Journal of Monetary Economics 68 (2014) 115–135

Contents lists available at ScienceDirect

Journal of Monetary Economics

journal homepage: www.elsevier.com/locate/jme

On the individual optimality of economic integration

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ARTICLE INFO

Article history:
Received 16 August 2011
Received in revised form
5 August 2014
Accepted 5 August 2014
Available online 13 August 2014

Keywords:
Incomplete markets
Endogenous borrowing constraints
Risk sharing
Economic integration

ABSTRACT

Which countries find it optimal to form an economic union? We emphasize the risk-sharing benefits of economic integration. Consider an endowment world economy model, where international financial markets are incomplete and contracts not enforceable. A union solves both frictions among member countries. We uncover conditions on initial incomes and net foreign assets of potential union members such that forming a union is welfare-improving over standing alone in the world economy. Consistently with evidence on economic integration, unions in our model occur (i) relatively infrequently, and (ii) emerge more likely among homogeneous countries, and (iii) rich countries.

1. Introduction

Which countries find it optimal to form an economic union? Our aim is to try to understand the patterns of economic integration that are observed in the real world. This paper emphasizes a particular motivation for economic integration: improving risk sharing. Economic unions are viewed as small-scale arrangements, composed of a small number of countries, where partners are better able to cope with the frictions that limit risk-sharing in the world economy. We ask which countries would rather be part of this type of economic union than stand alone in the world economy, and compare the configuration of successful unions predicted by our theory with those seen in the data.

Consider an initial situation in which countries are sitting in the world economy with very limited possibilities to sharing idiosyncratic endowment risk. Risk sharing is limited by two frictions. First, markets are incomplete since countries may only trade a non-contingent bond. Second, international lending contracts are not legally enforceable. At any time, a country may choose to repudiate its foreign debt. The sanction for doing so is the permanent exclusion from future trade in world markets. Our world economy model is a variant of Clarida (1990) and Huggett (1993), featuring self-enforcing borrowing limits along the lines of Kehoe and Levine (1993), Kocherlakota (1996), and Alvarez and Jermann (2000). Versions of this setup have been studied previously in different contexts by Zhang (1997) and Krueger and Perri (2006).[1]

Consider then the possibility that a pair of countries selected at random from the world economy is suddenly offered the possibility of forming an economic union. A union, by assumption, is an arrangement which solves both the market incompleteness and the lack of enforcement problems among member countries. The union as a whole, however, still faces these frictions when trading in world markets. Since the endowment risk facing union members cannot be fully diversified away, they still have an interest in trading with the rest of the world.

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[1] See Ábrahám and Cárceles-Poveda (2010) and Bai and Zhang (2010) for variants with capital accumulation. See also Castro (2005) for a variant with capital accumulation and endogenous but ad-hoc borrowing constraints.

http://dx.doi.org/10.1016/j.jmoneco.2014.08.001
0304-3932/

Economic integration in our model generates benefits as well as costs for potential union members. One clear benefit, shared by both relatively rich and relatively poor partners, is that forming a union improves risk-sharing. One cost, also shared by both types of partner, is that borrowing limits for the union as a whole become tighter. This happens because defaulting on international debt becomes less costly inside the union, since union partners may still share risk upon default. In addition, there are also benefits and costs which are specific to rich and poor union partners. In order to provide better risk-sharing, unions effectively allow poor partners to borrow more when inside the union, at the expense of rich partners. This works like a positive externality for poor partners, in the sense that their borrowing limits become less tight in a union compared to standing alone in the world economy. At the same time this also works like a negative externality for rich partners. These partner-specific benefits and costs underline the key trade-off, and create the main source of disagreement, about union formation in our model.

Not only there is disagreement about union formation in our model, the disagreement is also greater the more heterogeneous the partners are. This provides a potential explanation for three seemingly puzzling empirical observations on economic integration: (i) deep economic integration is relatively rare, and when it does take place it tends to feature (ii) relatively homogeneous partners, and (iii) relatively rich partners. In other words, we do not tend to see many North–South arrangements; they are mostly North–North, and to a lesser extent South–South. Our paper provides empirical evidence documenting these regularities.

These observations are puzzling because, under a very broad set of circumstances, economic theory would imply that economic integration should happen often, particularly among heterogenous partners. For example, this would be the case for capital market integration in the neoclassical growth model, or goods market integration in either the Heckscher–Ohlin or the Ricardian models of trade.[2]

Our framework provides a very parsimonious explanation for these puzzling observations. Economic unions may not be formed if either the costs of economic integration are too large, or much more importantly if there is disagreement among partners. Unions are unlikely to be formed among heterogeneous partners, since poor partners impose a cost on the rich. Finally, unions are also more likely to be formed among relatively rich partners because this lowers the likelihood of either country being borrowing-constrained in the future, and thus of the source of disagreement.

In addition to the pattern of union formation, our theory also delivers two main predictions for the outcomes of union-forming countries. First, risk sharing improves. Second, in asymmetric unions, relatively poor members increase their borrowing and consumption rates compared to rich members. When looking at the enlargement experience of the European Union, the empirical evidence is consistent with these predictions.

This paper is related to a vast literature that has attempted to estimate the welfare gains from full international risk-sharing. This literature includes papers such as Cole and Obstfeld (1991), Backus et al. (1992), Obstfeld (1994a,b), van Wincoop (1994, 1999), Mendoza (1995), Tesar (1995), Lewis (2000), and Athanasoulis and van Wincoop (2000). The typical exercise computes the average gain across countries of going from financial market autarky to complete markets, and entirely eliminating idiosyncratic country risk. Although the range of estimated welfare gains is large, the gains are still positive in nearly all the papers. The sole exception is Devereux and Smith (1994), who like this paper also model costs of sharing risk. In their case, sharing risk lowers precautionary saving, which lowers output growth and might lower welfare. We emphasize instead the tightening of credit constraints, and the costs generated by poor union partners.

Our paper differs from this literature in several dimensions. First, beyond the magnitude of the welfare gains, we are mostly interested in their distribution across countries. Even if the average gains might be high, they can be very oddly distributed. If some countries actually experience a loss, as it is often the case in our model, risk sharing arrangements may not take place at all. This may explain the observed lack of international risk diversification, even in the presence of possibly large average welfare gains. Moreover, the main prediction of our model can be tested against the evidence, namely that feasible risk-sharing arrangements should occur among homogeneous and rich countries.

Second, our paper considers financial market integration as it typically takes place in the real world. That is, as voluntary arrangements among small sets of countries. Financially integrated countries are still unable to share risk with the rest of the world. Further, in our paper countries may save and self-insure in the absence of complete markets, whereas most of the literature abstracts from this feature. Our paper computes welfare gains from international risk-sharing that take these important features into account.

A recent paper that has also looked at potential risk sharing arrangements within small sets of countries is Callen et al. (2011). Using actual data on the variance-covariance matrix of cross-country output growth, they uncover the number and configuration of countries that offer the best risk-sharing potential. Like in the rest of the international risk-sharing literature, their core analysis focuses on going from autarky to complete markets, and does not feature neither costs of economic integration, nor a role for disagreement among partners. Their main finding is that most diversification gains are achieved in arrangements featuring a small number of countries, and in arrangements between heterogeneous and/or

[2] Union formation in intra-industry trade models, emphasizing scale economies and a taste for variety, have been analyzed in a static setting by Krugman (1991), Frankel et al. (1995), Frankel (1997) and Baier and Bergstrand (2004). This type of model emphasizes size as a determinant of union formation: the larger and the more similar the partners' market sizes, the larger the gains from goods market integration. Larger unions profit more from scale economies, and size homogeneity lowers the losses from trade diversion. While Baier and Bergstrand (2004) find empirical support for these implications, our data also suggests that, *beyond market size*, the level and the dispersion in partner wealth matters for economic integration. Differently from this literature, our paper focuses on heterogeneity in per capita incomes and net foreign assets over GDP.