Discussion of: Immigration and the macroeconomy

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Outline of discussion

1. Extent to which immigration offers insights into business cycle dynamics
2. Extent to which DSGE theory offers insights into immigration theory
3. Empirical evidence on the impact of immigrant flows into (and out of) the U.S. on domestic labor supply and equilibrium wages.

IRBC model:
Immigration Real Business Cycle model

- Backus, Kehoe and Kydland (1994) two country, two good model with…
  - An endogenous emigration decision, based on expected discounted present value of benefits relative to sunk costs
  - An exogenous exit probability, which operates like a depreciation rate on the existing immigrant labor supply
  - A couple of modeling ‘short-cuts’

Demand Aggregators and Resource Constraints

$$Y_t = H\left(Y_{hh,t}, Y_{fh,t}\right) = C_t + I_t + \frac{L_{it}}{L_t^*} C_t^* Q_t$$

Old: BKK

Short-cut

$$Y_t^* = H\left(Y_{ff,t}, Y_{hf,t}\right) = C_t^* + I_t^* - \frac{L_{i,t}}{L_t^*} C_t^* + f_e w_{it} Q_t^{-1} L_{e,t}$$

New: sunk emigration costs

Endogenous entry into USA

Fixed cost of emigration = PDV of wage differential in purchasing power terms:

$$f_e w_{i,t} Q_t^{-1} = \sum_{s=t+1}^{\infty} [\beta^s (1-\delta_l)]^{s-t} E_t \left[\frac{C_t^*}{C_s^*} (w_{i,t} Q_t^{-1} - w_t^*) \right]$$

Exogenous return to Mexico

$$L_{i,t} = (1-\delta_l)(L_{i,t-1} + L_{e,t-1})$$

Immigration theory

- Allowing for endogenous exit decisions would enrich the model
- Involves defining value functions over future states (reside in U.S., reside in Mexico) relative to current state (current location)
- The thrust of the paper: stochastic, dynamic modeling is right on the money.

Immigration theory

- Paper contains interesting facts about hazard rates
- Reyes (1997) 50% (65%) of undocumented Mexican immigrants return to Mexico within 2 (4) years.
- What fraction of this is seasonal rather than cyclical (agriculture, landscaping, construction)?
- Who moves across the border more frequently, documented or undocumented immigrants. If enforcement concentrated at the border, wouldn't it be the former group?

Remittances

Consumption of immigrants is set equal to the purchasing power equivalent of consumption of Mexicans who remain in Mexico

$$\Theta_t = w_{i,t} L_{i,t} - \frac{L_{i,t}}{L_t^*} C_t^* Q_t$$

Here, you do not want to be the family member chosen to emigrate.

Approach taken here likely overstates remittances.

Alternative: equate marginal utility across family members, would provide more consumption in proportion to hours worked.

Remittances

- Aggregation correlations of apprehensions and Y/Y* and remittances and Y/Y* are both informative and interesting.

- Would like to see more facts and theory brought to bear on…

  the microeconomics of remittances, labor supply and risk-sharing.

Remittances, labor supply and risk sharing

- Family members 'straddle' the border, the mobile population (?)
- What fraction of undocumented or documented Mexican immigrants have family members that work in Mexico?
- What is known about the intensity of that effort and it's correlation with immigration labor and wages in the United States?

Issue 1: Is this the new IRBC?

- Is international labor mobility an important missing facet of existing IRBC?
- Comparison of moments for model with and without immigration seems the best place to look.
- Conceptually, it is useful to think of the immigrant Mexican population as a small open economy with high cross-border labor mobility while the remaining labor force is much lower mobility.

Standard deviations

	United States			Mexico		
	Data	Migration	No migration	Data	Migration	No migration
Output	1.24	0.90	0.88	2.32	2.41	2.78
Consumption	0.93	0.42	0.48	2,84	0.93	0.99
Investment	4.18	2.68	2.96	9.26	15.91	13.08
NX/GDP	0.33	1.61	0.47	1.47	1.02	0.47
Q	12.53	0.64	0.69	12.53	0.64	0.69

Correlation with output

	United States			Mexico		
	Data	Migration	No migration	Data	Migration	No migration
Output	1.00	1.00	1.00	1.00	1.00	1.00
Consumption	0.83	0.94	0.90	0.92	0.92	0.90
Investment	0.90	0.92	0.87	0.90	0.93	0.96
NX/GDP	-0.42	-0.13	-0.33	-0.72	-0.73	-0.63
Q	0.35	0.09	0.09	-0.56	0.83	0.83

Cross-country correlations

	Data	Migration	No migration
Output	0.16	0.27	0.26
Consumption	-0.04	0.51	0.43
Investment	0.21	-0.24	-0.34
C/C*, Q	-0.47	0.99	0.93

Issue 1: Is this the new IRBC?

- No.
- The extended model does no better or worse than BKK (1994)
- Given the small labor flows relative to the size of both economies, this should not be surprising.
- However, the DSGE model does help us understand immigration dynamics!

Issue 1: Is this the new IRBC?

Aside

- Would interesting to see terms of trade implications, the key facet of the BKK puzzle (oil may be important)
- These might be more sensitive to the immigration margin than broader aggregates

Issue 2: Does DSGE theory advance immigration theory?

- Yes
- Impulse response analysis offers rich predictions for impact and transition effects of US or Mexican booms
- The results suggest to me a sector and possibly regional focus, chosen such that immigration labor is a large shifter.
- The analysis would be more convincing with data on immigrant wages and immigrant labor supply perhaps coupled with a VAR analysis

Issue 2: Does DSGE theory advance immigration theory?

- I would love to see a variance decomposition of key variables such as immigrant labor, domestic labor in competing and complementary sectors and wages differentials into:
  - Impact of common shocks (asymmetric responses)
  - Impact of U.S. shocks
  - Impact of Mexico shocks

Seasonal, cyclical or secular?

- Business cycle focus is intriguing, but is it the best frequency?
- Immigration
  - Secular trends
  - Reagan administration amnesty policy
  - NAFTA
  - Post 9-11 border restrictions
- Seasonal flows
  - Presumably large and highly transitory

Issue 3: Empirical work on immigrant flows and native wages

"The Uniformity of Immigration's Effect on Wages"
by Tommy Gutman

Emulates approach of Peri & Ottaviano (2006) and finds the effect of immigration on native wages is small, less than one percent in some regions, but does not support the conclusion found in Peri & Ottaviano that immigration has increased native wages. Additionally, changing the order of aggregation in Peri & Ottaviano's model leads to different estimates for wages.

Production and factor inputs

$$Y_{h,t} = A_t F\left(K_t, G(L_{i,t}, \varsigma L_{n,t})\right)$$

$$Y_{h,t} = A_t G_0\left((L_{i,t} + L_{u,t}), G_1(K_t, \varsigma L_{s,t})\right)$$

$$Y_{f,t} = A_t^*\left(K_t^*\right)^{\alpha}\left(L_{f,t}^*\right)^{1-\alpha}$$

F is a Cobb-Douglas aggregator
G is a CES aggregator
n – U.S. labor
s – skilled labor (U.S. only!)
u – unskilled (U.S.)
i – Mexican labor employed in U.S.
f – Mexican labor

Firms and labor demand

$$\frac{w_{n,t}}{w_{i,t}} = \left(\frac{1-\gamma}{\gamma}\right)^{\frac{1}{\theta}} \varsigma^{\left(\frac{\theta-1}{\theta}\right)} \left(\frac{L_{n,t}}{L_{i,t}}\right)^{-(\frac{1}{\theta})}$$

$$\frac{w_{s,t}}{w_{u,t}} = \left(\frac{1-\gamma}{\gamma}\right)^{\frac{1}{\theta}} \varsigma^{\left(\frac{\theta-1}{\theta}\right)} \left(L_{s,t}\right)^{-(\frac{1}{\eta})} \left(\frac{1}{L_{i,t}+L_{u,t}}\right)^{-(\frac{1}{\theta})}$$

Labor market

- Mexican labor force is implicitly treated as entirely unskilled.
- It would be interesting to have more symmetry across the two countries to better understand the cross-country correlation of the skill premium

Labor market

- How should we think about small estimated impact of immigrant labor on native wages in the empirical literature?
- Much of the debate seems to rest on the method of aggregation of labor and categorization of labor
- Functional forms could be relaxed to better connect with this existing literature.
- This paper could shed light on the static and dynamic issues relating to this question.

Immigration and the macroeconomy

- This is an intriguing and careful study of U.S. and Mexican business cycles emphasizing immigration flows and remittances.
- The paper has set into motion a novel and productive approach to the seasonal, cyclical and secular dynamics of immigration.
- I look forward to watching this research program going forward.
- Well done!