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Labor Clauses in Regional Trade Agreements and Effects on Labor Conditions: An Empirical Analysis*

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Abstract

This paper attempts to perform an empirical analysis of the effects of "labor clauses" provided in bilateral or plurilateral trade agreements (or regional trade agreements: RTAs) on working conditions that laborers in the RTA signatory countries actually face, using macro-level data for a wide variety of countries. The paper first reexamines the labor-provision classification of 223 RTAs in force proposed in the author's other study (Kamata, 2014) by reviewing the texts of a selected set of those RTAs, and re-defines "RTAs with labor clauses" according to two criteria: (i) the agreement urges or expects the signatory countries to harmonize their domestic labor standards with internationally recognized standards, and (ii) the agreement stipulates the procedures for consultations and/or dispute settlement on labor-condition issues between the signatory countries. Based on this RTA labor-clause (re-)classification, this paper then estimates the impacts of a country's trade intensities with partners of RTAs with labor clauses and of those without on four measured working conditions in the country: average earnings, average work hours, fatal occupational injury rate, and the number of the ILO's fundamental conventions ratified. The empirical result indicates that RTAs with labor clauses do not differ from RTAs without labor clauses in the direction of their impacts (improving or worsening) on actual working conditions, and trade intensity with RTA partners should not have a statistically significant impact on the country's working conditions regardless of whether or not those RTAs include labor clauses. It, however, may be premature to conclude that RTA labor clauses are not effective, since there should be some technical issues inherent in the method and data employed in the current study.

Key words: International trade, Regional trade agreements, Labor standards, Labor clauses

***JEL classification*:** F13, F14, F16, F66, J81, J88

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1. Introduction

Trade agreements have traditionally dealt with international trade in goods. Trade agreements today, however, cover a much wider variety of topics and issues. Multilateral agreements under the system of the World Trade Organization (WTO) covers the topics of service trade, (trade-related) intellectual properties, (trade-related) investment measures, and so on, in contrast to the former General Agreement on Tariffs and Trade (GATT) covered the topics on merchandise trade only. The situation is the same for bilateral or plurilateral trade agreements—or regional trade agreements or RTAs following the naming by the WTO. Traditional RTAs (typical free trade agreements or FTAs) have been for freer trade in goods between countries, while more recent RTAs aim for liberalization of a wider variety of economic activities including service trade and investment, which are also called economic partnership agreements or EPAs.

At the same time, an increasing number of recent RTAs deal with non-commercial policy issues, especially social issues such as environment and labor. Some of those RTAs include "labor clauses," i.e., provisions urging or encouraging the signatory countries to commit to maintaining a certain level of labor standards. Indeed, raising labor and/or other social issues in trade negotiations is not a new phenomenon: the Havana Charter in 1948 of the failed-to-exist International Trade Organization (ITO) had a labor provision that urged its member countries to eliminate "unfair labor conditions" from a concern about "social dumping"—meaning to take advantage of ("unfairly") low or poor labor and/or environment standards for trade competitiveness. Since then, however, the multilateral trade agreement under the GATT/WTO system has refrained from including labor provisions despite repeated proposal from some developed countries such as the United States and Europe. On the other hand, the recent trend of the inclusion of labor provisions in RTAs, especially among some developed countries, should be, at least partially, from response to concerns about potential

negative impacts of globalization among the public in those countries. Such concerns may be raised from the protectionist motive of manufactures in those countries that are facing keener import competitions with emerging-economy exporters (protectionist motives); concerns may also be from the social motives of the public (e.g., movements against sweatshop practices involved in the business activities of some multilateral enterprises).

Are labor clauses in RTAs effective to maintain or improve labor standards in trading partners? On the one hand, some parties in the international society, including the International Labor Organization (ILO) that has recently been expressing a significant interest in labor provisions in trade agreements, seem to expect that sanction through trade-policy measures is effective to have low-standard countries to improve their labor conditions. On the other hand, a number of countries, especially the developing, are concerned about the (ab)uses of such labor provisions by developed-country trading partners from their protectionist motives. Whether or not labor provisions in RTAs are effective for better labor conditions in countries, therefore, should be an important question from both academic and policy-practice perspectives.

My recent paper (Kamata, 2014) is a unique study that attempts to provide an empirical answer to this question using a set of macro-level data on RTA labor clauses and labor conditions for various countries. The current study is one step to extend that recent work of mine. The current paper first reexamines the labor-provision classification of 223 RTAs in force proposed in the author's recent study by reviewing the texts of a selected set of those RTAs. Based on the review the paper re-defines "RTAs with labor clauses" according to the following two criteria: (i) the agreement urges or expects the signatory countries to harmonize their domestic labor standards with internationally recognized standards, and (ii) the agreement stipulates the procedures for consultations and/or dispute settlement on labor-condition issues between the signatory countries. Based on this RTA labor-clause (re-)classification, the

current paper estimates the impacts of a country's trade intensities with partners of RTAs with labor clauses and of those without on four measured working conditions in the country: average earnings, average work hours, fatal occupational injury rate, and the number of the ILO's fundamental conventions ratified.

The empirical result indicates that RTAs with labor clauses do not differ from RTAs without labor clauses in the direction of their impacts (improving or worsening) on actual working conditions, and trade intensity with RTA partners should not have a statistically significant impact on the country's working conditions regardless of whether or not those RTAs include labor clauses. It, however, may be premature to conclude that RTA labor clauses are not effective, since there should be some technical issues inherent in the method and data employed in the current study.

The rest of the paper is organized as follows. The following Section 2 presents a (very) brief literature review on the topics of trade and labor standards and of trade agreement/policy and labor standards. Section 3 proposes a refined classification of RTA labor clauses through detailed reviews of selected RTAs from those reviewed and classified in Kamata (2014). Section 4 describes the methodology, data, and results of/for the empirical analysis, and concluding Section 5 discusses issues in the current approach and the next direction(s) to an extended study.

2. Trade and Labor Standards: A (Very) Brief Review of Literature

The issues of the impacts of trade (or more broadly, globalization including FDI) on labor conditions or of the effects of labor standards on trade are not new as research topics, and there exist a number of studies that have investigated these topics. In this section I provide a very brief review of the literature focusing attention on what have and have not been confirmed to date. In my recent paper (Kamata, 2014) I present a more detailed literature review on this theme, and there are also other recent studies with a comprehensive survey of the literature such as Brown, Deardorff, & Stern (2011)

and Samy & Dehejia (2007). I thus leave more extended literature reviews to these papers.

What Are "Labor Standards"?

The concept of "labor standards" includes standards for various kinds of labor conditions. The most frequently referred to are the ones so called "internationally recognized core labor standards" (or often more simply "core labor standards"). The International Labour Organization (ILO) declares the following four core labor standards: (i) freedom of association and collective bargaining, (ii) elimination of forced labor, (iii) elimination of child labor, and (iv) elimination of discrimination in respect of employment and occupation. In some cases labor standards that are understood to be basic go beyond these four "core labor standards" by including "decent work"—with acceptable working conditions on wages, hours of work, and occupational safety and health in addition to the four "core" categories. Many pieces of literature primarily consider the "core labor standards," while some extends the scope to other labor conditions such as those included in the "decent work."

Effects of Labor Standards on Trade

Countries would have an incentive to taking advantage of low or lowered labor standards to gain competitiveness for trade in a globalized economy—this is the view shared among producers and officials of some developed countries that are concerned about import competition from emerging economies and also behind the public concern about 'races to the bottom.' Do lower labor standards really improve a country's trade competitiveness? Theoretical literature including Brown, Deardorff, & Stern (1996) and Martin & Maskus (2001) suggests that it is not always the case, and that there will be a number of cases in which countries can worsen their export performances or economic welfare. A number of empirical studies including the OECD (1996), Rodrik (1996), van Beers (1998), and Dehejia & Sammy (2004) have found no convincing relationship

between labor standards and export performances of countries.

Effects of Trade (or Globalization) on Labor Standards

Does increasing world trade, or globalization, deteriorate labor standards in countries? Theoretical views for this question should be the same as those described in the previous paragraph, understanding the view behind the 'races to the bottom' concern is that keener competitive pressures lead country to lower standards. Thus, the theoretical literature has not agreed with this view. Overall findings in empirical studies that have addressed this question, such as Huberman & Lewchuk (2003), Edmonds & Pavcnik (2006), and Neumayer & de Soya (2007), agreed that trade openness has no significant impacts on labor standards, or rather that the openness to trade may have positive impacts on some of the core labor standards.

Effectiveness of Linking Trade Policy with Labor Issues

In contrast to the literature on trade and labor standards, the literature is still very slim on the issue of trade *policy* (including trade agreements) and labor standards. There are studies that address the issue of the effectiveness of trade sanctions for the improvement of labor standards, especially in the context of developing countries. Martin & Maskus (2001) and Srinivasan (1998) emphasize that trade sanctions will not be effective measures to lead low-standard countries to improved labor standards since trade sanctions are likely to worsen the conditions of workers in those countries. On the other hand, Brown et al. (2011) introduces some cases in which trade sanction or its threat under the Generalized System Preferences (GSP) that the United States has granted to developing countries was successful to improve labor conditions in the developing countries. Also note that there are theoretical studies such as Bagwell & Staiger (2001), Spagnolo (2001), and Limão (2005) that analyze the effects of linkage between trade policy (i.e., tariffs) and social issues in bilateral trade negotiations, while these studies focus on the issue of self-enforcingness or sustainability of such

issue-linkage in international agreements.

3. Labor Clause: A Little Closer Look

Labor provisions in RTAs vary in terms of contents and stringency as well as where in the agreements the provisions exist. Some RTAs just declare, typically in their preambles, the signatory countries' commitment to the internationally recognized labor standards with or without mentioning the name of the ILO; others detail for what matters and how the signatories shall cooperate, and/or stipulate procedures for consultation on labor issues raised between the RTA members. Among those RTAs that have detailed provisions on labor matters, some include those labor provisions in the main texts of the RTAs, while others prepare separate side agreements or the minutes of understanding (MOU) for the labor provisions.

Having this wide variety in labor provisions in RTAs, and also given that there is no single definition of RTA "labor clauses," in my own previous work (Kamata, 2014) I classified RTAs in force into six groups in terms of the contents and stringency of labor provisions in those RTAs.[1] In that classification I put a focus on whether the provisions refer to the ILO's "core" standards or an equivalent set of the "internationally recognized" standards, and categorized RTAs that have any provision referring to such internationally recognized standards (i.e., RTAs in Groups 1 through 3) as "RTAs with

[1] The six groups into which the RTAs have been classified are the following:
Group 1: The RTA requires the member countries to make their domestic labor laws consistent with the ILO's guidelines; the RTA also discusses how domestic labor laws should be promoted and enforced in those member countries.
Group 2: The RTA members should strive to have their domestic laws consistent with the ILO guidelines but do not have to commit to do so ultimately; the RTA text also discusses how domestic labor laws should be promoted and enforced in those member countries.
Group 3: The RTA acknowledges the members' commitment to the internationally recognized labor standards but are not ultimately required to follow the ILO's guidelines.
Group 4: The RTA acknowledges labor rights or working conditions but does not refer to the internationally recognized standards.
Group 5: The RTA acknowledges social values including human rights but does not exclusively mention labor rights or working conditions exclusively.
Group 6: The RTA does not mention labor or social matters.
See Table 1 of the paper (Kamata, 2014) for the list of RTAs in each group.

labor clauses," and the others (i.e., RTAs in Groups 4 through 6) as "RTAs without labor clauses."

For the current study, I have reexamined this RTA labor-clause classification from the perspective of the (potential) effectiveness of those labor clauses for domestic labor standards or conditions in the RTA member countries. For that purpose, I have performed an in-depth review of the agreement texts of some RTAs selected from the entire set of 223 RTAs that are covered in my previous work (Kamata, 2014). The RTAs on which I have put a particular focus for the review this time are the ones that were categorized as "RTAs with labor clauses" (i.e., those in Groups 1 through 3) in the preceding work, and also those that involve European economies (such as the EU and EFTA) and Canada.[2] I have then redefined and reclassified "RTAs with labor clauses" according to the following two criteria: (i) the RTA has provisions that demand, urge, or at least expect the signatory countries to harmonize their domestic labor conditions and regulations with the internationally recognized standards such as the ILO's "core" standards or an equivalent set of labor standards, and (ii) the RTA has an extensive set(s) of articles that stipulates the items/issues for which the signatory countries shall cooperate and the procedures for consultations and/or dispute settlement on issues concerning labor conditions, as a part (chapter(s) or title(s)) of the main body of the RTA or a separate side agreement or MOU.[3]

In this paper, I consider two cases of RTA labor-clause classifications. In one case, which I call the 'conservative' classification, I define/classify RTAs that satisfy both of the two above-mentioned criteria as "RTAs with labor clauses" and the others as "RTAs without labor clauses" or "labor-clause-non-inclusive RTAs." In another case, which I call the 'liberal' classification, I define/classify RTAs that satisfy the second

[2] These economies have been, together with the United States, pro-labor-clause countries in the GATT/WTO multilateral trade negotiations.

[3] A number of RTAs that cover service trade and/or investment (such as economic partnership agreements or EPAs) have provisions concerning protection and treatment of migrating workers. I do *not* consider these provisions for the labor-clause classification here, since these should be about the issues of barriers to service trade rather than social provisions.

criteria ((ii) above) as "RTAs with labor clauses" and the others as "without." Indeed, of those RTAs that detail an institutional arrangement for cooperation and consultations between the RTA members concerning labor matters, there are some RTAs that declare or emphasize the exclusive right of each country to define or regulate its domestic labor laws or standards. These RTAs satisfy the criteria (ii) but does not (i), and thus these are classified as "RTAs with labor clauses" in the *liberal* case but not in the *conservative* case.

The entire list of the labor-clause-inclusive RTAs and non-inclusive RTAs is provided in Table 1. Note that the list covers the 223 RTAs that entered in force and were notified to the WTO by July 2013 only (i.e., those that are covered in Kamata (2014)).[4] For a reference purpose, I create another version of labor-clause classification list that is comparable to the classification in my preceding work. This version classifies RTAs into Groups 1 through 6 according to the two criteria applied in this paper together with the labor-clause consistency with the ILO "core" standards and its stringency. The comparable version of the classification is shown in Table A1. Note that this updated classification introduces a new group "2.5" for those RTAs that satisfies the above-mentioned criteria (ii) but does not (i).[5]

4. Effects of Labor Clauses on Labor Conditions: Empirical Analysis

4.1. Methodology and Data

The empirical analysis is built on my own previous work (Kamata, 2014).[6] That is, the impacts of the RTAs with labor clauses and of those without labor clauses

[4] According to the WTO's RTA database, there are 17 RTAs that became effective after July 2013. This study does not include these recent RTAs in the labor-clause classification since these should not play roles in the empirical analysis (the data used for the empirical analysis do not cover such recent-year trade statistics).

[5] Therefore, in the current paper the RTAs that are included in Groups 1 and 2 are categorized as "RTAs with labor clauses" in the *conservative* case, and those included in Groups 1, 2, and 2.5 are categorized as "RTAs with labor clauses" in the *liberal* case.

[6] The approach is inspired by Häberli et al. (2012).

on domestic labor conditions in the RTA member countries are estimated based on the following regression equation:

$$L_{it} = \alpha + \beta_1 TP^{LC}_{i,\,t\text{-}1} + \beta_2 TP^{NL}_{i,\,t\text{-}1} + \mathbf{X}_{it}\gamma + u_i + T_t\delta + \varepsilon_{it} \qquad (1)$$

where L_{it} is a measure of labor conditions in country i at year t, and TP^{LC}_{it} and TP^{NL}_{it} are country i's trade intensities with other members of RTAs with labor clauses and those without labor clauses, respectively, that country i joins as of year t-1. The vector $\mathbf{X}_{it}$ contains a set of variables for economic controls that are detailed below. u_i indicates country dummies that represents country-specific time-invariant factors that affect country i's labor conditions that are not observable for researchers, and T_t indicates time (year) dummies; and finally ε_{it} represents the idiosyncratic error term.

Labor Condition Measures

The domestic labor condition in each country, L_{it}, are measured using the following four indicators: (i) the log of the mean monthly earnings of employees in manufacturing industries (*earnings*); (ii) mean weekly hours actually worked per employee in manufacturing (*hours*); (iii) fatal occupational injury rate (in percent) in manufacturing (*injury*); and (iv) the number of ILO's core conventions ratified (*conventions*). Data for *earnings* are sourced from the ILO's on-line database *LABORSTA*.[7] The database reports the mean monthly earnings of manufacturing workers for various countries in the nominal local currency unit (LCU), and I convert those data to the real unit measured in constant 2005 US dollars, using the current market exchange rates (annual average) and the US GDP deflator reported in the World Bank's *World Development Indicators* on-line database (WDI).[8] Data for *hours* and *injury* are also obtained from *LABORSTA*, and the data for each variable are used as reported in the database. For another labor-condition measure *conventions*, I count the number of the ILO's core (or fundamental) conventions that each country had ratified as

[7] http://laborsta.ilo.org/
[8] http://data.worldbank.org/data-catalog/world-development-indicators

of the end of each data period (say, year *t*). There are eight "core conventions" of the ILO that concern eight fundamental labor standards recognized by the ILO.[9] Therefore, the variable *conventions* takes integer values from the theoretical minimum zero to the theoretical maximum eight. The information on what core convention was ratified as well as when it was ratified by each country is obtained from *NORMLEX*,[10] the ILO's information system for conventions.

Trade Intensities with RTA Partners

TP^{LC}_{it} and TP^{NL}_{it} in equation (1) are the indicators of country *i*'s trade intensities with the partners of labor-clause-inclusive RTAs and with the partners of labor-clause-non-inclusive RTAs, respectively. These trade-intensity indicators are defined as follows:

$$TP^{LC}_{it} = \sum_j^N (RTA^{LC}_{ijt} \times TradeShare_{ijt}) \quad \text{for } i \neq j$$

$$TP^{NL}_{it} = \sum_j^N (RTA^{NL}_{ijt} \times TradeShare_{ijt}) \quad \text{for } i \neq j$$

RTA^{LC}_{ijt} is a dummy variable taking the value one if countries *i* and *j* are both members of a common labor-clause-inclusive RTA as of year *t*, while RTA^{NL}_{ijt} is a dummy taking the value one if the two countries are the members of a common RTA without labor clauses as of year *t*. (When the two countries do not join any common RTA as of year *t*, these dummies both take the value zero.) The RTAs with/without labor clauses are distinguished according to the two classifications (*conservative* and *liberal*) that have been described in the previous section. $TradeShare_{ijt}$ indicates the total trade (in value) between countries *i* and *j* in year *t* as the share in country *i*'s total trade with all other countries in the world in that year. The trade share for each country pair in each year is

[9] The eight core (or fundamental) conventions are the following: Forced Labour Convention of 1930 (No. 29), Freedom of Association and Protection of the Right to Organise Convention of 1948 (No. 87), Right to Organise and Collective Bargaining Convention of 1949 (No. 98), Equal Remuneration Convention of 1951 (No. 100), Abolition of Forced Labour Convention of 1957 (No. 105), Discrimination (Employment and Occupation) Convention of 1958 (No. 111), Minimum Age Convention of 1973 (No. 138), and Worst Forms of Child Labour Convention of 1999 (No. 182).

[10] http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:1:0

computed using data on bilateral trade flows obtained from the *UNCTADstat*, an on-line database provided by the UNCTAD.[11]

The benchmark version of the trade-intensity indicators TP^{LC}_{it} and TP^{NL}_{it} are computed simply applying the current-year trade share for each year *t*. However, we might have to be concerned about the possibility that the trade share with a particular RTA partner would be high because of the common RTA. To address the issue of this potential endogeneity I compute an alternative version of the two trade-intensity indicators applying the fixed trade share as of the year 2011 ($TradeShare_{ij,2011}$).[12] Equation (1) will be estimated separately using each of the two versions of the trade-intensity indicators. Finally, notice that in equation (1) the trade-intensity indicators are one-period lagged to measure the impacts of intensive trade with the partners of RTAs with/without labor clauses in a particular year on the domestic labor conditions in the following year.

Other Economic Controls

The vector of other control variables $\mathbf{X}_{it}$ in equation (1) includes: the log of real GDP per capita, in the linear and squared terms; employment in the industry sector as the share (in percent) in the total employment; manufacturing value added as the share in GDP; and two Freedom House's indexes indicating political rights and civil liberties. The two terms of the log of GDP per capita are included since it is repeatedly confirmed that labor conditions in a country are correlated with the country's income level. The industry employment share and manufacturing share in GDP are included since trade-related labor standards or conditions should matters the most for workers in the industry or manufacturing sector.[13] Data for these three economic controls are obtained from the WDI, and for the income-level indicator GDP per capita in constant 2005 US

[11] http://unctadstat.unctad.org/

[12] I use the trade share in 2011 since, among the gathered data years, it is the year for which trade data necessary to compute for the trade shares are available for the largest number of countries.

[13] Häberli et al. (2012) also include these variables in their economic controls.

dollars are employed.

The indexes of political rights and of civil liberties are included to control for the overall human-right conditions in each country. These indexes are sourced from the *Freedom in the World*, an annual survey report by Freedom House. Each index is scaled from 1 through 7, with a smaller number indicating a higher degree of freedom. The data for the current paper are obtained from an on-line database provided by the International Institute for Democracy and Electoral Assistance (International IDEA).[14] The Freedom House conducts the evaluation and rating for a country typically with an interval of a few to several years. Therefore, for each country there exist years for which updated indexes are not available (let us call these years "non-surveyed years").[15] To have the size of sample that is valid for the empirical analysis being as large as possible, I have filled in the data for these Freedom House indexes for *non-surveyed years* in the following manner: basically, the non-surveyed years are filled in with the indexes for the previous surveyed year; but the non-surveyed years are not filled in when the survey interval is significantly long; this way of index filling-in is also avoided when the scores/ratings are very different between the two surveyed years (since we have no clear idea on in what year the score change should have been reflected) or when it is obviously that a significant political event that may affect human rights was the case in that country during a survey-interval period (since we have no clear idea on how to evaluate the impacts on that event on the political rights and civil liberties as well as their persistence).

Resulted Dataset for the Empirical Analysis

I have tried to gather data for the variables for as many countries as possible and for the years 1995 and onward. Data availability differs for different variables, however, and the resulted dataset for the empirical analysis covers 136 countries and 16

[14] http://www.idea.int/

[15] This is one major reason why in my previous paper (Kamata, 2014) the observations valid for the empirical analysis were very limited.

years from 1996 through 2011,[16] for which the data for all the variables on the right-hand side of equation (1) and the data for at least one of the four labor-condition indicators (or the left- side variable in the equation) are all available. The sample countries covered in the dataset are listed in Table 2. Note, however, that the number of years for which data are available differs across countries (i.e., the dataset is not a balanced panel), ranging from 1 to 17 of 17 years. Table 3 presents the summary statistics for each variable in the resulted dataset.

4.2. Estimation Results

Using the dataset described in the previous subsection, I estimate equation (1) to examine the effects of intensive trade with RTA partners on a country's domestic labor conditions when the RTA is labor-clause-inclusive or is not. The key coefficients to be focused on are β_1 and β_2, and the estimates of these coefficients should differ in sign and size if labor clauses in a RTA have some impacts on the actual labor conditions.

I first estimate the equation using the RTA trade intensities computed from the current-year trade shares, and distinguish RTAs with labor clauses from those without according to the *conservative* classification. The results of the estimation of the equation for the four labor-condition measures are as presented in Table 4.

First, notice that the estimate of neither of β_1 nor β_2 is statistically significant in any estimation. This implies that whether or not intensive trade with RTA partners affects labor conditions in the trading countries are not clear. The only exception is the estimated β_2 in the estimation with *injury*, which indicates that intensive trade with the partners of RTAs *without* labor clauses may improve the domestic labor condition by reducing the rate of fatal occupation injury in manufacturing. Noticing this, let us

[16] Equation (1) involves the lagged variables for trade-intensity indicators, so the data for the year 1995 are not used for the current-year variables.

interpret the estimated coefficients on the RTA trade-intensity indicators. The estimated β_1 and β_2 in the *earning* regression are both positive, while the size is larger for β_2. These estimates imply that as the intensity of a country's trade with labor-clause-*non*-inclusive RTAs increases by 1% (0.01), the mean labor earnings in the country will increase by 1.1% on average, while the same increase in trade intensity with labor-clause-inclusive RTA partners will have only a negligibly small positive impact (0.06% increase) on the mean earnings. The estimated impacts of trade intensities with RTA partners on *hours* are positive (i.e., to *decrease* work hours) and in a similar moderate size for both RTAs with and without labor clauses: in both cases a 1% increase in trade intensity with RTA partners will decrease mean work hours by less than 0.1 hours per week on average. Also on *injury*, the sign of the estimates of β_1 and β_2 are the same, implying that trade intensity with RTA partners will affect the fatal occupation injury rate in the same direction (to decreasing) for both cases of RTAs with and without labor clauses, while the impact should be larger for RTAs *without* labor clauses (a 1% increase in trade intensity will lower the injury rate by 0.08%) than for RTAs with labor clauses (almost no impacts). Finally, the estimated β_1 and β_2 in the *conventions* regression indicates that trade intensity with RTA partners would not affect the number of the ILO core conventions that the country ratifies regardless of whether the RTAs include labor clauses or not.

Let us now look at the estimates of the coefficients on other economic controls. First, notice that estimates for all the variables other than the two terms of GDP per capita are statistically *in*significant in any of the four labor-condition regressions, implying that these indicators (including the two liberty indexes, somewhat interestingly) may not have a clear impact on any of the four labor conditions. On the other hand, the coefficient estimate is statistically significant for at least one of the two GDP-per-capita terms in the *earnings* and *hours* regressions, which is consistent with literature (and conventional wisdom) in the sense that labor conditions are highly

correlated with the income levels of countries. Notice, however, that in these two labor-condition regressions, the relationships between the income level and labor conditions are not monotonic. With the estimated coefficients on the linear and quadratic terms, the relationships are in a U- or reversed-U-shape in the relevant range of GDP per capita in the sample (between 5.0 and 11.4 in logarithm). The mean monthly earnings tends to decrease with the national income level for low-income countries with GDP per capita up to $3,060, but tends to increase with the income level for countries with a higher income than it. The mean weakly work hours tends to *increase* with the national income level for most countries with GDP per capita up to $36,000, but tends to decrease only for the highest-income countries with the income level above it. The estimated coefficients on the income terms are not statistically significant in the *injury* regression. Finally, the income-level terms are both statistically significant in the *conventions* regression, and this should simply reflect the fact that countries with higher income (or more developed countries) tend to ratify more of the ILO's core conventions. However, notice that the estimated relationship is also in a reversed U-shape here, which indicates that among a group of richest countries the number of ratified conventions tends to decrease with the country's income level.[17]

Next, I switch the RTA trade-intensity variables to the indicators computed from the fixed-year trade shares (in the year 2011) and re-estimate the labor-condition equation for the four labor-condition variables. The results are shown in Table 5, and these are quite similar to the results of the benchmark estimation in Table 4. One thing to point out is that the estimated coefficient on the trade intensity with labor-clause-non-inclusive RTA partners in the *injury* regression, which is the only statistically significant estimate in the benchmark estimation, is *not* significant in this case, meaning that none of the estimated coefficient on the RTA trade-intensity variables

[17] This is actually understandable. For instance, the United States, which is with the highest income level in the world, has ratifies the least ILO conventions among the OECD countries.

is statistically significant in this estimation.

Finally, I also follow the alternative definition of RTAs with labor clauses (the *liberal* classification) to distinguish labor-clause-inclusive RTAs from the non-inclusive ones and re-estimate the equation using both current-year-share-based and fixed-year-share-based RTA trade intensities. The results of the estimation are presented in Table A4 (with the current-year-share-based trade intensities) and in Table A5 (with the fixed-year-share-based trade intensities). As shown, the results do not differ from—actually almost exactly the same as—the results in Tables 4 and 5, respectively. This suggests that the two labor-clause classifications that I propose provide equal estimation results, or that the estimation is not fragile at least between the two different labor-clause definitions presented in the current study.

Impacts of RTA Trade Intensities for Different Country Income Groups

Intensive trade with the partners of RTAs with/without labor clauses might affect domestic labor conditions differently for countries in different income groups. To capture the potential difference in the impacts of the RTA trade intensities across income levels in estimation, I estimate equation (1) with the two RTA trade-intensity indicators (TP^{LC} and TP^{NL}) each of which is now interacted with dummies indicating income categories of the sample countries, along the lines of my other work (Kamata, 2014). The countries are grouped into three income categories (high-income, middle-income, and low-income) according to the World Bank's classification for the year 2013.[18] Table 2 lists the sample countries in these three different income groups. Equation (1) is now estimated for the four labor-condition measures with six variables for the RTA trade-intensity indicators (two *TP*s $\times$ three income-group dummies).

The results of the benchmark estimation using the trade intensities computed

[18] Countries are grouped into income categories as follows, according to their GNI per capita as of the year 2012: the country is low-income if its GNI per capita was $1,035 or less, middle-income if between $1,036 and $12,615, or high-income if $12,616 or above. See the World Bank's website http://data.worldbank.org/news/new-country-classifications for more details.

from the current-year trade shares are presented in Table 6. The first thing to notice is that the estimated coefficient on neither of the two RTA trade-intensity indicators is statistically significant for any income group for any labor-condition measure (with a couple of exceptions[19]). In other words, there is no clear evidence for the effects of intensive trade with RTA partners on labor conditions in the trading countries or for whether the impacts differ between RTAs with and without labor clauses, for countries with any income level. Also notice that the estimation is not available for the RTA trade intensity with labor clauses for low-income countries, since no labor-clause-inclusive RTAs in the sample involve low-income countries.

Acknowledging this statistical insignificance of the impacts of trade intensities on the labor conditions for both RTA with and without labor clauses, let us take a closer look at the results of the estimation focusing on the cases in which the estimated coefficients on the trade intensities are different between RTAs with and without labor clauses. In the *earnings* regression, for high-income countries the estimate for the trade intensity with labor-clause-inclusive RTA partners is moderately positive (less than a 0.3% increase in monthly earnings with a 1% increase in the trade intensity) while that for the trade intensity with labor-clause-non-inclusive RTA partners is negative and larger (a near 7% decrease in monthly earnings with a 1% increase in the trade intensity). On the other hand, the estimated impacts are reverse for middle-income countries: the estimate for the trade intensity with the partners of RTAs with labor clauses is moderately negative (a 0.25% decrease in monthly earnings with a 1% increase in the trade intensity) while the estimate for RTAs without labor clauses is positive (a 1.3% increase in monthly earnings with a 1% increase in the trade intensity). In the *hours* regression, for high-income countries the estimate indicates a moderate *negative* impact of the trade intensity with the partners of RTAs with labor clauses (a

[19] The negative coefficient estimate for the trade intensity with labor-clause-*non*-inclusive RTAs in the *earnings* regression is significant at the 5% level for low-income countries, and the negative coefficient estimate for the trade intensity with labor-clause-*non*-inclusive RTAs in the *injury* regression is significant at the 5% level for middle-income countries.

0.6-hour *increase* in weakly work hours with a 1% increase in the trade intensity) while the estimate for RTAs without labor clauses indicates a large *positive* impact on the work hours (a 2-hour *decrease* per week with a 1% increase in the trade intensity). Finally, in the *injury* regression, for middle-income countries the estimate indicates a small but *negative* impact of the trade intensity with the partners of RTAs with labor clauses (a 0.03-percentage-point *increase* in the fatal occupation injury rate with a 1% increase in the trade intensity) while the estimate for RTAs without labor clauses indicates a small *positive* impact on the injury rate (a 0.09-percentage-point *decrease* with a 1% increase in the trade intensity).

The series of estimation is also performed switching the RTA trade-intensity indexes to those based on the fixed-year (2011-based) trade shares. The results are presented in Table 7. The results do not differ from those with the current-year trade-share-based intensity indexes (in Table 6) that have been explained above, and the same key message is indicated: there is no clear evidence for the impacts of intensive trade with RTA partners or whether the impacts differ between RTAs with and without labor clauses. The estimate for the labor-clause-inclusive RTA trade intensity for high-income countries in the *hours* regression is now negative, but this does not substantially differ from the estimate with the current-year trade-share-based intensity index, considering the large standard error. In the *convention*s regression, the estimate for the trade intensity for the case of labor-clause-*non*-inclusive RTAs is now negative and significant for high-income countries while the same coefficient is estimated to be positive and insignificant in the benchmark regression, and this should simply suggest that the results of the estimation of the *conventions* regression are fragile.

I also estimate the same set of the extended labor-condition equations applying the alternative *liberal* RTA labor-clause classification. The results are virtually the same as those with the *conservative* RTA classification for both cases for the trade-intensity indexes (the current-year trade-share-based and the fixed-year share-based), as shown in

Tables A6 and A7. The estimation turns out not to be sensitive to the RTA labor-clause classifications.

5. To Conclude: Discussion on Current Results and Next Direction

As mentioned in the beginning of the paper, this study is the first step to extend my recent work (Kamata, 2014) that has proposed a unique empirical analysis of the effectiveness of labor clauses in regional trade agreements using internationally-comparable macro-level data. The current paper first performs the detailed reexamination of labor provisions of a selected part of the 223 RTAs covered in my previous work and presents alternative RTA labor-clause classifications that focus more attention on the validity of those labor provisions from the perspective of whether the agreement urges or expects the harmonization, to any degree, of labor standards between the signatory countries, and also whether the agreement stipulate the procedures for cooperation, consultations, and/or dispute settlement on issues related to labor conditions between the signatory countries. This paper also expands the dataset from that used in the previous work by filling up some missing data (especially those for the political-right and civil-liberty indexes) for the empirical analysis. With the refined classification of RTA labor provisions and the expanded dataset, the current study estimate the impacts of intensive trade with the partners of RTAs with and without labor clauses to examine whether the RTA trade intensity shows different effects on labor conditions in the trading countries depending on the existence of labor provisions. The results, however, implies that there is no clear evidence for the effects of intensive trade with RTA partners on labor conditions in the trading countries or for whether the impacts differ between RTAs with and without labor clauses. This is essentially consistent with the conclusion derived from my recent study, but comparison of the empirical results to the previous work also suggests that the estimation should be very sensitive to the range of the sample.

Can we now conclude that labor clauses in trade agreements are not effective to maintain or improve labor standards or the conditions of work in each country? I should answer "not yet" at least, since there are issues, both methodological and technical, inherent in the current approach of macro-level empirical analysis.

One issue that might have to be pointed out is that the current measures of labor conditions are the actual *outcome* but not really the *standards*. Labor provisions in RTAs are to demand the signatory countries for some actions to their labor laws or regulations, and thus the labor conditions should be, to be accurate, measured by the standards rather than outcomes (for instance, legal minimum wages rather than actually earned wages). The problem that the author faces in the current research is that data on such labor-standard measures are not available in an internationally comparable manner for a wide variety of countries. There might, however, exist some cross-country information of labor standards or regulations that are available for a limited set of countries, and if it is the case, it should be possible to perform a macro-level empirical analysis admitting the sample of countries (and perhaps time periods, too) to be narrowed down.

Next potential issue is the adequacy of the trade-intensity indexes employed in the current study as the measure of efficacy of RTA labor provisions. The current indexes would be effective if it were the case that countries would be more required or face a higher pressure for higher labor standards as they signed more labor-clause-inclusive RTAs with more trading partners. However, reality might be that countries would be strongly demanded for higher labor standards when they signed an RTA with labor provisions with one or a few most important trading partners for them, and signing additional labor-clause-inclusive RTAs with other partners would not add a pressure on them. To address this issue, it should be valuable to consider an alternative index(es) that can indicate when a country joins an RTA with its largest trading partner(s), how important the partner(s) is in the country's trade or economy, and how

stringent labor provisions in that RTA are.

Another issue is time for RTA labor clauses to have effects on labor standards and conditions. The current study takes one-year lag to measure the RTA status of each country, but one year should be too short for the country to adjust its labor standards and regulations according to labor clauses in a newly-signed RTA, and the time should be even more inadequate for the labor-condition outcomes to follow. The insignificance of the estimates in the current study might be due to this shortness of the one-year lag for the variables. A simple way to address this issue is to include longer-lagged variables of RTA statuses, but this approach should not be free from other issue of data limitation, which is described in the next paragraph.

The other issue is related to timing and data availability (or limitation). The inclusion of labor provisions in trade agreements is a relatively recent phenomenon, and many RTAs that have labor clauses (extensive ones, especially) entered in force in the middle of 2000s or even later. Considering a time required for those RTA member countries to adjust their domestic labor standards to the labor clauses, it might be too early at the present day to accurately measure the effectiveness of those RTA labor clauses on the countries' labor standards using macro-level statistical data. It should also be noted that those RTAs with labor clauses are still of only a very small part of the large entire population of RTAs in the world currently in force. The sample of RTAs with labor clauses might be still too small for an effective macro-level empirical analysis. This issue is inevitable, at least at the present day, in an empirical approach with macro-level data such as that in the current study, and there should be no quick ways to solve it. A micro-level approach such as a case study might have to be considered to complement the current empirical approach.

This study is perhaps only a small step to extending to the large research theme. Other strides are to be taken to address to the issues discussed above.

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Table 1. List of Regional Trade Agreements with Labor Clauses

(RTAs with * are included only according to the *liberal* classification.)

USA-Australia
USA-Bahrain
USA-Chile
USA-Colombia
USA-Jordan
USA- Korea (South)
USA-Morocco
USA-Oman
USA-Panama
USA-Peru
USA-Singapore
North American Free Trade Agreement (NAFTA)
USA-CAFTA-Dominican Republic (CAFTA-DR)
Canada-Chile
Canada-Colombia
Canada-Costa Rica
Canada-Peru
Canada-Jordan
European Economic Area (EEA)
EU- Korea (South)
Chile-Turkey
Trans-Pacific Strategic Economic Partnership (TPSEP or P4)

* EFTA-Hong Kong
* EFTA-Montenegro
* EU-CARIFORUM States*
* Carribean Community and Common Market (CARICOM)
* Chile-China
* Chile-Colombia
* New Zealand-China
* New Zealand-Malaysia
* Nicaragua-Taiwan

No. of RTAs with labor clauses:
22 according to the *conservative* classification
31 according to the *liberal* classification

Notes:

1. RTAs with labor clauses are defined as RTAs, according to the *conservative* classification, that satisfy both of the following two criteria:
   (i) The RTA has provisions that demand, urge, or at least expect the signatory countries to harmonize their domestic labor conditions and regulations with the internationally recognized standards such as the ILO's "core" standards or an equivalent set of labor standards,
   (ii) the RTA has an extensive set(s) of articles that stipulates the items/issues for which the signatory countries shall cooperate and the procedures for consultations and/or dispute settlement on issues concerning labor conditions, as a part (chapter(s) or title(s)) of the main body of the RTA or a separate side agreement or MOU.

   RTAs with labor clauses under the *liberal* classification are those that satisfy the criterion (ii). (This classification includes the RTA with * in the list above, which satisfy (ii) but not (i).)
2. The labor-clause-inclusive RTAs listed above are classified from the population of 223 RTAs that had entered in force and are notified to the WTO as of July 2013. The Generalized System of Preferences (GSP) are not included in the RTA populations.

Table 2. Countries in the Sample for Empirical Analysis

High-income Countries (42 countries)	Middle-income Countries (75 countries)		Low-income Countries (19 countries)
Antigua & Barbuda	Albania	Moldova	Benin
Australia	Algeria	Mongolia	Bangladesh
Austria	Argentina	Montenegro	Burkina Faso
Bahamas	Armenia	Morocco	Cambodia
Barbados	Azerbaijan	Namibia	Ethiopia
Belgium	Belize	Nicaragua	Kenya
Canada	Bolivia	Nigeria	Kyrgyzstan
Chile	Bosnia & Herzegovina	Pakistan	Liberia
Croatia	Botswana	Panama	Madagascar
Cyprus	Brazil	Papua New Guinea	Mali
Czech Republic	Bulgaria	Paraguay	Mozambique
Denmark	Cameroon	Peru	Nepal
Germany	Colombia	Philippines	Rwanda
Estonia	Congo	Romania	Sierra Leone
Finland	Costa Rica	St. Lucia	Tajikistan
France	Cuba	St. Vincent & the Grenadines	Tanzania
Iceland	Dominica	Samoa	Togo
Ireland	Dominican Republic	Senegal	Uganda
Italy	Ecuador	Serbia	Zimbabwe
Japan	Egypt	South Africa	
Korea (South)	El Salvador	Sri Lanka	
Kuwait	Gabon	Suriname	
Latvia	Georgia	Syria	
Lithuania	Ghana	Thailand	
Luxemburg	Grenada	Tunisia	
Malta	Guatemala	Turkey	
Netherlands	Guyana	Ukraine	
New Zealand	Honduras	Uzbekistan	
Norway	Hungary	Vanuatu	
Poland	India	Venezuela	
Portugal	Indonesia	Vietnam	
Russian Federation	Iran	Yemen	
St. Kitts & Nevis	Jamaica	Zambia	
Singapore	Jordan		
Slovakia	Kazakhstan		
Slovenia	Kiribati		
Spain	Lesotho		
Sweden	Macedonia		
Trinidad & Tobago	Malaysia		
United Kingdom	Maldives		
United States	Mauritius		
Uruguay	Mexico		

Notes:

– The numbers of data years are different for different countries, ranging from 1 to 16 of the entire 16 time points (between years 1996 and 2011, with lagged variables).

– Income groups are based on the World Bank's income classification as of July 2013. The income groups are defined based on a country's gross national income (GNI) per capita in 2012, as follows:
  High income: $12,616 or more
  Middle income: $1,036 to $12,615
  Low income: $1,035 or less

Table 3. Summary Statistics for Variables in Labor-condition Regressions; for observations valid for the analysis

	Obs.	Mean	Std. Dev.	Min	Max
log real earnings	761	5.24	2.94	- 4.93	16.37
work hours	665	57.46	43.61	6.84	259
fatal injury rate (%)	535	6.50	31.50	0	720
no. of core conventions	1,324	6.81	1.59	0	8
ln(GDP/cap)	1,324	8.64	1.40	5.00	11.39
industry employment (%)	1,324	23.27	7.03	2.5	48.9
manufacturing v.a. (%)	1,324	16.89	6.22	0	35.63
political rights index	1,324	2.43	1.72	1	7
civil liberties index	1,324	2.69	1.49	1	7

Table 4. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions:

According to the *conservative* labor-clause classification

RTA trade intensities based on the current trade shares

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.0605	-8.50	-.301	.0123
with Labor Clauses	(.653)	(8.78)	(1.30)	(.331)
RTA intensity $_{t-1}$	1.11	-8.97	-8.33**	.0863
w/o Labor Clauses	(1.03)	(30.6)	(3.38)	(.419)
ln(GDP per capita)	-14.4	110.6**	-14.6	7.15***
	(8.77)	(44.4)	(10.5)	(2.65)
ln(GDP per capita)^2	.897**	-5.27	.982	-.394***
	(.451)	(3.89)	(.669)	(.146)
Industry employment	-.0171	-1.57	.0802	-.0113
(% in total emp.)	(.0788)	(1.09)	(.119)	(.0232)
Manufacturing VA	.0741	-1.27*	-.177	-.0030
(% of GDP)	(.0498)	(.664)	(.148)	(.0195)
Political rights index	-.0053	2.60	.541	-.0787
	(.214)	(2.88)	(.382)	(.0921)
Civil liberty index	-.346	-6.59	-.965	-.0876
	(0.287)	(4.78)	(.632)	(0.128)
N	710	627	500	1,254
Adjusted R^2	.809	.809	.983	.825

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table 5. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions:
According to the *conservative* labor-clause classification
RTA trade intensities based on the *fixed* trade shares (as of Year 2011)

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.106	-8.57	-.771	-.0274
with Labor Clauses	(.685)	(10.1)	(1.45)	(.363)
RTA intensity $_{t-1}$	1.54	-25.3	-6.58	-.115
w/o Labor Clauses	(.216)	(30.9)	(4.52)	(.454)
ln(GDP per capita)	-14.9*	113.0**	-10.9	7.10***
	(8.94)	(46.4)	(9.79)	(2.69)
ln(GDP per capita)^2	.921**	-5.46	.811	-.390***
	(.459)	(4.20)	(.630)	(.147)
Industry employment	-.0202	-1.45	.0736	-.0116
(% in total emp.)	(.0787)	(1.02)	(.119)	(.0230)
Manufacturing VA	.0732	-1.24**	-.179	-.0020
(% of GDP)	(.0498)	(.561)	(.141)	(.0193)
Political rights index	-.0037	2.71	.636*	-.0785
	(.213)	(2.74)	(.369)	(.0906)
Civil liberty index	-.351	-6.71	-1.01	-.0910
	(0.284)	(4.65)	(.636)	(0.128)
N	710	627	500	1,254
Adjusted R^2	.809	.810	.983	.825

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table 6. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions for Countries in Different Income Levels: According to the *conservative* labor-clause classification RTA intensities based on the current trade shares

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.272	.616	-1.03	.184
with LC, Hi income	(.501)	(10.7)	(1.27)	(.413)
RTA intensity $_{t-1}$	-6.78	-210.2	-7.16	1.27
w/o LC, Hi income	(6.22)	(179.7)	(17.6)	(2.56)
RTA intensity $_{t-1}$	-.246	-23.4	2.70	-.348
with LC, Md income	(1.37)	(16.5)	(2.15)	(.501)
RTA intensity $_{t-1}$	1.29	-2.59	-8.80**	.0296
w/o LC, Md income	(1.07)	(30.5)	(3.49)	(.417)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	N.A.
with LC, Lo income	(--)	(--)	(--)	(--)
RTA intensity $_{t-1}$	-6.77**	-16.3	.845	-.130
w/o LC, Lo income	(3.38)	(83.9)	(9.80)	(4.61)
ln(GDP per capita)	-15.3*	95.8*	-15.5	7.60***
	(8.78)	(52.2)	(10.4)	(2.68)
ln(GDP per capita)^2	.949**	-4.45	1.06	-.424***
	(.452)	(3.98)	(.664)	(.146)
Industry employment	-.0272	-1.89*	.0778	-.0110
(% in total emp.)	(.0778)	(1.11)	(.133)	(.0233)
Manufacturing VA	.0675	-1.41**	-.178	-.0019
(% of GDP)	(.0493)	(.613)	(.150)	(.0193)
Political rights index	-.0305	2.97	.531	-.0801
	(.211)	(2.92)	(.383)	(.0923)
Civil liberty index	-.354	-6.08	-.938	-.0779
	(0.286)	(4.79)	(.635)	(0.126)
N	710	627	500	1,254
Adjusted R^2	.809	.811	.983	.825

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table 7. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions for Countries in Different Income Levels: According to the *conservative* labor-clause classification RTA intensities based on the *fixed* trade shares (as of Year 2011)

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.0898	-8.38	-2.09	.492
with LC, Hi income	(.708)	(12.6)	(1.69)	(.500)
RTA intensity $_{t-1}$	2.78	93.9	-.211	-6.04**
w/o LC, Hi income	(5.12)	(127.9)	(21.0)	(2.81)
RTA intensity $_{t-1}$	.0170	-20.4	2.56	-.441
with LC, Md income	(1.40)	(18.6)	(2.57)	(.516)
RTA intensity $_{t-1}$	1.49	-30.7	-7.71**	-.282
w/o LC, Md income	(1.25)	(31.3)	(3.48)	(.416)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	N.A.
with LC, Lo income	(--)	(--)	(--)	(--)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	4.77***
w/o LC, Lo income	(--)	(--)	(--)	(.794)
ln(GDP per capita)	-14.8*	138.4***	-13.0	7.50***
	(8.84)	(49.7)	(9.50)	(2.68)
ln(GDP per capita)^2	.915**	-6.90	.972	-.423***
	(.452)	(4.27)	(.615)	(.145)
Industry employment	-.0197	-1.46	.0776	-.0156
(% in total emp.)	(.0774)	(.986)	(.123)	(.0227)
Manufacturing VA	.0739	-1.13**	-.180	-.0043
(% of GDP)	(.0499)	(.538)	(.136)	(.0191)
Political rights index	-.0038	2.56	.597	-.0846
	(.212)	(2.67)	(.382)	(.0885)
Civil liberty index	-.353	-6.76	-1.03	-.0732
	(0.283)	(4.75)	(.672)	(0.127)
N	710	627	500	1,254
Adjusted R^2	.808	.810	.983	.827

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table A1. Classification of RTAs in terms of Contents & Stringency of Labor or Labor-related Provisions

(revised from Table 1 in Kamata (2014))

Group 1: RTAs demanding domestic labor laws to be consistent with the ILO guidelines or equivalent set of internationally recognized standards; stipulating the procedures for cooperation, consultations, and/or dispute settlement on labor issues (8 RTAs):

USA-Colombia; USA-Korea (South); USA-Panama;
Canada-Chile; Canada-Colombia; Canada-Jordan; Canada-Peru;
NAFTA

Group 2: RTAs urging members to harmonize domestic labor laws following the ILO guidelines or equivalent set of internationally recognized standards; stipulating the procedures for cooperation, consultations, and/or dispute settlement on labor issues (14 RTAs):

USA-Australia; USA-Bahrain; USA-Chile; USA-Jordan; USA-Morocco;
USA-Oman; USA-Peru; USA-Singapore;
USA-CAFTA-Dominican Republic (CAFTA-DR);
Canada-Costa Rica; Chile-Turkey;
European Economic Area (EEA); EU-Korea (South)
Trans-Pacific Strategic Economic Partnership (TPSEP or P4)*;

Group 2.5: RTAs stating that each member has the right to determine and regulate its domestic labor standards without requiring harmonizing them with each other; stipulating the procedures for cooperation, consultations, and/or dispute settlement on labor issues (9 RTAs):

EFTA-Hong Kong; EFTA-Montenegro; EU-CARIFORUM States;
New Zealand-Malaysia; New Zealand-China;
Chile-China; Chile-Colombia; Nicaragua-Taiwan;
Carribean Community and Common Market (CARICOM);

Group 3: RTAs affirming members' commitment to the ILO standards or equivalent set of internationally recognized standards, without requiring to have domestic labor laws to the ILO guidelines (9 RTAs):

European Free Trade Association (EFTA); EFTA-Albania; EFTA-Canada;
EFTA-Colombia; EFTA-Peru; EFTA-Serbia; EFTA-Ukraine;
EU-Chile; Japan-Philippines;

Group 4: RTAs mentioning labor rights but not in the context of the ILO standards; mentioning to aim to improve working conditions (3 RTA):

EFTA-Chile; EFTA-Mexico; EFTA-SACU (Southern African Customs Union)

* The agreement among Brunei, Chile, New Zealand, and Singapore, which is now being negotiated for the expanded Trans-Pacific Partnership (TPP) with other 8 countries.

Table A1, *continued*:

Group 5: RTAs mentioning social matters including human rights, but not labor issues exclusively (51 RTAs):

Andean Community; Australia-New Zealand; Brunei-Japan;
China-Hong Kong; Colombia-Mexico;
Colombia-El Salvador & Guatemala & Honduras;
Common Economic Zone (CEZ);
Common Market for Eastern & Southern Africa (COMESA);
Eastern African Community (EAC);
Economic Community of West African States (ECOWAS);
Gulf Cooperation Council (GCC);
Latin American Integration Association (LAIA);
Melanesian Spearhead Group (MSG);
Southern African Development Community (SADC);
MERCOSUR; MERCOSUR-India;
West African Economic and Monetary Union (WAEMU);
Hong Kong-New Zealand; India-Japan; India-Singapore;
Japan-Indonesia; Japan-Malaysia; Japan-Singapore; Japan-Thailand;
Japan-Viet Nam; Pakistan-Malaysia; Peru-South Korea;
Singapore-Australia; Thailand-New Zealand; Turkey-Jordan;
Turkey-Palestine;
EFTA-Egypt; EFTA-Macedonia; EFTA-Jordan;
EFTA- Korea (South); EFTA-Lebanon; EFTA-Morocco;
EFTA-Palestinian Authority; EFTA-Singapore; EFTA-Tunisia;
EU-Albania; EU-Côte d'Ivoire; EU-Egypt; EU-Israel; EU-Jordan; EU-Lebanon;
EU-Montenegro; EU-Morocco; EU-PNG/Fiji; EU-Serbia; EU-Tunisia

Group 6: RTAs not mentioning any labor or social matters (129 RTAs)

(all other RTAs in force and notified to the WTO as of July 2013; list omitted)

Table A4. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions:

According to the *liberal* labor-clause classification

RTA trade intensities based on the current trade shares

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.0521	-8.45	-.370	.0328
with Labor Clauses	(.670)	(8.70)	(1.30)	(.328)
RTA intensity $_{t-1}$	1.15	-9.32	-7.89**	.0305
w/o Labor Clauses	(1.02)	(31.2)	(3.58)	(.422)
ln(GDP per capita)	-14.4	110.5**	-14.7	7.18***
	(8.77)	(44.3)	(10.7)	(2.65)
ln(GDP per capita)^2	.897**	-5.27	.994	-.396***
	(.452)	(3.85)	(.680)	(.145)
Industry employment	-.0180	-1.56	.0834	-.0114
(% in total emp.)	(.0791)	(1.11)	(.120)	(.0232)
Manufacturing VA	.0736	-1.27*	-.176	-.0028
(% of GDP)	(.0496)	(.668)	(.148)	(.0195)
Political rights index	-.0073	2.60	.557	-.0799
	(.214)	(2.86)	(.383)	(.0920)
Civil liberty index	-.346	-6.59	-.957	-.0867
	(0.287)	(4.78)	(.632)	(0.128)
N	710	627	500	1,254
Adjusted R^2	.809	.809	.983	.825

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table A5. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions:
According to the *liberal* labor-clause classification
RTA trade intensities based on the *fixed* trade shares (as of Year 2011)

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.146	-8.62	-.784	-.0267
with Labor Clauses	(.707)	(9.99)	(1.45)	(.360)
RTA intensity $_{t-1}$	1.32	-25.4	-6.58	-.120
w/o Labor Clauses	(1.20)	(31.4)	(4.72)	(.459)
ln(GDP per capita)	-14.8*	112.0**	-11.0	7.10***
	(8.95)	(46.5)	(9.79)	(2.69)
ln(GDP per capita)^2	.914**	-5.41	.813	-.390***
	(.460)	(4.19)	(.630)	(.147)
Industry employment	-.0199	-1.43	.0740	-.0115
(% in total emp.)	(.0789)	(1.03)	(.119)	(.0230)
Manufacturing VA	.0739	-1.24**	-.178	-.0020
(% of GDP)	(.0497)	(.562)	(.141)	(.0193)
Political rights index	-.0065	2.73	.635*	-.0785
	(.214)	(2.73)	(.370)	(.0906)
Civil liberty index	-.350	-6.72	-1.01	-.0910
	(0.284)	(4.65)	(.635)	(0.128)
N	710	627	500	1,254
Adjusted R^2	.809	.810	.983	.825

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table A6. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions for Countries in Different Income Levels: According to the *liberal* labor-clause classification RTA intensities based on the current trade shares

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.0391	.594	-1.16	.354
with LC, Hi income	(.566)	(10.7)	(1.26)	(.442)
RTA intensity $_{t-1}$	2.80	-210.9	-2.99	-3.36
w/o LC, Hi income	(7.55)	(178.7)	(17.8)	(4.79)
RTA intensity $_{t-1}$	-.0014	-22.9	2.72	-.407
with LC, Md income	(1.44)	(16.3)	(2.16)	(.490)
RTA intensity $_{t-1}$	1.20	-2.95	-8.92**	.0191
w/o LC, Md income	(1.05)	(31.1)	(3.57)	(.416)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	N.A.
with LC, Lo income	(--)	(--)	(--)	(--)
RTA intensity $_{t-1}$	-6.48*	-16.3	-.703	-.263
w/o LC, Lo income	(3.39)	(84.2)	(9.89)	(4.58)
ln(GDP per capita)	-14.4	97.1*	-15.6	7.24***
	(8.92)	(52.0)	(10.4)	(2.63)
ln(GDP per capita)^2	.898*	-4.52	1.07	-.406***
	(.458)	(3.95)	(.662)	(.143)
Industry employment	-.0162	-1.90*	.0930	-.0140
(% in total emp.)	(.0778)	(1.14)	(.133)	(.0234)
Manufacturing VA	.0694	-1.40**	-.176	-.0038
(% of GDP)	(.0498)	(.617)	(.149)	(.0201)
Political rights index	-.0246	2.92	.533	-.0807
	(.211)	(2.90)	(.377)	(.0911)
Civil liberty index	-.357	-6.07	-.930	-.0725
	(0.285)	(4.78)	(.64)	(0.127)
N	710	627	500	1,254
Adjusted R^2	.808	.811	.983	.826

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.

Table A7. Impacts of Labor-clause-inclusive vs. Labor-clause-non-inclusive RTA on Labor Conditions for Countries in Different Income Levels: According to the *liberal* labor-clause classification RTA intensities based on the *fixed* trade shares (as of Year 2011)

	Dependent variable: Labor Condition Measure			
	Mean Monthly Earnings (log)	Mean Weakly Hours actually worked	Fatal Occupational Injury Rate (%)	No. of ILO Core Conventions ratified
RTA intensity $_{t-1}$	.0875	-8.30	-2.12	.569
with LC, Hi income	(.707)	(12.5)	(1.69)	(.491)
RTA intensity $_{t-1}$	2.82	92.2	.0447	-7.56**
w/o LC, Hi income	(5.11)	(127.3)	(21.0)	(3.19)
RTA intensity $_{t-1}$	.114	-20.4	2.53	-.450
with LC, Md income	(1.45)	(18.2)	(2.55)	(.508)
RTA intensity $_{t-1}$	1.28	-31.1	-8.02**	-.272
w/o LC, Md income	(1.20)	(32.0)	(3.92)	(.419)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	N.A.
with LC, Lo income	(--)	(--)	(--)	(--)
RTA intensity $_{t-1}$	N.A.	N.A.	N.A.	4.76***
w/o LC, Lo income	(--)	(--)	(--)	(.792)
ln(GDP per capita)	-14.8*	137.7***	-13.0	7.42***
	(8.85)	(49.9)	(9.49)	(2.69)
ln(GDP per capita)^2	.915**	-6.87	.977	-.418***
	(.452)	(4.27)	(.615)	(.146)
Industry employment	-.0189	-1.45	.0792	-.0159
(% in total emp.)	(.0775)	(1.00)	(.123)	(.0226)
Manufacturing VA	.0746	-1.13**	-.179	-.0055
(% of GDP)	(.0499)	(.540)	(.136)	(.0190)
Political rights index	-.0055	2.58	.594	-.0849
	(.212)	(2.67)	(.383)	(.0886)
Civil liberty index	-.354	-6.77	-1.03	-.0703
	(0.284)	(4.75)	(.672)	(0.126)
N	710	627	500	1,254
Adjusted R^2	.808	.810	.983	.828

Fixed-effect regressions for countries. Time dummies are also included. Clustered standard errors are reported in parentheses. *, **, and *** indicate the significance at the 10%, 5%, and 1%, respectively.