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PRELIMINARY DRAFT

U.S. labor employment effects of liberalization in foreign insurance markets [1] [2]

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Abstract

We assess the U.S. labor effects of liberalization in the foreign property and casualty insurance market. First, we estimate the effects of barriers and regulations on U.S. exports and sales. We then simulate the effects of liberalization in certain insurance markets with a partial equilibrium model of trade and foreign direct investment. Our findings suggest that liberalization would cause U.S. labor employment by insurance companies to increase by less than 1 percent.

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U.S. labor employment effects of liberalization in foreign insurance markets

1. Introduction

In this paper we assess, within the property and casualty insurance markets, the size of foreign barriers to trade and the effect on U.S. labor employment of lowering these barriers. Our findings suggest that the United States can expect an increase in domestic employment of the insurance industry as a result of unilateral decreases in the regulatory barriers of foreign countries. These results counter expectations about jobs following investment overseas. Although the projected effects are modest, at less than a 1 percent increase in employment for substantial reductions in trade barriers, they do represent a net gain to the U.S. labor market.

To obtain these results, we estimate the effect of regulatory barriers on U.S. sales of both cross border and foreign affiliate sales using a gravity model based specification. We then construct a partial equilibrium model to simulate the liberalization of regulatory barriers and examine the effects of lowered foreign trade barriers on the U.S., particularly with respect to domestic labor employment. We obtain results for the size of trade barriers that are consistent with the literature on services generally, as well as with the limited prior research on the insurance industry. These results are used in a partial equilibrium model to obtain industry wide estimates, including especially employment effects. To our knowledge, there is no work that specifically deals with domestic employment effects of the insurance industry's expansion abroad.

There are two parts to our paper. The first addresses a significant question in services research, namely how to accurately estimate the effect of reductions in services trade barriers on the performance of services. A variety of econometric methods such as the gravity equations have been used to estimate the tariff equivalent size of barriers, as well as a considerable number of less formal techniques.

The second is to construct a model of international trade that incorporates characteristics of both firms that export abroad and firms that maintain a foreign presence. There are many

distinctive features of the services industry, and researchers have modeled a wide variety of these features. In this paper, we construct a model that uses the concept of headquarters services. It is generally acknowledged that the existence of headquarters services can affect the behavior of a firm. There is a substantial amount of literature that seeks to examine the key characteristics and results of headquarters services. Markusen (1984) was an early paper on so called "horizontal firms" which sought to build upon the existing literature that treated firms as a series of independent plants. This theoretical structure has been used in a large number of papers to explain the response of multinational firms to a variety of different economic shocks, such as increases in skilled labor.[1]

In a separate line of work, the effect of FDI on domestic employment has been researched. This body of work tests econometrically for linkages between FDI and various aspects of both home and host countries. Federico and Minerva (2008) have a goal that is similar to ours in that they explore the effects of outward FDI on domestic (home country) employment. They find, for Italy, that there is a positive effect on domestic employment of such outward FDI. Desai et al (2008) use data on U.S. multinationals and similarly find evidence to suggest positive effects on home country activity for firms investing abroad. Other papers display more mixed results, with Brainard and Riker (1997) obtaining a partial substitution between home and host; and Bruno and Falzoni (2003) observing complementarity between affiliates set up in developing countries and U.S. employment, while observing substitution between developed countries and the United States.

The computable general equilibrium (CGE) approach has been the workhorse model for computing the effects of trade liberalization in goods. However, many researchers approach services on a sectoral basis, which models each sector separately. There is a strong argument to be made that there is a great deal of heterogeneity across services industries, with each requiring different modeling assumptions.

[1] See Carr, Markusen and Maskus (2001)

Both the estimation of services barriers and the modeling of their effects are still very much open for debate. Aside from the theoretical issues, research in services faces the additional problem of a significant lack of detailed data due both to the relative lack of attention services has received in the past as well as the relative difficulty of capturing and calculating data on services.

2. Trade and investment barriers to insurance services

In this section we present an insurance industry trade policy score, and use it to construct an estimate of the size of trade barriers for cross border sales and for foreign affiliate sales. The trade policy score (TPS) was compiled at USITC, and was customized to measure policies that have a significant effect on the insurance industry. The results are then compared with other studies in the insurance and financial services sectors. Details follow in the next section.

2.1 Trade Policy Scores

The trade policy score was compiled by USITC (2008) from industry interviews with local representatives of the insurance industry and government regulators of the target countries in addition to published reports. Each of the ten policies investigated was scored as either 0, 0.5, or 1; these denoted, respectively, fully liberalized, partly liberalized, and fully closed The full list of policies included in the score is given in Table 1. The policies can be divided along two different dimensions. The first is a division between market access policies and national treatment policies. Market access policies prevent or impede the entry of a firm into an industry, regardless of its country of origin. The principle of national treatment requires laws to treat foreign firms in the same way as they treat domestic firms. The second way of dividing the policies is according to their anticipated effects on cross border and foreign affiliate sales: some policies are expected to have a direct effect on cross border sales with either secondary or no effects on foreign affiliate sales; other policies are expected to affect foreign affiliate sales more directly.

The first market access policy, ***MAT insurance*** (henceforth denoted MA1), is the ability of companies to offer Marine, Aviation and Transport (MAT) insurance services in a country. Most cross border sales are of these insurance lines, although they are also sold via foreign affiliate sales. ***MAT registration***, denoted MA2, is a related policy where – conditional on being permitted to sell MAT insurance – a country may require registration by the firm wishing to do business.[2] ***Local presence*** (MA3) governs the ability of a firm to establish a presence in the legal form of its choosing; this primarily affects foreign affiliate sales. ***Foreign ownership*** (MA4) was framed as a two part question regarding both the limitations on foreign ownership of an entity as well as the staged elimination of such limitations (if any such elimination was planned). Again this is primarily anticipated to affect foreign affiliate sales. For MA5***, compulsory lines,*** a country was considered full liberalized in this policy if all "compulsory" lines[3] could be offered by any insurance companies, and in particular whether there was discriminatory treatment between domestic and foreign firms. MA6 assesses the level of ***monopoly power***. Monopolies are particularly prevalent in services industries due to a variety of factors including economies of scale and government regulation. The existence of an insurance monopoly earns a score of 1. ***Representation***, MA7, refers to restrictions on nationality requirements for representation on the board of directors the nationality of employees (i.e. how many are permitted to be foreign nationals) or on. ***Visa restrictions,*** MA8, refers to the restrictions on the ability of a firm to obtain worker permits (whether for short business trips or as an expatriate).

There are three policies that refer to national treatment. NT1 assesses whether foreign firms have equal access to ***government procurement*** contracts. NT2 assess whether the government permits equal treatment with respect to ***financial regulation***. The third, ***compulsory lines*** (MA5), was described above and functions both as a measure of market access and national

[2] As this policy is conditional on the previous policy, the two policies are highly correlated and it became necessary to merge the two into one variable. In this case 0 denotes openness in both policies; 1 denotes that both policies are closed; any intermediate combination is denoted as 0.5.

[3] Compulsory lines are the lines of insurance that are required by the government. The prime example in the United States is auto insurance.

treatment; for a perfect score, access to compulsory lines must be open to both domestic and foreign firms

As noted above, these policies can also be organized by anticipated effect on the different delivery channels, namely cross border and foreign affiliate sales. The GATS (General Agreement on Trade in Services) recognizes four types of modes of delivery[4] for services which can be grouped into two forms: cross border sales and foreign direct investment.[5] Most of the policies are directly relevant to foreign affiliate sales: a liberalization of the policies is expected to have a positive effect on sales. Local presence, foreign ownership, monopoly power, visa restrictions and financial regulation parity (respectively MA3, MA4, MA6, MA8 and NT2) are particularly important to the establishment of a local presence.

Other policy measures are expected to affect foreign affiliate sales indirectly. Marine, aviation and transport insurance lines are sold both cross border and via foreign affiliates, so that we may expect to see a substitution effect across channels. That is, tighter restrictions on cross border sales (MA1 and MA2) might translate to higher foreign affiliate sales as companies search for ways of serving the local market. Similarly, tighter restrictions on the establishment of a local presence may make for higher cross border sales. Cross border sales are expected to be directly – and positively – affected by MA1 and MA2 in particular. Compulsory lines, monopoly power, visa restrictions and government procurement (MA5, MA6, MA8 and NT1) may also have a positive effect on cross border sales.

Figure 1 has a histogram of trade policy score composite index (mean across all policies).

A few countries are open in all measured dimensions of trade policy; a few countries are virtually closed; the distribution skews slightly toward openness.

[4] Mode 1: Cross border delivery without movement of people; Mode 2: cross border delivery of sales by movement of people from the producer side; Mode 3: establishment of local commercial presence; Mode 4: cross border delivery of sales by movement of consumers.
[5] Cross border sales: modes 1, 2, and 4; foreign direct investment: mode 3.

2.2. Estimation

The gravity model has been used extensively to examine a variety of questions in the trade literature, including the effect of trade barriers. The estimation equation is based on the gravity model, which has a long and much discussed tradition (see Frankel 1998, among others). These studies have primarily examined the trade in goods although there are some studies that also look at services. The estimated equation of the gravity model is generally some variant of the following equation:

$$\ln(X_{ij}) = \alpha_0 + \beta_1 \ln(GDP_i) + \beta_2 \ln(GDP_j) + \beta_3 \ln(POP_i) + \beta_4 \ln(POP_j) + \beta_5 \ln(V_{ij}) + \varepsilon_i \quad (1)$$

The model postulates that bilateral exports, X_{ij}, are a function of the GDP of the target country *i* (the importing country) and that of the exporting country *j;* as well as a measure of size for each country such as POP, the country's populations. These are the "mass" components of the gravity equation. Another set of variables are used to control for distance; the vector *V* of additional variables includes physical distance and other variables that may express "cultural distance" such as common language or a prior colonial connection. Finally the variable of interest – a free trade area variable, or as in this case a trade barrier variable – is added.

The model used in this paper is closely related to this. The main deviation from the usual gravity model is the lack of bilateral data across trade partners: the dataset at our disposal is from the U.S. Bureau of Economic Analysis and contains only bilateral trade data with the United States. Data for services is generally rather more difficult to obtain for services, particularly at the bilateral level.

The TPS as described in detail above is our variable of interest. We examine this variable in several ways: first as an aggregated index, then at increasing levels of disaggregation.

To calculate the size of trade barriers for insurance services, we estimate separately an equation for each of the two delivery methods: cross border sales and foreign affiliate sales. The following equation was used to estimate the effects on cross-border sales.

$$\ln(\text{EXPORTS}_{it}) = \alpha_0 + \alpha_1 \ln(\text{GDP}_{it}) + \alpha_2 \ln(\text{GDP/POP}_{it}) + \alpha_3 \ln(\text{DISTCAP}_i) + \alpha_4(\text{COMLANG}_i) + \alpha_5(\text{CONTIG}_i) + \alpha_6(\text{TPS}_i) + \sum_t \alpha_{t7} YR + \varepsilon_{it} \quad (2)$$

In this equation the dependent variable is EXPORTS_{it}, the cross border premiums sold abroad by the United States to country *i*. GDP_{it} is gross domestic product of the target country, country *i*, and GDP/POP_{it} is the per capita GDP of the target country. DISTCAP_i is distance between Washington, D.C. and the capital of the target country. The distance variable is included although it is not obvious that it would matter for a non-physical commodity. The rationale is that countries in closer proximity tend to have more cross-migration, and therefore be more familiar with one another's languages and ways of doing business. COMLANG_i is a dummy variable that takes the value 1 if one of the target country's official languages is English. For the trade policy score, we use several different forms of the index as explained below. Also included is a set of dummy variables, for each observation year. These are generally significant and positive, indicating an increase in exports over time.

Estimation results are shown in Table 3. This table exhibits several versions of equation (2). In the first two specifications, (1) and (2), the TPS score is used in its aggregate form, a simple average of all ten policy variables. The third specification takes only the country effects (along with the time varying variables GDP and GDP per capita).

Using trade policy score as a composite is problematic, as it presupposes that each component of the index is equally important for increasing trade, and that changes to different policies will have equivalent results for trade. The subsequent specifications break the index into smaller components. Specification (4) separates out the policy scores into market access and national treatment type scores. Specification (5) breaks the policy score down into its individual components. The exception are the two MAT variables, MAT insurance and MAT registration,

which are merged into one policy. Specification (6) selects the subset of the policies that are anticipated to have a direct effect on cross border sales.

GDP, GDP per capita as well as the common language and contiguous dummy variables are generally significant and have the expected sign. One exception to this is the GDP per capita for the third specification which is significantly negative. Distance is negative, as expected, but is not significant in any specification.

The TPS scores exhibit several noteworthy features. First, the overall TPS index is not significant in either (1) or (2); it also has a positive sign – seemingly indicating that a less liberal policy should increase cross border sales. In (4) and (5) it is clear that there is a great deal of heterogeneity among the effects of different policies on sales. Where the policy score is split into market access and national treatment, neither composite score is significant. In the fully disaggregated version of the policy scores, MA4 (equity caps) and NT2 (national treatment on financial requirements) have a significant negative effect, while MA8 (worker visas) has a significant positive effect. The remaining policy variables are not significant.

For foreign affiliate sales abroad (mode 3), the estimated equation is:

$$\ln(\text{SALES}_{it}) = \beta_0 + \beta_1 \ln(\text{GDP}_{it}) + \beta_2 \ln(\text{GDP/POP}_{it}) + \beta_3 \ln(\text{DISTCAP}_i) + \beta_4(\text{COMLANG}_i) + \beta_5(\text{CONTIG}_i) + \beta_6(\text{TPS}_i) + \sum_t \beta_{t7} YR + \omega_{it} \quad (3)$$

The independent variables are the same as for the cross border sales. The dependent variable, SALES_{it} are bilateral sales of foreign affiliates of U.S. firms in country i.

Estimation results for foreign affiliate sales are shown in Table 4. Again, the usual variables for gravity models – GDP, per capita GDP, distance, common language and contiguous borders – are significant for most specifications. Distance is significant in most cases but with a positive sign; an explanation for this may be that countries farther away are better served by a local presence instead of by cross border sales. For foreign affiliates, unlike for cross border sales, year dummy variables are not significant (although they remain positive), indicating that

there is little linear trend. The composite TPS score, while negative as expected (denoting that openness increases sales) is not significant in either (1) and (2) of Table 4.

Similarly to the set of specifications for cross border sales, Table 4 breaks down the policy score into its components for foreign affiliate sales. In the foreign affiliate case, both the market access and national treatment composite are significant: market access is negative (as anticipated) and national treatment is positive. Exploring the policy components individually, several variables appear significant: MA3 (local presence), MA5 (compulsory lines), MA7 (representation), MA8(visa requirements), NT1 (government procurement) and NT2 (financial regulation). Of these, MA8, NT1 and NT2 have a positive sign, and the rest negative.

2.3. Discussion

The estimation results provide an exceedingly broad range of possible outcomes for ad valorem tariff equivalent barriers (or, for foreign affiliate sales, tax equivalent barriers). This includes negative values in certain cases. Although the TPS components do demonstrate a negative correlation with the cross border and affiliate sales, once the gravity variables are put in as controls the expected negative relationship (sometimes) disappears.

The available literature on estimating the size of barriers on services, with a few exceptions, tends to focus on the broader category of business and financial services. The results are summarized in Table 6 and display a fairly wide range of values. Moreover, most authors present their data heavily caveated, cautioning against the use of these data as point estimates directly comparable with tariffs on goods.

Dihel and Shepherd (2007) is one of the few papers that examines the insurance industry's service barriers; it estimates the aggregate ad valorem tariff equivalents (as a percent of price) for the insurance industry of several middle income countries. Their estimates range from 18 percent to 113 percent. The findings of Konan and Maskus (2006) for Tunisia are consistent with these findings for developing countries. For the insurance industry, they estimate tariff barrier equivalents for insurance service to be approximately 50 percent for both cross border and

for foreign affiliate sales. Warren and Findlay (2000) obtain trade restrictiveness indices for the insurance industry as well. Their relative ranking of countries' openness maps closely to our own. However, a full comparison with other research is not possible as they do not provide ad valorem tariff equivalent estimates.

Although the values must be taken with a large grain of salt, several inferences can be made. One is that there is a significant difference across countries, in some cases an order of magnitude between low and high barriers. The second is that barriers for the most liberalized countries seem fairly low, on an absolute basis. The one exception to this is the Hoekman (1999) study, whose numbers were obtained as deviations from a default level which may explain the relatively high level of the estimates for the most liberalized countries. Finally, the difference between the highest and lowest barriers is in the neighborhood of 40 percentage points; from a low of 25 percent for Hoekman, a moderate level of 36 percent[6] from Francois, to a high of 55 percent in Kalirajan. Konan and Maskus, given their single point estimate for Tunisia and an assumption of 5-10 percent barriers for a liberalized country, would also fall in the neighborhood of 40 percent. These values may in fact be an upper bound on potential liberalization, since there are many countries whose barriers are significantly smaller than the maximum barrier. Using 55 percent as an estimate for the barrier of an "average" closed country may be too high; 25 percent may not be too low.

In the next section we employ a partial equilibrium model to simulate the U.S. labor effects of foreign market liberalization applying shocks that are derived from our econometric work and from the literature.

Within our econometric model, we divide the world into two groups of countries: those with completely open insurance trade markets, called Rest of World 1 (RoW1), and a group of

[6] The baseline for Francois is assumed to be zero, with Hong Kong and Singapore taking on that value.

countries with trade and FDI barriers, called Rest of World 2 (RoW2).[7] We then construct an exercise where trade and FDI barriers are lifted completely in the RoW2 region. We find that the removal of all barriers in RoW2 would cause U.S. foreign affiliate sales in the RoW2 to increase by 23 percent in volume; U.S. exports to RoW2 would increase by 343 percent in volume. Thus we simulate the U.S. labor effects of foreign market liberalization by applying these two shocks.

We run two more simulations with low and high shocks from a survey of the literature. We found that estimates of barriers in cross-border trade in insurance services and foreign affiliate sales range between 20 percent and 100 percent *ad valorem* tariff or tax equivalents.

3. Partial equilibrium model of trade and FDI in services

The effects of liberalizing the estimated restrictions on U.S. insurance business are simulated with a model of international trade and foreign direct investment in property and casualty insurance. The analysis is focused on premiums and it does not consider claims or financial investments by insurance companies.

In this model, there is demand for cross-border traded insurance services and for sales of foreign affiliates. Insurance companies employ labor and capital, and they use other inputs to supply insurance services. Insurance companies are modeled as operating under conditions of constant returns to scale and perfect competition which implies that revenue from sales is exhausted by factor payments. In a particular economy, labor is employed by home and foreign insurance companies. Capital is distinguished by its region of origin and it is mobile across regions.

[7] The completely open countries are: Belgium, Czech Republic, Ecuador, Greece, Spain and the United Kingdom. For the complete list of countries and composite policy scores see Table 4.

3.1 Supply, foreign direct investment, and factor markets

There are three regions in the model. The United States; a rest-of-the-world region, RoW1, representing relatively open insurance markets; and a second rest-of-the-world region, RoW2, which represents restricted insurance markets.

In each region there is demand for two distinct insurance products: (i) a cross-border traded insurance product, TRD_INS, which competes with the product supplied by the home company; and (ii) a non-traded insurance product, FDI_INS, which is supplied by home and foreign companies operating in the region.[8]

Figure 2 sketches the input-output relationships in the model for the United States and the RoW2 region.[9] In each region, there are five insurance companies. The upper part of figure 2 shows that a U.S. company supplies the traded insurance product, TRD_INS_{US}; a U.S. company provides the non-traded insurance product, $FDI\_INS_{US, US}$; a U.S. company provides "headquarters services" for U.S. insurance companies world-wide, H_{US}; and two foreign-owned companies provide non-traded insurance products, $FDI\_INS_{RoW1, US}$, and $FDI\_INS_{RoW2, US}$.

Input-output relationships are modeled with nested CES (constant elasticity of substitution) production functions.[10] All companies employ labor and capital and optimal demands for these two factors are derived from a CES production function with elasticity $\sigma = 1.26$. Value added, i.e., the aggregate of labor and capital, and other inputs are employed in fixed proportions to output, i.e., the relevant CES substitution elasticity is zero.

The three companies supplying the non-traded insurance product also employ "headquarters services". The U.S. company employs headquarters services produced in the

[8] Exports of the product TRD_INS correspond to cross-border sales and sales of the product FDI_INS in foreign markets correspond to affiliate sales abroad.
[9] The specification of input-output relationships in the RoW1 region is equivalent to that for the United States and the RoW2 region.
[10] A CES production function is characterized by a constant percentage change in factor (e.g., labor and capital) proportions due to a percentage change in the marginal rate of technical substitution (Arrow *et al.*, 1961).

United States, H_{US}, while the two foreign companies employ headquarters services produced in their home economies, H_{RoW1} and H_{RoW2}.

All five insurance companies operating in the U.S. market employ U.S. labor, L_{US}. The three U.S. companies employ U.S. capital, K_{US}; while the two foreign companies employ capital sourced from their home regions, K_{RoW1} and $K_{RoW2,}$ in the form of foreign direct investment.

The lower part of figure 2 shows the modeling of input-output relationships in the RoW2 region. The U.S. company operating in the RoW2, $FDI\_INS_{US, RoW2}$, is employing capital, K_{US}, and headquarters services, H_{US}, from the United States, and labor, L_{RoW2}, from the RoW2 region.

The prices of the insurance products as well as the prices of the headquarters services are endogenous in this model. It is also assumed that returns to capital and labor are endogenous and that it is relatively easy for the insurance industry to expand by attracting additional labor and capital from the rest of the economy. In particular, it is assumed that regional supplies of capital and labor are slightly increasing functions of capital rentals and labor wages. In all regions, the own-price elasticity for capital, ε_K, is 10 while the own-price elasticity for labor, ε_L, is 15.

3.2 Demand and trade

For each region, demands are specified for two composite[11] insurance products. Each demand is only a function of its own price, e.g., demand for the traded product is not influenced by changes in the price of the non-traded product.[12]

Figure 3 sketches the demand relationships in the model for the RoW2 region.[13] It is assumed that demanders differentiate the domestic product from foreign products, whether they are imported (as in the case of traded insurance) or produced by a foreign company (as in the case

[11] That is the aggregate of domestic and foreign varieties of insurance products.
[12] Own price elasticities are from the GTAP framework (Hertel, 1997 and Dimaranan and McDougall, 2005). They are -0.810, -0.705, and -0.500 for the United States, RoW1, and RoW2, respectively.
[13] Demands for insurance products in the United States and in the RoW1 regions are modeled in an equivalent way.

of the non-traded insurance).[14] The substitution possibilities among the three varieties of each insurance product are modeled with CES functions. The CES elasticities are assigned the value of 2 for both insurance products.[15]

This partial equilibrium model is implemented using the GEMPACK suit of software (Harrison and Pearson, 2002).

3.3 Data for partial equilibrium model

Table 7 shows the data used in the partial equilibrium model. The data have been obtained from BEA, OECD, U.S. ITC sources, and the GTAP Database and they are for 2006. Because of uncertainties regarding the data for headquarters services, in the next section, we examine the sensitivity of simulated effects to these data.

3.4 Simulated U.S. labor effects of liberalization in RoW2

We employ this partial equilibrium model to simulate the liberalization of restrictions in the RoW2 region. We assume that the simulated liberalization would facilitate not only the expansion of U.S. exports and U.S. foreign affiliate sales in the RoW2 but also the expansion of exports and foreign affiliate sales of all other foreign suppliers in the RoW2. In particular, we simulate the reduction of *ad valorem* tariff and tax equivalents that would induce U.S. cross-border exports to RoW2 and U.S. foreign affiliate sales of insurance in RoW2 to expand. We also reduce the tariff and tax equivalents applied by RoW2 to RoW1 insurance by the same percentages as for the tariff and tax equivalents applied to U.S. insurance.

Table 8 reports simulated effects of liberalization from three experiments. In simulation A we apply the shocks that we estimated in this paper: U.S. foreign affiliate sales in the RoW2 increase by 23 percent in volume, and U.S. exports to RoW2 increase by 343 percent in volume.

[14] This is the Armington assumption of product differentiation by country of origin which is often employed in applied models of international trade (Armington, 1969).
[15] The value for the Armington elasticities of substitution is from the GTAP framework (Hertel, 1997 and Dimaranan and McDougall, 2005).

The simulation yields estimates of the implied *ad valorem* import tariff and sales tax equivalents that are removed: 182 percent and 13 percent, respectively.

In simulations B and C we apply shocks from a review of the literature. These shocks are specified in terms of the *ad valorem* tariff and tax equivalents that are removed and represent low and high estimates of barriers found in the literature of insurance and financial services: 20 and 100 percent.

U.S. cross-border exports and foreign affiliate sales in restricted markets are small relative to overall U.S. insurance sales. Thus significant expansions in U.S. exports to RoW2 (e.g., 343 percent in simulation A) and in U.S. foreign affiliate sales in RoW2 (e.g., 23 percent in simulation A) would translate to relatively small expansions in overall U.S. insurance sales and U.S. employment.

Table 8 shows that gross sales of U.S. insurance companies would increase by 2.08 percent in simulation A. U.S. sales of the cross-border traded insurance product would expand by 21.59 percent while global sales of U.S. non-traded insurance would expand by 1.17 percent. Capital employed by U.S. companies in the United States, RoW1, and RoW2 would expand by 1.94 percent.

U.S. labor employment expands because insurance companies in the United States expand and thus they demand more labor. At the same, the production of insurance services in the United States becomes more labor intensive, thus causing a further expansion in demand for labor. The combined effect of these two factors is that U.S. labor employed by insurance companies in the United States would increase by 1.09 percent.[16]

A comparison of simulations B and C suggests that the simulated effects increase as the size of the barriers increases.

[16] The Bureau of Labor Statistics estimated that direct property and casualty insurers employed about 492.2 thousand employees in the United States during October 2008 (Bureau of Labor Statistics, 2009). An increase of 1.09 percent translates to about a gain of 5,360 employees.

3.5 Sensitivity analysis

We conducted sensitivity analysis for each one of the three scenarios in this paper and the results are reported in tables 9, 10, and 11. In each table, column (1) reports effects from the simulation with base data and parameters (already shown in table 8). Columns (2)-(3) report effects under different values for the supply elasticity of capital services, ε_K. Columns (4)-(5) report effects under different values for the CES capital-labor substitution elasticity, σ (see figure 2). Column (6) reports simulated effects under a different initial equilibrium data where "headquarters services" are no longer an input in the production of insurance services.

Under a higher capital supply elasticity, ε_K=30, the price of capital does not rise as much as under ε_K=10 (the base value for ε_K) and thus there is a weaker incentive for insurance companies in the United States to substitute away from capital. Thus U.S. labor employment expands by slightly less, e.g., 1.08 percent in simulation A (table 9, column (3)). When the capital supply elasticity is smaller than in the base case, the price of capital increases by more than in the base case, and so demand for U.S. labor expands by more, e.g., 1.18 percent in simulation A (table 9, column (2)).

Under a higher capital-labor elasticity of substitution, σ=2.40, it is easier for insurance companies in the United States to substitute away from capital than under σ=1.26 (the base value for σ). Thus U.S. labor employment expands by more, e.g., 1.11 percent (table 9, column (5)). When the substitution elasticity is smaller than in the base case, it is more difficult for insurance companies in the United States to substitute away from the more expensive capital, and so demand for U.S. labor expands by less, e.g., 1.08 percent in simulation A (table 9, column (4)).

In simulation A the U.S. labor effect is not sensitive to the headquarters services data (table 9, column (6)). To understand this result we decompose simulation A in two simulations: simulation A1 removes barriers on cross-border trade and simulation A2 removes barriers on foreign affiliate sales.

We run simulations A1 and A2 with the base data and we found that the removal of cross-border trade barriers increased U.S. labor employment by 0.98 percent; the removal of foreign affiliate sales barriers increased U.S. labor employment by 0.11 percent. In simulation A the contribution of "headquarter services" in U.S. labor employment is small because foreign affiliate sales expand by only 23 percent which is considerably less than the 343 percent expansion in cross-border exports.

We also decomposed the results reported in column (6), table 9. We run simulations A1 and A2 with the data that does not include headquarter services and we found that the removal of cross-border trade barriers increased U.S. labor employment by 1.08 percent; the removal of foreign affiliate sales barriers increased U.S. labor employment by 0.01 percent. This analysis suggests that the U.S. labor effect in simulation A is not sensitive to the assumption about headquarter services because the two components of the labor effect move in opposite directions without changing the total effect as we change our assumption about headquarter services. This result occurs because in simulation A the expansion in cross-border is much larger than the expansion of foreign affiliate sales.

Simulation A2 also suggests that the absence of headquarter services from the data reduces considerably the U.S. labor effect from expanding foreign affiliate sales but the effect remains positive.

Tables 10 and 11 suggest that almost all of the effects from simulations B and C are as sensitive to assumptions about the elasticities of capital supply (ε_K) and capital-labor substitution (σ), and headquarter services as are the effects from simulation A. The only exemption is the U.S. labor effect in the absence of headquarter services (column (6) in tables 10 and 11). For example, in simulation B (table 10) the U.S. labor effect declines from 0.33 percent (column (1)) to 0.18 percent (column (6)). To understand this result we decompose simulation B in two simulations: B1 removes the barriers on cross-border trade and simulation B2 removes the barriers on foreign affiliate sales. We found that the removal of cross-border trade barriers increased U.S. labor

employment by 0.15 percent; the removal of foreign affiliate sales barriers increased U.S. labor employment by 0.18 percent. We also decomposed the results reported in column (6), table 10 and we found that the removal of cross-border trade barriers increased U.S. labor employment by 0.16 percent; the removal of foreign affiliate sales barriers increased U.S. labor employment by 0.02 percent. This analysis suggests that the U.S. labor effect in simulation B is sensitive to assumptions about headquarter services because even though the two components of the labor effect move in opposite directions as we change our assumption about headquarter services, they do not compensate for one another and thus the total effect declines in the absence of headquarter services. This result occurs because in simulations B and C the expansions in the two types of U.S. insurance are of similar magnitudes.

4. Summary and conclusions

We assessed the U.S. labor effects of liberalization in certain foreign property and casualty insurance markets. First, we estimated the effects of barriers and regulations on U.S. exports and foreign affiliate sales. We found that barriers and restrictions on U.S. insurance sales are depressing U.S. exports to those markets and foreign affiliate sales.

We then simulated the effects of liberalization in those markets with a partial equilibrium model of trade and foreign direct investment. Our findings suggest that liberalization would cause U.S. labor employment by insurance companies to increase by less than 1 percent.

The findings strongly suggest that liberalizing of trade policies by foreign countries will increase U.S. firms' sales both cross border and via foreign affiliates. Further work in this topic may provide improvements in the following areas. One difficulty lies in the relatively small sub sample of countries that exhibit perfectly open markets; it may be useful to adjust specifications in order to account for this. Second, a great deal is "explained" by the inclusion of country specific effects; however, an inclusion of a set of country dummy variables requires us to drop all time invariant effects. This is problematic because it does not provide insights into which country

specific effects might influence trade. Instead, constructing a set of regional dummy variables might permit a certain amount of geography specific effects, without preempting the influence of distance, cultural and policy information. There are, in addition, several unique features of services barriers. For example, Konan and Maskus (2006) note that with services, barriers can be organized into two types of effects: "cost inefficiencies" (e.g. red tape or wasteful cost levels); or rents, which arise from the existence of monopolies or oligopolies that are especially prevalent in services sectors (e.g. financial services, telecommunications, and port services). The complexity of these barriers implies that services barriers may benefit from being modeled differently than goods barriers.

Finally, disaggregating labor into different labor types of different skill levels may sharpen the labor effect. This may provide greater insight into whether expansion abroad has a differential impact on high- and low-skilled jobs.

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Table 1. Trade Policies captured in the Trade Policy Score index

Policy		Description
Market access provisions		
MAT	MA1	MAT Insurance allowed cross-border
	MA2	Access to MAT on cross-border basis without regard to registration
Local presence	MA3	Freedom to establish in the form of company's choice
Foreign ownership	MA 4	Freedom to determine percentage of foreign equity shares in joint venture Staged elimination of foreign equity limitations with min 51% ownership during staging period
Compulsory lines	MA5	Compulsory lines: fully bound by national treatment and market access as defined by GATS
Monopoly power	MA6	Monopolies: best endeavors to eliminate ins monopolies and exclusive service providers
Representation	MA7	Freedom of foreign insurance company to select its own representative in host country
Visa restrictions	MA8	Provision of temporary visa or work permits for short periods of stay
National treatment provisions		
Government procurement	NT1	Ability to compete for insurance coverage of state-owned or state affiliated enterprises
Financial regulation	NT2	NT with respect to capital solvency, subject to prudential carve out. Requirement to explain reasons for less favorable treatment under prudential carve out

Table 2. Policy variables, means across countries

Policy	Mean
MAT (MA1 and MA2)	0.52
Local presence (MA3)	0.56
Foreign ownership (MA4)	0.29
Compulsory lines (MA5)	0.23
Monopoly power (MA6)	0.38
Representation (MA7)	0.29
Visa restrictions (MA8)	0.20
Government procurement (NT1)	0.34
Financial regulation (NT2)	0.56

Table 3. Estimation for Cross-Border Sales

	(1) lnX	(2) lnX	(3) lnX	(4) lnX	(5) lnX	(6) lnX	(7) lnX	(8) lnX	(9) lnX
lnGDP	0.702***	0.730***	15.45*	0.691***	0.827***	0.822***	0.722***	0.617***	0.707***
	(8.12)	(7.80)	(2.61)	(8.02)	(9.90)	(9.80)	(8.50)	(7.03)	(7.86)
lnGDPcap	0.745***	0.782***	-18.06**	0.661***	0.223	0.213	0.853***	0.835***	0.782***
	(6.86)	(6.65)	(-2.90)	(5.57)	(1.51)	(1.43)	(7.38)	(7.11)	(6.79)
distcap	-0.0130	-0.00548		-0.0120	-0.00901	-0.0105	-0.0616	-0.0575	-0.0914*
	(-0.39)	(-0.15)		(-0.36)	(-0.23)	(-0.27)	(-1.65)	(-1.47)	(-2.31)
comlang_off	0.907***	0.917***		0.786***	0.617*	0.602*	1.204***	1.064***	1.292***
	(4.44)	(4.13)		(3.65)	(2.58)	(2.46)	(5.14)	(4.77)	(5.64)
contig	1.183**	1.211*		1.357**	2.141***	2.131***	0.757	1.012*	0.921*
	(2.71)	(2.55)		(3.04)	(4.74)	(4.68)	(1.68)	(2.20)	(2.06)
dummy_tps	0.0903	0.106							
	(0.30)	(0.32)							
dum_tps_ma				0.306					
				(0.93)					
dum_tps_nt				-0.398					
				(-1.68)					
tps_1and2					0.338			0.249	0.176
					(1.69)			(1.11)	(0.80)
tps_ma3					0.162	0.130			
					(0.62)	(0.46)			
tps_ma4					-1.793***	-1.767***			
					(-4.83)	(-4.35)			
tps_ma5					0.583	0.539		0.305	0.300
					(1.56)	(1.37)		(0.80)	(0.82)
tps_ma6					0.537	0.530		0.758***	1.055***
					(1.94)	(1.90)		(3.56)	(4.63)
tps_ma7					0.116	0.121			
					(0.54)	(0.53)			
tps_ma8					1.001**	1.012**			0.972**
					(3.18)	(3.19)			(3.07)
tps_nt1					-0.0896	-0.0749		-0.348	-0.527
					(-0.34)	(-0.28)		(-1.27)	(-1.93)
tps_nt2					-0.706**	-0.696**			
					(-2.72)	(-2.67)			
tps_ma1						0.00117			
						(0.00)			
tps_ma2						0.310			
						(0.67)			
tps_cb							0.261*		
							(2.41)		
_cons	-24.41***	-24.99***	-241.1*	-23.24***	-22.64***	-22.37***	-25.96***	-22.95***	-24.80***
	(-9.03)	(-8.53)	(-2.36)	(-8.37)	(-8.56)	(-8.46)	(-9.55)	(-8.32)	(-9.05)
N	147	147	147	147	147	147	147	147	147
R-sq	0.648	0.573	0.909	0.655	0.771	0.771	0.662	0.682	0.703
Dummy variables									
for year	x		x	x	x	x	x	x	x
for country			x						

t statistics in parentheses: * p<0.05, ** p<0.01, *** p<0.001.

Sources: BEA for cross-border trade; WDI Online for GDP; CEPII for distance; and the USITC for the trade policy score. Exports are gross premiums on property and other insurance (excluding reinsurance).

Table 4. Estimation for Foreign Affiliate Sales

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	lnSales	lnSales	lnSales	lnSales	lnSales	lnSales	lnSales
lnGDP	0.673***	0.679***	4.117***	0.648***	0.721***	0.722***	0.721***
	(10.71)	(10.91)	(3.76)	(10.74)	(11.30)	(11.39)	(11.32)
lnGDPcap	0.500***	0.505***	-1.703	0.587***	0.525***	0.544***	0.525***
	(7.10)	(7.25)	(-1.27)	(8.47)	(6.34)	(6.58)	(6.38)
distcap	0.0570*	0.0576*		0.0495*	0.0469	0.0509	0.0469
	(2.23)	(2.27)		(2.03)	(1.47)	(1.60)	(1.47)
comlang_off	0.700***	0.696***		0.771***	0.849***	0.691**	0.849***
	(3.61)	(3.62)		(4.15)	(4.23)	(3.27)	(4.25)
contig	1.745***	1.745***		1.356**	1.520***	1.533***	1.519***
	(4.13)	(4.16)		(3.31)	(3.36)	(3.42)	(3.37)
dummy_tps	-0.301	-0.304					
	(-1.32)	(-1.34)					
dum_tps_ma				-0.838***			
				(-3.49)			
dum_tps_nt				0.895***			
				(5.32)			
tps_1and2					0.00941		
					(0.04)		
tps_ma3					-0.436*	-0.562*	-0.434*
					(-1.98)	(-2.49)	(-2.00)
tps_ma4					0.0374	0.307	0.0401
					(0.11)	(0.83)	(0.12)
tps_ma5					-0.853*	-0.938*	-0.855*
					(-2.30)	(-2.53)	(-2.32)
tps_ma6					0.297	0.274	0.297
					(1.04)	(0.97)	(1.04)
tps_ma7					-0.455*	-0.383	-0.455*
					(-2.31)	(-1.94)	(-2.32)
tps_ma8					0.665*	0.494	0.664*
					(2.10)	(1.53)	(2.10)
tps_nt1					0.545*	0.449	0.548*
					(1.98)	(1.62)	(2.03)
tps_nt2					0.655**	0.696**	0.656**
					(3.09)	(3.29)	(3.11)
tps_ma1						-0.737*	
						(-2.13)	
tps_ma2						0.764*	
						(2.16)	
_cons	-16.03***	-16.05***	-86.38***	-16.14***	-17.95***	-18.15***	-17.95***
	(-10.23)	(-10.42)	(-4.92)	(-10.78)	(-11.43)	(-11.62)	(-11.54)
N	300	300	300	300	300	300	300
R-sq	0.535	0.532	0.973	0.576	0.599	0.606	0.599
Dummy variables							
for year	x		x	x	x	x	x
for country			x				

t statistics in parentheses: * p<0.05, ** p<0.01, *** p<0.001.

Sources: BEA for foreign affiliate sales; WDI Online for GDP; CEPII for distance; and the USITC for the trade policy score. Sales data is finance (except depository institutions) and insurance.

Table 5. Trade Policy Score, All Countries

Completely Free		Mostly Open		Mostly Closed	
Country	**TPS**	**Country**	**TPS**	**Country**	**TPS**
Belgium	0.00	Denmark	0.05	Italy	0.53
Czech Republic	0.00	France	0.05	Poland	0.53
Ecuador	0.00	New Zealand	0.05	India	0.55
Greece	0.00	Finland	0.10	Mexico	0.55
Spain	0.00	Lithuania	0.10	Morocco	0.55
United Kingdom	0.00	Panama	0.10	Argentina	0.60
		Estonia	0.15	Barbados	0.60
		Germany	0.15	Brazil	0.60
		Latvia	0.15	Saudi Arabia	0.60
		Malta	0.15	South Africa	0.63
		Slovakia	0.15	Venezuela	0.63
		Austria	0.18	China	0.65
		Israel	0.18	Pakistan	0.68
		Bulgaria	0.20	Korea, Rep.	0.70
		Hong Kong	0.20	United Arab Emirates	0.70
		Hungary	0.20	Vietnam	0.78
		Jordan	0.20	Indonesia	0.80
		Slovenia	0.20	Thailand	0.80
		Bolivia	0.25	Bangladesh	0.90
		Canada	0.25	Malaysia	0.90
		Iceland	0.25	Russia	0.90
		Japan	0.25		
		Luxembourg	0.25		
		Portugal	0.25		
		Romania	0.25		
		Switzerland	0.25		
		Egypt	0.28		
		Colombia	0.30		
		Netherlands	0.30		
		Sweden	0.30		
		Ireland	0.33		
		Australia	0.35		
		Chile	0.35		
		Guatemala	0.35		
		Norway	0.35		
		Turkey	0.35		
		Kenya	0.40		
		Peru	0.40		
		Philippines	0.40		
		Singapore	0.40		
		Ukraine	0.40		
		Croatia	0.43		
		Tunisia	0.43		

Sources: USITC internal research, as explained in the text.
Notes: Table includes all countries for which data was obtained for TPS; not all are included in regressions due to lack of data on other variables.

Table 6. Ad valorem tax equivalent estimates in the literature

Source	*Industry*	*Method*	*Range in percent*
Hoekman (1995)	Business & Financial Services	Frequency ratio, adjusted	20.1 (Austria) to 45.2 (Chile)
Francois (1999)	Business & Financial Services	Gravity model estimation	2.6 (Taiwan) to 35.5 (Brazil)
Kalirajan (2000)	Banks	Two stage procedure on net interest margin;	5.32 (EU) to 60.61 (Malaysia)[17]
Dihel and Shepard (2007)	Insurance	Two stage procedure on price cost margin; price impacts	Up to 112.9 (India)[18]
Konan and Maskus (2006)	Insurance (Tunisia only)	Benchmarked to other country studies; industry studies	50 percent

[17] Price impact percent

[18] Aggregate calculations (rather than by mode); analysis does not include developed countries. The lowest tax equivalent is for Peru, at 17.74 percent.

Table 7. Data for the partial equilibrium model, million U.S. dollars

Input costs and sales for companies operating in the United States

	Companies				
Inputs	1 traded	2 USA	3 ROW1	4 ROW2	5 H
1 Labor	13,425	238,187	8,717	3,126	25,984
2 USA_K	2,164	38,390	0	0	4,188
3 ROW1_K	0	0	4,188	0	0
4 ROW2_K	0	0	0	2,636	0
5 USA_H	0	55,000	0	0	0
6 ROW1_H	0	0	3,000	0	0
7 ROW2_H	0	0	0	1,000	0
8 Other Inputs	15,411	218,423	14,094	3,239	29,828
Total costs=Sales	31,000	550,000	30,000	10,000	60,000

Bilateral trade in traded insurance

	Importer		
Exporter	1 USA	2 ROW1	3 ROW2
1 USA		2,000	4,000
2 ROW1	18,000		8,000
3 ROW2	18,000	18,000	

Input costs and sales for companies operating in the RoW1

	Companies				
Inputs	1 traded	2 USA	3 ROW1	4 ROW2	5 H
1 Labor	20,340	8,012	116,229	50,014	13,453
2 USA_K	0	1,291	0	0	0
3 ROW1_K	9,773	0	55,845	0	6,464
4 ROW2_K	0	0	0	42,170	0
5 USA_H	0	1,850	0	0	0
6 ROW1_H	0	0	40,000	0	0
7 ROW2_H	0	0	0	16,000	0
8 Other Inputs	39,887	7,347	187,927	51,816	26,382
Total costs=Sales	70,000	18,500	400,000	160,000	46,300

Demands for insurance products

	Region		
Product	1 USA	2 ROW1	3 ROW2
Traded	61,000	64,000	42,000
Non-traded	590,000	578,500	364,500

Input costs and sales for companies operating in the RoW2

	Companies				
Inputs	1 traded	2 USA	3 ROW1	4 ROW2	5 H
1 Labor	20,631	13,642	9,589	93,775	14,691
2 USA_K	0	2,199	0	0	0
3 ROW1_K	0	0	4,607	0	0
4 ROW2_K	17,395	0	0	79,069	12,387
5 USA_H	0	3,150	0	0	0
6 ROW1_H	0	0	3,300	0	0
7 ROW2_H	0	0	0	30,000	0
8 Other Inputs	27,974	12,510	15,504	97,156	19,921
Total costs=Sales	66,000	31,500	33,000	300,000	47,000

Sources: Bureau of Economic Analysis; U.S. Department of Commerce; Organization for Economic Cooperation and Development; GTAP Database; and U.S. International Trade Commission, 2009.

Table 8. Simulated effects of liberalizing the RoW2 insurance markets, percent change in volume

	Shocks from this paper	Shocks from the literature	
Simulated effects	Simulation A	Simulation B	Simulation C
U.S. cross-border exports to RoW2	343.00	33.32	182.07
Sales by U.S. foreign affiliates in RoW2	23.00	36.46	210.73
Global sales of U.S. cross-border traded insurance	21.59	3.20	13.61
Global sales of U.S. parents and foreign affiliates	1.17	1.90	10.98
Gross sales of U.S. insurance companies	2.08	1.95	11.09
Capital employed by U.S. insurance companies	1.94	1.79	10.18
Insurance industry labor employment in the United States	1.09	0.33	1.68

Notes: Simulation A suggests that the *ad valorem* tariff equivalent for imports from the United States is 182 percent, and the *ad valorem* tax equivalent for foreign affiliate sales is 13 percent. The *ad valorem* tariff and tax equivalents are 20 percent in simulation B and 100 percent simulation C.

Table 9. Simulated effects of liberalizing the RoW2 insurance market and sensitivity to parameters and data for simulation A, percent change in volume

Simulated effects	Base data and parameters (ε_K=10, σ=1.26)	Sensitivity analysis				
		Capital supply elasticity		Capital-labor CES substitution elasticity		Alternative data: No headquarter services
		ε_K=1	ε_K=30	σ=0.6	σ=2.4	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
U.S. cross-border exports to RoW2	343.00	343.00	343.00	343.00	343.00	343.00
Sales by U.S. foreign affiliates in RoW2	23.00	23.00	23.00	23.00	23.00	23.00
Global sales of U.S. cross-border traded insurance	21.59	21.42	21.61	21.59	21.59	21.59
Global sales of U.S. parents and foreign affiliates	1.17	1.12	1.17	1.17	1.17	1.17
Gross sales of U.S. insurance companies	2.08	2.03	2.09	2.08	2.08	2.17
Capital employed by U.S. insurance companies	1.94	1.01	2.09	2.01	1.84	2.02
Insurance industry labor employment in the United States	1.09	1.18	1.08	1.08	1.11	1.09

Table 10. Simulated effects of liberalizing the RoW2 insurance market and sensitivity to parameters and data for simulation B, percent change in volume

Simulated effects	Base data and parameters (ε_K=10, σ=1.26)	Sensitivity analysis				
		Capital supply elasticity		Capital-labor CES substitution elasticity		Alternative data: No headquarter services
		ε_K=1	ε_K=30	σ=0.6	σ=2.4	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
U.S. cross-border exports to RoW2	33.32	32.76	33.41	33.32	33.32	33.35
Sales by U.S. foreign affiliates in RoW2	36.46	35.76	36.57	36.45	36.48	36.46
Global sales of U.S. cross-border traded insurance	3.20	3.02	3.23	3.20	3.20	3.21
Global sales of U.S. parents and foreign affiliates	1.90	1.81	1.91	1.89	1.90	1.90
Gross sales of U.S. insurance companies	1.95	1.86	1.97	1.95	1.95	1.96
Capital employed by U.S. insurance companies	1.79	0.91	1.93	1.87	1.67	1.79
Insurance industry labor employment in the United States	0.33	0.40	0.32	0.32	0.35	0.18

Table 11. Simulated effects of liberalizing the RoW2 insurance market and sensitivity to parameters and data for simulation C, percent change in volume

Simulated effects	Base data and parameters (ε_K=10, σ=1.26)	Sensitivity analysis				
		Capital supply elasticity		Capital-labor CES substitution elasticity		Alternative data: No headquarter services
		ε_K=1	ε_K=30	σ=0.6	σ=2.4	
	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
U.S. cross-border exports to RoW2	182.07	177.81	182.72	182.05	182.09	182.31
Sales by U.S. foreign affiliates in RoW2	210.73	204.48	211.70	210.64	210.87	210.60
Global sales of U.S. cross-border traded insurance	13.61	12.69	13.75	13.61	13.62	13.68
Global sales of U.S. parents and foreign affiliates	10.98	10.39	11.07	10.97	10.99	11.00
Gross sales of U.S. insurance companies	11.09	10.50	11.19	11.09	11.10	11.14
Capital employed by U.S. insurance companies	10.18	5.02	11.01	10.62	9.51	10.19
Insurance industry labor employment in the United States	1.68	2.06	1.62	1.60	1.80	0.79

Figure 1. Distribution of trade policy scores, composite index

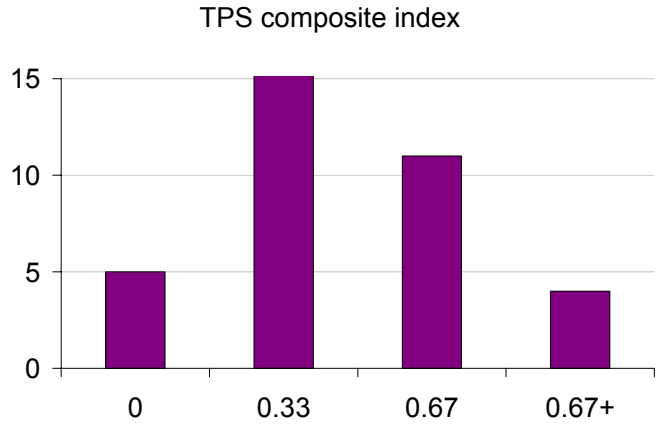
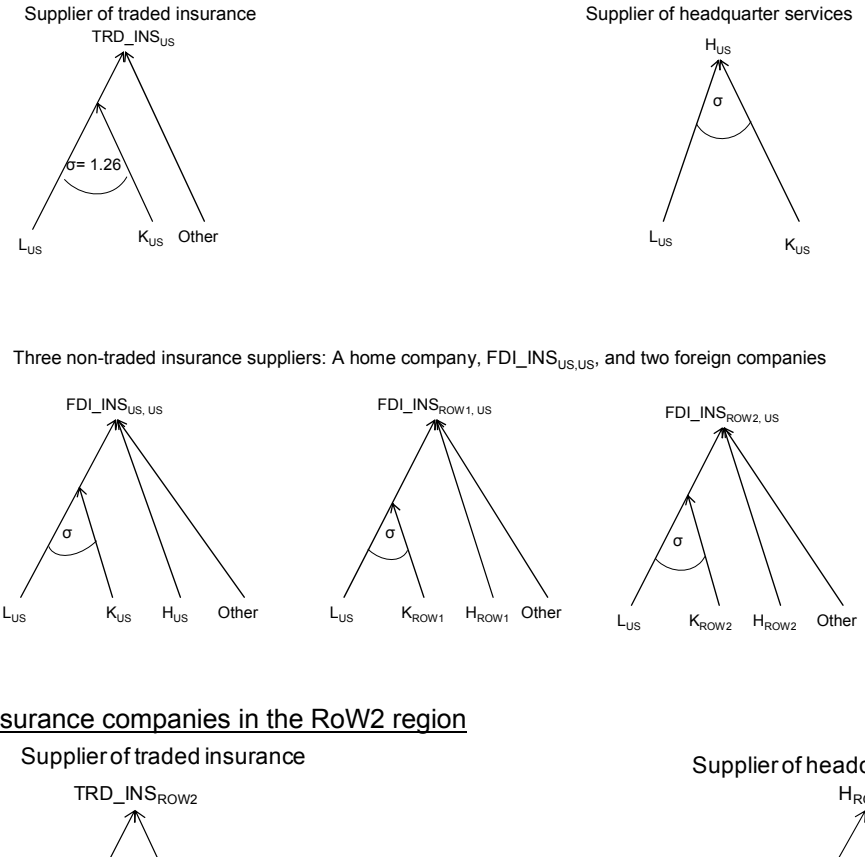


Figure 2. Input-output relationships for insurance companies in two regions of the model

A. Insurance companies in the United States



B. Insurance companies in the RoW2 region

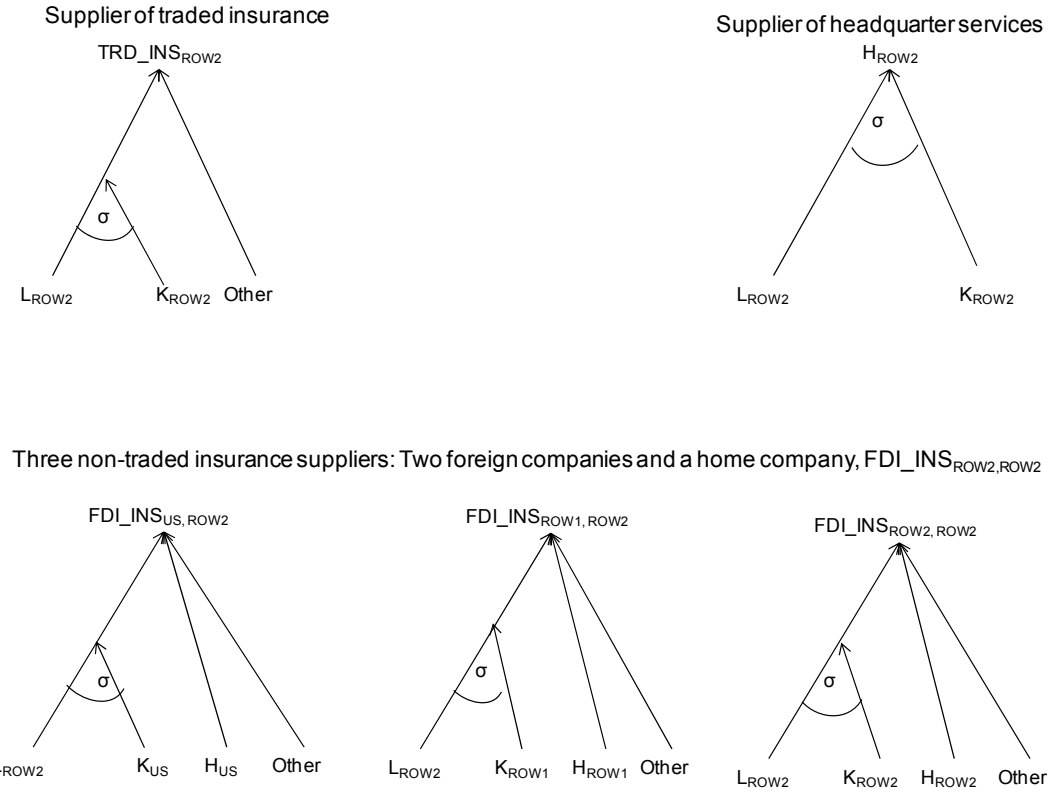


Figure 3. Demands for traded and non-trade insurance in the RoW2 region