors, and net migration in the U. S. In order to do this, LISREL will be the main methodology employed in this study.

4. In theory, when individual income increases by 100 per cent, the net immigration to that state should increase by 13.64 times. It seems that the importance of individual income to net immigration is inflated. In reality, it is difficult to increase individual income by 100 per cent in a short time. But if in a short run, individual income has only increased by 1 per cent and its influence on net immigration is 0.1364 times, which shall turn out to be quite an acceptable and reasonable estimate. Of course, with regard to actual long-term development, when immigrants migrate from a low income country to a high income country, it will cause the wage of the high income country to decrease and the wage of the low income country of origin to rise. With the decrease in the wage gap of the two countries, the attractiveness of immigration will also decrease.

5. The chi-square statistic is normally used to evaluate the overall model fit in covariance structure models. Some researchers divide the Chi-square by the numbers of degrees of freedom. A rule of thumb is that if this ratio is less than 3, it is considered acceptable.

6. The goodness-of-fit (GFI) is an indicator of the relevant amount of vari- ances and covariances accounted for by the model. The GFI varies from 0-1 with 1 being a perfect fit. A variant of this statistic is the Adjusted Goodness of Fit (AGFI) index, which corrects downward the value of the GFI as the number of parameters increases. The AGFI values greater than 0.9 are considered well-fitting.

7. Comparative Fit Index (CFI) indicates the proportion in the improvement of the overall fit of the researcher’s model relative to a null model in which all variables are assumed to be uncorrelated. A CFI of .70 means that the overall fit of the tested model is 70 per cent better than that of a null model, based on the sample data. Much like the GFI, AGFI, CFI values greater than 0.9 are considered well-fitting.

8. Root mean squared residual (RMR) measures the fitted residual after getting the difference between a sample covariance (variance) and a fitted/
model implied covariance (variance). When the fit of the model is perfect, the RMR equals zero. A value of the RMR of about .05 or less would indicate a close fit of the model in relation to the degrees of freedom.

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