Exposure to Global Markets, Internal Labour Markets, and Worker Compensation: Evidence from Canadian Microdata

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Abstract. In this paper we address two bodies of sociological research: the effects of globalization and theories of pay. Most sociological writings on globalization emphasize its negative consequences. Most sociological writings on pay allow no role for productivity but, rather, assert the importance of power in the production of labour market outcomes. In this paper we examine the effects of three forms of globalization — exporting, foreign ownership, and outsourcing — and include in our analysis institutional features of organizations typically associated with worker power. Using the rich data available in the Workplace and Employee Survey we find: i) pay tends to be higher in workplaces that export and are foreign owned; ii) employees in more productive workplaces are paid more; iii) pay is higher where internal labour markets are present; and iv) treating productivity and power as *alternative* explanations for pay differentials is a mistake.

Key words: globalization, exporting, foreign ownership, compensation determination, productivity, internal labour markets

Résumé. Nous abordons deux corpus de recherches sociologiques : les effets de la mondialisation et les théories de la rémunération. La majorité des textes sur la mondialisation en sociologie soulignent ses conséquences négatives et la majorité des textes portant sur la rémunération insistent sur le rôle du pouvoir plutôt que sur la productivité. Nous examinons les effets de trois aspects de la mondialisation : l'exportation, la propriété étrangère et la sous-traitance. Nous intégrons dans notre analyse les caractéristiques des organisations que l'on considère habituellement associées au pouvoir des travailleurs. Nos données proviennent de l'Enquête sur le milieu du travail et les employés. Nous montrons que les salaires sont plus élevés : i) dans les entreprises qui exportent et qui sont de propriété étrangère ; ii) dans les entreprises où la productivité est plus élevée ; iii) dans les entreprises où il y a un marché de travail interne. Nous concluons que c'est une erreur de considérer la productivité et le pouvoir comme des explications concurrentes dans l'explication des différences de salaire.

Mots clés: mondialisation, l'exportation, la propriété étrangère, la rémunération, productivité, le marché de travail interne

Most sociological writing on globalization is sceptical about it. Globalization *does* seem to be associated with rising income inequality caused by downward pressure on the wages of those at the bottom of the income distribution, and upward pressure on wages at the top, though government policy may modify the effect (Alderson and Nielsen 2002; Lee et al. 2007; Zhong et al. 2007). At the same time, there is research that suggests that some components of globalization may increase productivity and wage growth. Using various specifications, several analyses of manufacturing industry (Bernard et al. 1995; Bernard and Jensen 1997, 1999; Munch and Skaksen 2008; Schank et al. 2007) report that productivity and/or wages are higher, and/or grow faster, in firms that export than in firms that do not. This research suggests that, at least in the form of exposure to export markets, the aggregate outcome of engagement in the global economy is higher pay for a lot of employees.

Exporting may contribute to productivity growth by exposing firms to best practices (Harris and Li 2009). Most exporters also sell into domestic markets and many into multiple foreign markets. Exposing themselves to competition in multiple markets allows them to measure their commercial and technological performance against a broader range of rivals and to improve their own operations in light of that information. Other institutional forms would have a similar effect: foreign ownership and outsourcing also broaden a workplace's commercial and technological horizons.

The relationship between export market participation and productivity appears, however, to be complex. While the experience of exporting may increase productivity it is also likely that more productive firms choose to enter export markets. Thus, in a study of manufacturing establishments, Baldwin and Gu (2003) showed that there were marked differences in productivity depending on the establishments' histories of involvement in export markets. Compared to establishments that limited their sales to domestic markets, productivity *levels* were higher in establishments that exported, whether they continued to do so or not, and also in establishments that subsequently began to export. New entrants to export markets, then, were more productive to begin with.

Economic theory would lead one to expect an association between higher productivity and wages, as a matter of course (e.g., Polachek and Siebert 1993:8–12). If exporting is associated with higher productivity one would also expect it to be associated with higher wages, and vice versa. There is, however, a substantial body of sociological research contesting this connection.

The "new structuralism" of the 1970s and 1980s proposed an approach to earnings substantially *alternative* to that of economics. Its core

assertions were that the process of earnings determination differed across segments of the economy and that relative power played a major role in earnings determination (Bibb and Form 1977). In part this was a straightforward monopoly power argument: there was, it was claimed, a primary sector within the economy made up of large corporations, sheltered from competition, from whom trade unions could extract monopoly rents in the form of both higher pay and more congenial work conditions, the latter including the career possibilities provided by internal labour markets.

Much emphasis was placed on internal labour markets in this literature.[1] These should not, however, be regarded as pure expressions of economic segmentation. Thus "the presumption (associated by many with dual economy theory) that ILMs are simply and invariably a *derivative feature of core economy organization* is becoming less widely held" (Althauser 1989:151). Rather, internal labour markets should be treated as independent sources of variation in compensation (e.g., le Grand et al. 1994). This makes sense. Core sector firms may or may not have adopted them. Firms cannot be tidily divided into those with market power and those without; it is more accurate to say that they have varying amounts of it.[2] And *if* internal labour markets are efficient they may be adopted even in competitive markets (le Grand et al. 1994:237). Once adopted they modify the age-earnings profile (Sørensen 2001). Broadly speaking, in aggregate, internal labour markets have been thought to raise pay.

In these accounts productivity, if not excluded, was at least moved to the margins of wage determination. The concept of productivity has fared no better in more programmatic statements. The term does not appear in the index of Berg's (1981) *Sociological Perspectives on Labor Markets*; it barely appears in Berg and Kalleberg's (2001a) *Sourcebook of Labor Markets*. The possibility of an association between education, individual productivity, and wages has been vigorously contested (Berg 1971, 2001:181; Berg and Kalleberg 2001b:17).

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1. Examples of this genre include, Beck, Horan and Tolbert (1978, 1980), Tigges (1987, 1988), Coverdill (1988), and Kalleberg (1988). "Power" as an explanation features prominently in Kalleberg et al. (1981:658–659), who argued that work experience is a measure of power, and Kalleberg (1989). A more recent example of the term new structuralism is Flynn (2003). Kalleberg (2003) continues to emphasize the effect of sectoral differences on earnings. Kalleberg, Reynolds and Marsden's (2003) analysis of flexible staffing develops new structuralist themes.

2. Much recent theoretical work on labour markets is built on their imperfections. Examples are Manning (2003) on monopsony and Acemoglu and Pischke (1999) on training. Our point is not that for either of these sources internal labour markets are central issues. It is, rather, that they illustrate a more general tendency to move away from either an assumption of ubiquitous perfectly competitive markets or dichotomous categories of competitiveness.

While the term "new structuralist" is now less commonly used, its scepticism with respect to the relation between productivity and wages has remained the dominant intellectual tradition within the discipline. But there have been dissenting voices. Smith (1990) argued that many of the measurements of sources of power used in the relevant literature could reasonably be regarded as sources of productivity. Cohn (1990) suggested that the effectiveness of new structuralist mechanisms was largely confined to the short term; in the long term productivity variations determined earnings. More recently, Aage Sørensen (2001:313–314) allowed that the threat of job loss associated with rises in the rate of unemployment might increase productivity (along the lines of one version of efficiency wage theory). Finally, Jesper Sørensen (2007:672) has argued that much of the increase in inequality in the United States originates in rising productivity differentials between plants and that this, in turn, is an effect of globalization: product market competition and the mobility of capital have undermined employee control over both jobs and access to them that new structuralism assumed.

Assume for the sake of argument, then, that both productivity and institutional arrangements like internal labour markets should properly be incorporated into sociological examinations of the sources of wage differences. If so, they ought to be incorporated into examinations of the effects on wages of forms of globalization.

Testing Theories of Globalization and Wages

Globalization encompasses a broad array of components. Raab et al. (2008; see also Dreher et al. 2008), for instance, created a 31 item index of it. Along with economic measures the index includes information technology and communications, levels of education, international political participation, civil rights, and other things. There is some advantage to exploring the aggregate effects of globalization with this sort of index. However, it is possible that different components of globalization have different effects. Insofar as this is the case, it makes sense to explore those effects separately. That is the strategy pursued in this article. We explore the effects of exporting, foreign ownership, and outsourcing, explicitly recognizing that there is more to globalization and that other components of it should be researched too.

Research on both globalization and wage theory have been shaped by data availability. Much work on globalization has been cross-national, examining the interrelations of national averages (e.g., Mills et al. 2008). Evidently, this approach can be informative. But it is vulnerable to the

standard problems involved in the analysis of aggregates. *Within* economies, trade exposure is highly variable across sectors. (We present some evidence on this shortly.)

Issues of data availability and quality have limited the development of wage theory in general and sociological refinements of it in particular. Most of the classic new structuralist articles used surveys that provided relatively small samples (between 1,000 and 1,500 cases). More importantly, they contained no direct measures of the organizational characteristics that were regarded as the distinctive contribution of the theory: "Since it is difficult to gather national wage data on the basis of the organizational characteristics of firms, indicators which tap a wide range of organizational characteristics must be selected. Most of these indicators broadly reflect the technology of the enterprise" (Bibb and Form 1977:977). The indicator usually tapped was industrial sector.

Important work has been done using samples of 1,000 or so; still, within samples of that size the number of cases falling into categories of some interest — for example, union membership — becomes quite small. The incidence of internal labour markets and other organizational traits no doubt varies by industry and industrial sector, but there is good reason to believe that the incidence also varies within industries and sectors. Using sector as a surrogate for organizational traits may have been unavoidable but, as Bibb and Form made clear, cannot be viewed as preferable. And if, as Sørensen speculated, the association between wages and productivity has changed over time in response to increases in trade exposure (or other competition-enhancing factors), a single cross-sectional estimate may mislead.

There are also, it should be clear, limits to the data used in the economic research briefly reviewed above. None of these data sets contains measures of the sorts of variables that were emphasized in sociological research; and, *all* of the papers cited rely on manufacturing industry alone. Several use the US Census of Manufactures (Bernard et al. 1995; Bernard and Jensen 1997; 1999). Munch and Skaksen (2008) used linked government records on Danish firms and Schank et al. (2007) on German firms. These are all useful and important sources of information. Manufacturing is, however, a part of the economy of diminishing proportional importance. Within it the incidence of exporting tends to be high, but it certainly does not have a monopoly on exporting, as we will show shortly.

The work of Baldwin and Gu (2003) suggests that the use of cross-sectional data poses a particular problem. As we saw above, it is not just the fact of exporting that influences productivity and wages but also its recent history. Levels and rates of productivity growth differ depending

on whether or not a firm exports continuously, exits export markets, enters export markets, or limits its sales to the domestic market. Determining into which of these categories a workplace falls requires data over some period of time. Baldwin and Gu used data covering a seven year period (1990–1996). Evidently, to explore the issues they raise requires panel rather than cross-sectional data.

Finally, these studies all focus on the *wage rate*. Clearly, the wage rate is an important indicator of individual welfare. An even better indicator may be the total compensation package, which includes the range of fringe benefits available to an employee. Over the long haul, the share of benefits in total compensation has grown (Ferber and O'Farrell 1991). In 1991 non-wage benefits accounted for about 30% of total compensation in the US (Turner 2001). We know that employees with higher pay tend to have better fringe benefits but the correlation is considerably less than perfect (Pfuntner 2004). Data that contain information on the total compensation package may provide a more complete understanding of the advantages to working in firms that export or, with an internal labour market, shelter some employees from external competition.

We conclude from this that a thorough examination of the effect of any aspect of globalization on wages should take into account the possibility of organizational effects consistent with new structuralist arguments and should use better and more complete data. Panel data is particularly desirable since it allows the examination of different export market participation experiences (presence, absence, entry, exit). In what follows we use data that meet these *desiderata*.

HYPOTHESES

The research discussed earlier suggests that exporting is associated with higher pay. We would expect that result to show up in our data too. If, however, exporting is associated with higher compensation because firms that are already more productive enter export markets (Bernard and Jensen 1999) we might also expect export market entrants to have higher compensation than either nonexporters or exiters from export markets. So, Hypothesis 1: *Before controls, continuing exporters and export market entrants or reentrants provide better pay and total compensation than nonexporters and export market exiters*.

Standard theory suggests that compensation should be associated with higher productivity. Theory and evidence suggest that exporting firms have higher productivity. Hypothesis 2: *Productivity will be positively associated with compensation*. Hypothesis 3: *Controlling for pro-*

ductivity will reduce the associations between exporting and compensation.

Exporting, as we noted earlier, is only one of the mechanisms through which firms can absorb best practice. Foreign ownership and outsourcing may serve the same function. Hypothesis 4: *Both these institutional arrangements will be associated with higher compensation.* Because foreign ownership (Baldwin and Gu 2003) and outsourcing are likely to be associated with exporting (multinationals are more likely to both export and outsource — see Yeaple 2008), Hypothesis 5: *The association between exporting and compensation will be reduced once these controls are added.* Based on the reasoning and findings in the sociological research on earnings, Hypothesis 6: *The presence of an internal labour market is likely to be associated with higher compensation, independently of productivity levels or export status.*

DATA AND METHODS

To test these hypotheses we use Statistics Canada's *Workplace and Employee Survey* (WES). Data for it was collected from 1999–2005 from managers of a representative sample of Canadian workplaces as well as from a probability sample of employees within each workplace. It is a panel survey with data collected from participating workplaces each year. The sample includes both for- and not-for-profit workplaces. Theories that tie pay to productivity assume competition. Consequently, we excluded the not-for-profit workplaces from the analysis. That left us with 3,585 cases in our sample that were continuously present for all seven years of the survey.

The fact that the WES is a panel data set presents a number of analytic possibilities. In particular, it allows the examination of the association between indicators of globalization at an earlier point in time and *subsequent* levels or changes in pay. That a workplace enters an export market and *then* the pay it provides increases does not in itself establish causation. It does increase the plausibility of a causal inference, especially when possible alternative explanatory factors are effectively controlled. Nonetheless, while we exploit the panel character of our data we do not model the effects of exports, foreign ownership, and outsourcing on subsequent *changes in wages.*

Rather, we pool the seven annual samples to present a set of cross-sectional analyses of them but exploit the panel character of the data by dividing the sample into different groups, depending on the workplaces' seven-year export records. The size of the sample allows us to break

these records down into the same five export categories as Bernard and Jensen (1999): nonexporters, entrants, exiters who returned to export markets, exiters that did not return, and continuing exporters. There are several reasons for our decision to proceed this way rather than to model the sources of change in wages.

Most fundamentally, there are good reasons for thinking that the results of the analysis presented below are robust. The size of the sample provides one reason. Our 3,585 annual cases increase to almost 22,000 after pooling. Moreover, since WES covers seven years our pooled cross-section allows the analysis of data over a period of changing conditions (the peak of the technology boom through a recession into a period of sustained recovery in Canada). Panel analytic techniques, in contrast, often do not generate robust results.

Take fixed-effects modeling, for example. The technique is particularly attractive because by adding dummy variables for each case of interest and analyzing the effects of *changes in*, rather than *levels of*, the predictor variables it controls for unmeasured attributes — or at least, for unmeasured attributes that remain stable over time. However, the technique is particularly vulnerable to attenuation bias as a result of measurement error because misrecorded values — say, foreign versus domestic ownership — may constitute a significant proportion of the changes in scores of independent variables whose association with wages is under examination: "there is more measurement error in the differenced regressors in an equation … than in the levels" (Angrist and Pischke 2009:225).[3] Moreover it is often unreasonable to assume that unmeasured attributes remain stable: "For many causal questions, the notion that the most important omitted variables are time invariant doesn't seem plausible" (Angrist and Pischke 2009:243).[4] Where the dependent variable is likely to change over time it may be more useful to use a panel model that contains explicit lags, but there are problems with these models too. Coefficients tend to be unstable and inference vulnerable to heteroskedasticity (Castilla 2007:88).

There are panel data analysis techniques other than fixed-effects or the use of lagged dependent variables. Our general point is that each technique comes with a variety of fairly substantial statistical problems. As a result serious users of panel data analysis techniques increasingly present the results from several different techniques and discuss the rela-

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3. Statistics Canada generates very high quality data. It is not, however, perfect!

4. This is usually the case where the dependent variable is wages. For example, changes in organizations — say, ownership — are often preceded by changes in wages for one or more of a number of reasons. Poor performance may lead to falling wages and to precipitate a change in ownership, for example.

tive merits of each. A good example of this, using the WES, is Dostie and Pelletier (2007:35–36). They present the results of analyses using fixed effects, random effects, and random effects using instrumental variables, and find quite substantial differences in coefficients and levels of significance. In what follows, then, we use pooled ordinary least squares (OLS) to analyze our data rather than one or another of a range of panel data techniques because we regard the results of the pooled OLS as more robust than the results from panel data techniques. We do, however, exploit the panel character of our data by classifying workplaces into the categories discussed above. We return to the issue of panel data analysis in the conclusion.

Appendix Table 1 contains a list of all the variables included in the analysis. Here we elaborate on those central to the hypotheses. The dependent variables are average annual earnings and average annual total compensation within each workplace. As mentioned above, our export measure assigns workplaces to different categories of involvement in export markets. Our other measure of exposure to global markets is foreign ownership (three categories: none, some but less than 100%, and 100%). We also have an outsourcing measure (two categories: those reporting great reliance on it and those not reporting that). Workplaces can either outsource domestically or in other countries. In Canada's relatively small economy a very large amount of inputs are outsourced abroad (Foreign Affairs and International Trade Canada 2007). More generally, a major purpose of multinational enterprises of the sort that are substantially present in the Canadian economy is the organization of the flows of intermediate goods that outsourcing involves (Hanson et al. 2005; Yeaple 2008). We treat outsourcing as a partial indicator of exposure to the international economy.

The measurement of productivity is, of course, a challenge (see Organization for Economic Cooperation and Development [OECD] 2001). In principle, *physical* outputs might be preferred. (This seems to be the position of Berg 2001:182). There is excellent work using physical outputs (e.g., Prais 1995; Pencavel 2001). The problem is that the range of comparisons that this permits is unhelpfully limited. Pencavel, for example, can compare physical output per unit of input across workplaces because he confines his analysis to producers of plywood — an essentially homogeneous product. Many improvements in productivity originate in shifts in output between products and industries and changes in the character of particular products, as well as the production of particular, homogeneous, outputs. Since we are interested in productivity levels across workplaces in different industries and over time we use a dollar value measure of labour productivity: (gross revenue — gross

costs)/number of employees. The scores for this measure are skewed to the right so we log transform them.

The other concept central to our analysis is the internal labour markets. We have three indicators of their presence. Promotion on the basis of seniority is a defining feature of internal labour markets. WES has information on the extent of its use. This provides our first indicator. The *efficiency* rationale for internal labour markets is that they provide a cost minimizing method of training — specifically, they are institutions through which on-the-job training is provided. WES contains information on the use of on-the-job and classroom training in workplaces. The ratio of on-the-job to classroom training is our second internal labour market indicator. Internal labour markets are found in the absence of trade unions and they are not present in some unionized workplaces; still, in North America trade unions did play a major role in their spread (Althauser 1989:151; Osterman 1988:64–67). Internal labour markets, then, are more likely to be present in unionized firms. We use the percentage of nonmanagement employees unionized as one indicator of their presence. Of course, this can be regarded as a straightforward union power effect (Fang and Verma 2002), but that would not change the interest of the variable very much. Either as a correlate of internal labour markets or a source of power the variable has been emphasized by new structuralist writers. Because these three indicators are fairly strongly correlated we also used partition cluster analysis (using "kmedians") to construct a single internal labour market indicator that we dichotomized.[5] As will become clear, this did not substantially change the results.

To explore the character of these effects we add variables, or groups of variables, consecutively. To take into account the fact that the performance of workplaces — in the form of net revenues and compensation — is likely to be influenced by variations in the robustness of demand in different industries, in all models, including the first, we control for industry. Controlling for industry alone, then, we first look at the association between export performance and wages. Then we add productivity to see to what extent associations between export performance and wages are explained by productivity differences. The next group of variables is heterogeneous. We add them simultaneously to simplify the table. This group includes two additional forms of international market exposure — foreign ownership and, less straightforwardly, outsourcing, along with workplace size and organizational age. We know that workplace size is associated with higher wages (for reasons that remain con-

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5. The correlations of union coverage with the on-the-job/classroom training ratio and with the use of seniority are 0.39 and 0.62 respectively and the correlation of these latter two variables is 0.56.

troversial — see Lallemand et al. 2007). We also know that internal labour markets are more common in large workplaces. Finally, in this group we add organizational age. An increase in pay with organizational age is commonly reported (e.g. Troske 1999) which may, however, be produced by differences in the character of workers in younger and older firms (Brown and Medoff 2003). After eliminating the effects of international market exposure, productivity, workplace size, and organizational age we add internal labour market measures — first the three indicators separately then, another equation, the combined measure. This provides a quite stringent test of whether or not internal labour market characteristics have an independent effect on pay, as does the fact that, finally, we add a very large number of controls for workplace characteristics, including levels of human capital and the share of nonstandard employees.

DATA ANALYSIS

Table 1 contains descriptive information on the two organizational characteristics of particular interest to us, export market involvement and the incidence of internal labour market characteristics, by industry group. The first column provides the percentage of workplaces in each industry that export and the second column the average percentage of revenue derived from exports. The industries are sorted from low to high by the first variable, the export participation rate. Not surprisingly, manufacturing industries are located at the bottom of the table. They have both the highest percentages of workplaces exporting and shares of revenue from exports. The table also shows that there are exporting workplaces in all of the other industries, that the proportions are sometimes appreciable (between, say, 20 and 30%), and that the share of revenues from exports is in all industries lower than the proportion of workplaces exporting. This is because most exporting workplaces sell into the Canadian as well as foreign markets. Exporting workplaces, then, are typically accumulating information on technology and commercial practices from more than one market.

    The last four columns contain the incidences of the three internal labour market characteristics and the proportion of workplaces within which internal labour market characteristics cluster. Note, first, that only a minority of workplaces report using seniority as the most important basis for promotion, and the variation across industries is not very large: from a minimum of 8% in education and health services to a maximum of 13% in primary product manufacturing as well as communication and

Table 1: Average Export Participation, Export Intensity, and ILM Characteristics by Industry (Sorted by Export Participation Rate), 1999–2005 (all numbers in %)

Industry	Export participation rate	Export intensity	Seniority leading to promotion	Union coverage	On-the-job to classroom training ratio	ILM characteristics
Construction	2.2	0.5	10	11	55	30
Education and health services	6.2	0.6	8	7	34	23
Real estate, rental, leasing operations	7.6	0.7	10	3	56	17
Communication and other utilities	10.4	4.0	13	33	77	47
Finance and insurance	12.3	2.8	11	9	81	51
Retail trade and consumer services	12.3	3.3	11	6	56	24
Forestry, mining, oil and gas extraction	20.7	9.4	11	11	80	37
Business services	20.7	6.0	11	4	45	27
Transportation, warehousing, and wholesale trade	28.4	6.9	11	6	91	30
Information and cultural industries	29.1	9.3	10	13	87	38
Labour intensive tertiary manufacturing	33.6	12.2	9	9	78	26
Primary product manufacturing	50.4	19.0	13	23	94	43
Secondary product manufacturing	52.7	17.1	12	8	91	39
Capital intensive tertiary manufacturing	54.2	20.8	10	9	72	36

other utilities. In fact, the standard deviation in Appendix Table 1 shows that the dispersal of this variable is limited across workplaces as well as across industries. The variability across industries of the other two internal labour market indicators is much greater. Union coverage varies between a low of 3% in real estate, rental, and leasing operations to a high of 33% in communication and other utilities and the on-the-job to classroom training ratio between 34% in education and health services to 94% in primary manufacturing. The standard deviations in Appendix Table 1 are correspondingly substantial. Finally, the proportion of workplaces within which internal labour market characteristics cluster also varies considerably, from 17% in real estate, rental, and leasing operations to 51% in finance and insurance.

What Table 1 illustrates particularly clearly is the limiting character of an analysis confined to manufacturing industry. Not only does this exclude the bulk of employment, it also excludes industries within which substantial proportions of exports originate and where internal labour market characteristics are likely to be found and to cluster.

In Table 2 we present OLS regressions predicting the log of annual earnings and in Table 3 the log of annual total compensation. It is useful to move backward and forward between the two tables as we consider various effects. Doing so allows us to examine to what degree the covariates of total compensation and wages are similar or different. In each table Model 1 uses export experience as a predictor, controlling only for industry. Continuing exporters on average pay 22% more than the default category, nonexporters, and provide about the same amount more total compensation. There is no difference here. The signs on the coefficients for the other categories that contain some years of exporting are almost uniformly positive but only one is marginally significant. The large difference is, then, between continuing exporters and all the other categories. Model 2 adds productivity. Both pay and total compensation rise with productivity, by similar amounts, but controlling for productivity only slightly reduces the continuing exporter effect on wages and total compensation — by about 4%. These results are partly consistent with Hypothesis 1: continuing exporters have higher pay and total compensation than nonexporters, but this is generally not the case for the other export categories. They are strongly consistent with Hypothesis 2: pay and total compensation are greater in high productivity firms. Somewhat to our surprise, controlling for productivity has only a small effect on the relationship between continuous exporting and wages/compensation. Hypothesis 3 is not strongly supported.

Model 3 adds workplace size and organizational age, as well as foreign ownership and outsourcing. All four variables are positively associated with pay. The largest workplace size category pays almost 17% more than the smallest; the other two size categories 13% and 11% respectively. The effects of size on total compensation are larger: in the same order, 23%, 18%, and 13%. Interestingly, the productivity coefficient is hardly affected; economies of scale appear to have been suitably captured by our productivity measure. Pay and total compensation rise by about 0.4% for each extra year the workplace has existed. The salaries in 100% foreign-owned workplaces are 10% higher than in their 100% domestically owned counterparts and total compensation is 14% higher. Workplaces that outsource pay about 9% more than those that do not; the association with total compensation is a little stronger. Adding all these controls has the effect of reducing the continuing exporting coefficient

Table 2: Average Wage Levels of Workplaces with Different Export Market Transitions, 1999–2005 (Dependent Variable: Log of Annual Earnings)

	(1)	(2)	(3)	(4)	(5)	(6)[4]
Nonexporters (Ref.)	—	—	—	—	—	—
Entrants	0.0127 (0.0396)	0.0107 (0.0389)	-0.0112 (0.0383)	-0.0058 (0.0384)	-0.0108 (0.0385)	0.0261 (0.0319)
Exiters that returned	0.0856* (0.0498)	0.0764 (0.0495)	0.0684 (0.0482)	0.0682 (0.0481)	0.0706 (0.0473)	0.0668 (0.0411)
Exiters that did not return	0.0356 (0.0415)	0.0306 (0.0408)	0.0190 (0.0408)	0.0163 (0.0406)	0.0212 (0.0411)	0.0028 (0.0321)
Continuing exporters	0.2189*** (0.0423)	0.2105*** (0.0418)	0.1766*** (0.0426)	0.1789*** (0.0424)	0.1793*** (0.0420)	0.1165*** (0.0333)
Labour productivity (log)		0.0132*** (0.0031)	0.0127*** (0.0031)	0.0129*** (0.0031)	0.0125*** (0.0030)	0.0080*** (0.0024)
Workplace size						
Smallest (Ref.)			—	—	—	—
Second smallest			0.1107*** (0.0235)	0.0979*** (0.0234)	0.0755*** (0.0247)	0.0922*** (0.0195)
Medium			0.1254*** (0.0287)	0.0922*** (0.0305)	0.0727** (0.0306)	0.0654*** (0.0237)
Large			0.1722*** (0.0505)	0.1198** (0.0523)	0.1163** (0.0530)	0.0751** (0.0354)
Organizational age			0.0037*** (0.0008)	0.0036*** (0.0008)	0.0036*** (0.0008)	0.0013** (0.0006)
Foreign ownership						
No foreign ownership (Ref.)			—	—	—	—
Part foreign ownership			0.0761 (0.0707)	0.0618 (0.0708)	0.0691 (0.0694)	0.0111 (0.0576)
Whole foreign ownership			0.1016* (0.0553)	0.0957* (0.0558)	0.0865 (0.0557)	0.0439 (0.0450)
Reliance on outsourcing						
No reliance on outsourcing (Ref.)			—	—	—	—
Greater reliance on outsourcing			0.0925** (0.0430)	0.0920** (0.0430)	0.0674 (0.0435)	0.0196 (0.0415)
Union coverage				0.1257*** (0.0455)		
Skills specificity				0.0003** (0.0001)		
Seniority leading to promotion				0.0010 (0.0479)		
Internal labour market clusters						
Less characteristic of ILM (Ref.)					—	—
More characteristic of ILM					0.1243*** (0.0210)	0.0874*** (0.0177)
N	21,082	21,082	21,082	21,082	21,082	21,082
R-squared	0.292	0.298	0.312	0.313	0.317	0.499

Notes: 1. Bootstrap standard errors are in parentheses.

2. *** significant at 1% ** significant at 5% * significant at 10%.

3. All regressions control for industry and year effects.

4. Model (6) also controls for share of nonstandard employees, employee turnover, average duration with current employer, duration squared/100, average employee work experience, experience squared/100, workplace average education level, workplace occupational distribution, and incentive system coverage.

by about 16%. The higher pay provided by exporting firms, then, is in part accounted for by some combination of characteristics associated with size and age that are also associated with pay, as well as forms of international market involvement that tend to go with exporting. In any case, Hypothesis 4 is supported: outsourcing and 100% foreign owner-ship are associated with higher pay. Hypothesis 5 is also supported. Con-trolling for the four variables added in Model 3 reduces the association between continuous exporting and compensation.

In Models 4 and 5 we add the internal labour market measures, in Model 4 separately and in Model 5 in the form of the combined index. Both union representation and the use of on-the-job rather than class-room training are significantly associated with the two compensation measures. While the size of the training form effect is the same for both measures the union representation effect is considerably larger for total compensation than for pay. Interestingly, promotion through seniority, which might be considered the "purest" internal labour market measure, is unrelated to either compensation measure. Since there is some asso-ciation between these three internal labour market indicators we explore the use of a single indicator. The Kmedian form of cluster analysis was used to assign workplaces to either a high internal labour market or a low internal labour market group. Workplaces within which internal labour market traits cluster pay about 12% more than those where the traits are relatively absent and provide almost 14% more total compensation. Internal labour markets, then, do appear to be associated with higher pay and, even more so, with higher total compensation. Note, moreover, that adding these variables has little or no effect on the continuous export-ing coefficients. It does, however, reduce the size of the outsourcing, and foreign ownership coefficients; in fact, using the combined indicator the effect of foreign ownership on pay becomes insignificant. Broadly speaking, however, Hypothesis 6 is confirmed.

Finally, in Model 6 we add a large number of workplace controls. (They are listed in the appendix.) One of the advantages of our data source is the opportunity to better control for factors likely to be associ-ated with any productivity differences not picked up by our productivity measure (in particular, average workplace human capital, and incentive system design). Adding these controls reduces the effect of continuous exporting on both pay and total compensation by about a third. The co-efficients, however, remain significant. This is not the case for use of out-sourcing: here the size of the coefficients fall and become insignificant. The coefficient linking foreign ownership to pay also becomes insignifi-cant but not the one with total compensation, the size of which, however, falls by about a third. Note also that, while the size of the coefficients

Table 3: Average Total Compensation Levels of Workplaces with Different Export Market Transitions, 1999–2005 (Dependent Variable: Log of Annual Total Compensation)

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)[4]*
Non exporters (Ref.)	—	—	—	—	—	—
Entrants	0.0157	0.0137	-0.0141	-0.0069	-0.0137	0.0252
	(0.0404)	(0.0398)	(0.0389)	(0.0390)	(0.0391)	(0.0326)
Exiters that returned	0.0814	0.0720	0.0612	0.0611	0.0637	0.0601
	(0.0507)	(0.0505)	(0.0488)	(0.0488)	(0.0479)	(0.0418)
Exiters that did not return	0.0450	0.0398	0.0245	0.0208	0.0270	0.0075
	(0.0427)	(0.0419)	(0.0419)	(0.0417)	(0.0422)	(0.0329)
Continuing exporters	0.2254***	0.2168***	0.1749***	0.1783***	0.1779***	0.1144***
	(0.0423)	(0.0421)	(0.0424)	(0.0422)	(0.0417)	(0.0334)
Labour productivity (log)		0.0134***	0.0128***	0.0130***	0.0126***	0.0079***
		(0.0032)	(0.0031)	(0.0032)	(0.0031)	(0.0025)
Workplace size						
Smallest (Ref.)			—	—	—	—
Second smallest			0.1335***	0.1157***	0.0944***	0.1108***
			(0.0238)	(0.0236)	(0.0250)	(0.0194)
Medium			0.1791***	0.1338***	0.1206***	0.1098***
			(0.0292)	(0.0308)	(0.0309)	(0.0241)
Largest			0.2302***	0.1589***	0.1682***	0.1217***
			(0.0527)	(0.0537)	(0.0553)	(0.0367)
Organizational age			0.0043***	0.0042***	0.0043***	0.0018***
			(0.0008)	(0.0008)	(0.0008)	(0.0007)
Foreign ownership						
No foreign ownership (Ref.)			—	—	—	—
Part foreign ownership			0.1020	0.0824	0.0943	0.0331
			(0.0724)	(0.0722)	(0.0710)	(0.0591)
Whole foreign ownership			0.1421***	0.1339**	0.1253**	0.0809*
			(0.0544)	(0.0552)	(0.0550)	(0.0435)
Reliance on outsourcing						
No reliance on outsourcing (Ref.)			—	—	—	—
Greater reliance on outsourcing			0.1028**	0.1021**	0.0749*	0.0259
			(0.0423)	(0.0423)	(0.0427)	(0.0410)
Union coverage				0.1717***		
				(0.0461)		
Skills specificity				0.0003**		
				(0.0001)		
Seniority leading to promotion				0.0094		
				(0.0492)		
Internal labour market clusters						
Less characteristic of ILM (Ref.)					—	—
More characteristic of ILM					0.1379***	0.1001***
					(0.0212)	(0.0177)
N	21,082	21,082	21,082	21,082	21,082	21,082
R-squared	0.295	0.301	0.320	0.322	0.327	0.509

Notes: 1. Bootstrap standard errors are in parentheses.

2. *** significant at 1% ** significant at 5% * significant at 10%.

3. All regressions control for industry and year effects.

4. Model (6) also controls for share of nonstandard employees, employee turnover, average duration with current employer, duration squared/100, average employee work experience, experience squared/100, workplace average education level, workplace occupational distribution, and incentive system coverage.

Table 4: Export Intensity Coefficients for Log of Annual Earnings and Log of Annual Total Compensation, 1999-2005

	(1)	*(2)*	*(3)*	*(4)*	*(5)*	*(6)*
DV: Log of annual earnings						
Export intensity	0.0023***	0.0021***	0.0018***	0.0019***	0.0018***	0.0008
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
N	21,082	21,082	21,082	21,082	21,082	21,082
R-squared	0.290	0.296	0.310	0.311	0.315	0.497
DV: Log of annual total compensation						
Export intensity	0.0024***	0.0022***	0.0018***	0.0018***	0.0018***	0.0007
	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)	(0.0005)
N	21,082	21,082	21,082	21,082	21,082	21,082
R-squared	0.292	0.298	0.318	0.320	0.325	0.507

Notes:
1. Bootstrap standard errors are in parentheses.
2. *** significant at 1% ** significant at 5% * significant at 10%.
3. For other independent and control variables, the model specifications are exactly the same as in Table 2 and Table 3.

falls somewhat after addition of all these controls, the summary indicator of internal labour market traits continues to significantly influence pay. The effect of these traits on total compensation is about 10% larger than their effect on pay.

In Tables 2 and 3 we broke workplaces down by their seven-year export history. It turned out that continuing exporters differed from the other categories: those workplaces provided better compensation, both pay and total compensation, than workplaces that did not export at all. This remained the case even after the addition of a large number of controls. One might also examine the association between exporting and compensation in the form of *export intensity*. We know from Table 1 and Appendix Table 1 that export intensity varies considerably across industries and workplaces. Table 4 presents the export intensity coefficients for both pay and total compensation, for each of the models contained in Tables 2 and 3. Coefficients for other variables in each of the models are not presented in Table 4 because they remain similar to those reported in the earlier tables.

The export history results in Tables 2 and 3 can be summarized as follows: before controls, pay and total compensation were about 22% higher in continuous exporters than in nonexporters; controlling for productivity, workplace size, organizational age, foreign ownership, and reliance on outsourcing the wage advantage of continuous exporters fell

to about 17%; adding detailed workplace controls further reduced the advantage to about 11%. In all specifications the effect was significant. The results for export intensity are a bit different. Table 4 shows that each 10 percentage points increase in the share of revenue from exports is associated with an increase in pay and total compensation of a bit more than 0.02%. As with the continuous exporter effect, adding controls for productivity, workplace size, organizational age, foreign ownership, and reliance on outsourcing reduces the size of the coefficient but the proportionate reduction is somewhat smaller — about 18% for export intensity versus about 22% for continuous exporting.

As the final column shows, in contrast to continuous exporting, export intensity becomes insignificant when detailed workplace controls are added. This suggests some advantage to examining the association between exporting and compensation by focussing on export history (made possible by the panel data we use). It suggests that, for workplaces, the continuous experience of export markets makes a more consistent difference to compensation than does the extent to which they depend on them for their revenue.

The most important findings here are, however, first, that exposure to international markets in the form of exporting, outsourcing, and foreign ownership is associated with both higher pay and higher total compensation (with similar coefficients for both compensation measures) and second, that the presence of internal labour market traits is associated with higher compensation, especially when fringe benefits are added to base salary.

DISCUSSION

Globalization is a many faceted process including, among other things, trade, investment flows (both long term in the form of direct investment and short term in the form of "hot money"), migration, and the spread of rules set by international institutions (e.g., the World Trade Organization, the European Commission, the provisions of the North American Free Trade Agreement that allow the use of the courts to enforce treaty compliance). There is evidence that an aggregate consequence of this process has been rising inequality. Still, precisely because the process is many faceted it makes sense to consider the effects of the elements of globalization separately as well as in aggregate. We examine three aspects of the process: exporting, foreign ownership, and, more ambiguously, outsourcing. We put particular emphasis on exporting. We would underline that these are only three forms of globalization. In particular,

we have not examined the effect of imports, which have attracted considerable attention in the literature. This is a substantial limit on any attempt to generalize about the aggregate globalization process. We would argue that a way to build an understanding of globalization and its effects is through careful scrutiny of its components. Imports can be examined in future research.

In this paper we focus on one possible outcome of globalization — compensation levels. We have highlighted three central characteristics of sociological treatments of compensation. First, considerable scepticism has been expressed about the role of productivity in wage determination. Second, instead of productivity the role of power has been emphasized, with particular attention to internal labour markets as institutional expressions of the exercise of that power. Third, recent writing has been more willing to acknowledge the role of productivity in pay determination, with Jesper Sørensen arguing that globalization is likely to have reduced the role of internal labour markets. Sørensen's argument seems plausible to us, though as far as we know there is no data available that would allow a direct comparison of the importance of internal labour markets in shaping wage outcomes in the current decade as compared to, say, the periods analyzed in articles published in the 1980s (the heyday for new structuralist analyses). Indeed, the estimates of the effects of internal labour markets in those articles were always fragile because of the absence of surveys of workplaces that contained internal labour market measures. The availability of a data set like the WES, with a large sample and direct organizational measures, improves the analytic possibilities considerably.

In this paper we have exploited the potential of this data set to examine the role of aspects of globalization and internal labour markets in compensation determination. Specifically, we address the following questions. i) Is it more reasonable to conclude that exporting increases productivity and pay or that highly productive (and therefore better paying) workplaces tend to move into export markets? ii) What is the relationship between foreign ownership, outsourcing, pay, and total compensation? iii) Globalization notwithstanding, do internal labour markets still play a significant role in pay determination?

With respect to the first question we found that, while continuous exporting robustly predicted compensation, neither entering nor reentering the export market did so. If more productive, already better paid, workplaces entered the export market then we would have expected new entrants or reentrants to display similar associations with compensation to those displayed by continuous exporters. This proved not to be the case. However, while the productivity measure was strongly associated

with compensation, adding it only caused a small fall in the continuing exporter coefficient — a little under 4% for total compensation. We expected this fall to be larger. Evidently, a possible reason for this is the imperfectness of net revenue as a measure of productivity. Consistent with some of the criticisms of dollar measures of productivity we recognize that net revenue may be an indicator of market power as well as relative efficiency. If this is the case it reduces the association between productivity and continuous exporting since continuous exporters, almost by definition, confront relatively more competitive markets. At the same time, there are other organizational characteristics, for which the WES provides measures, which are likely to be associated with productivity. These include workplace size, employee human capital, employee stability (e.g., use of nonstandard employees), and the use of incentive pay systems. All of these factors, in fact, predicted compensation and adding them reduced the effect of productivity on it.

With respect to the effects of foreign ownership and outsourcing, when added along with export record and productivity in Model 4, each was strongly associated with both pay and total compensation. Specifically, as well as the outsourcing relation, it was *100% foreign owned workplaces* that provided significantly better compensation than domestically owned workplaces. Those that were only part foreign owned did not. However, the addition of subsequent controls weakened these associations. The relation of outsourcing to the two compensation measures became insignificant, as did the foreign ownership relation with pay. That leaves the association between 100% foreign ownership and total compensation, which remained significant but whose estimated effect fell from 14 to 8% in the last, complete, model. It is worth underlining that neither outsourcing nor foreign ownership is associated with lower compensation. Foreign ownership, in fact, appears to be quite strongly associated with total compensation, even after the introduction of very detailed controls for workplace characteristics.

Our third question asked whether or not, in aggregate, internal labour markets continue to influence compensation — on the assumption that they did so in the past, before deeper and more extensive globalization effects may have reduced both their presence and their effects. Our results show that they do. Union representation, which has often been associated with internal labour markets, and the development of specific rather than general skills (through on-the-job rather than classroom training) are each associated with higher compensation. The use of seniority in promotion decisions turned out not to be, probably because of limited variability of that measure. Combined into a single indicator, workplaces within which internal labour market traits cluster offer compensation that

is about 10% greater than in those where the traits tend to be absent, even after detailed workplace controls. Interestingly, the association with total compensation is larger than the association with pay. One might expect this to be the case. Internal labour markets tend to be associated with the continuity of employment which, in turn, increases the attractiveness of fringe benefits as a compensation strategy. The interpretive difficulty here is that we have no comparable estimate of the association between these traits and earnings for earlier periods. Despite their prominence in earlier labour market research we know more about sectoral effects on earnings than internal labour market effects.

CONCLUSION

The results reported here were generated using micro data, for the full range of for-profit workplaces in the WES sample. The data set contains measures of a broad range of workplace characteristics, along with information on workplace expenditures on pay and fringe benefits. We think that our data have substantial advantages over much of that which has previously been used by both economists and sociologists to examine these issues. We analyzed these data rather conservatively, applying OLS to a pooled sample and exploiting the panel character of our data to classify workplaces into different export history categories. We did not use specific panel data analytic techniques. Future work that does so should be undertaken in the knowledge that none of the currently available panel data techniques should be considered a methodological panacea.

Our results suggest, first, that some features of globalization are, in aggregate, associated with higher pay. Specifically, prolonged exposure to export markets is associated with higher pay and both prolonged exposure to export markets and foreign ownership are associated with higher total compensation. There is some evidence of an association between pay and outsourcing, but adding detailed controls for workplace characteristics causes it to become insignificant.

If one assumes, with Sørensen, that pay is to some substantial degree tied to productivity, the persistent associations can reasonably be seen as evidence of the process identified by Harris and Li (2009): exporting and foreign ownership widen the range of information on technological and commercial best practices in particular industries and increase the likelihood that they will be adopted. In our view, the insignificance of the outsourcing result after the introduction of detailed workplace controls is consistent with this process. After all, the detailed workplace characteristics added may themselves have been adopted because of the accumulation of experience of best practice.

These results do not, of course, establish that globalization has a net beneficial effect on labour markets. The currently available evidence does suggest that various aspects of globalization partly explain rising inequality in earnings and income across much of the rich world (and beyond). Our analysis is limited to wage effects — other labour market outcomes, including employment and unemployment, require separate consideration. Our results using Canadian data need not be generalizable to other countries. Consistent with a very large literature, Raab et al. (2008) raise the possibility that the effects of globalization differ depending on the relative flexibility of the labour market and, comparing the UK and Germany, provide some evidence that this is indeed the case. For Canada, our results suggest that approaches to globalization should be more nuanced than is sometimes the case. On average, the Canadian employees in the more "globalized" workplaces in our sample get better pay and fringe benefits than those in other workplaces.

At the same time, our results provide strong support for a view that productivity differentials do not exhaust the interesting and important aspects of the wage determination process. The presence of two internal labour market traits is associated with higher pay and, it would appear, higher total compensation. Since we have a direct control for productivity as well as for a range of traits likely to be associated with productivity, we think that this provides stronger evidence for the role of power than has previous research. A final conclusion from our research might reasonably be that it makes less sense to oppose productivity and power than to regard them as joint influences on compensation determination. We regard this conclusion as very much consistent with the broad lesson of the "post" new structuralist sociology of labour markets.

Appendix Table 1: Descriptive Statistics, 1999–2005

Variables	Mean/ Proportion	Standard Deviation
Dependent variables		
Log of annual earnings	10.138	0.650
Log of annual total compensation	10.173	0.666
Independent and Control Variables		
Export status		
Non exporters (Ref.)	0.647	—
Entrants	0.048	—
Exiters that returned to export market	0.072	—
Exiters that did not return to export market	0.170	—
Continuing exporters	0.063	—
Export intensity (%)	5.248	17.556
Labour productivity (log)	8.247	3.870
Workplace size		
Smallest (Ref.)	0.801	—
Second small	0.175	—
Medium	0.022	—
Large	0.002	—
Foreign ownership		
No foreign ownership (Ref.)	0.941	—
Part foreign ownership	0.025	—
Whole foreign ownership	0.034	—
Reliance on outsourcing		
No reliance on outsourcing (Ref.)	0.933	—
Greater reliance on outsourcing	0.067	—
Organizational age (years)	10.50	18.141
Union coverage	0.060	0.205
Skills specificity	0.482	11.060
Seniority leading to promotion	0.100	0.116
Share of nonstandard employees	0.184	0.278
Employee turnover	0.258	0.564
Average duration with current employer (years)	7.893	4.941
Average duration with current employer squared divided by 100	0.867	1.126
Average employee work experience (years)	17.521	6.331
Average employee work experience squared divided by 100	3.471	2.398
Workplace average education level		
Share of less than high school education	0.178	0.205
Share of high school education (Ref.)	0.200	0.191
Share of trade or vocational diploma or certificate	0.116	0.161
Share of some postsecondary education, certificate or diploma below bachelor level	0.406	0.240
Share of bachelor degree education	0.104	0.161
Share of advanced degree above bachelor level	0.032	0.089
Share of industry certified training or certification courses	0.034	0.067

Variables	Mean/ Proportion	Standard Deviation
Workplace occupational distribution		
Share of production workers with no trade/certificate (Ref.)	0.207	0.320
Share of management	0.149	0.214
Share of professional	0.062	0.172
Share of technical / trades workers	0.161	0.275
Share of marketing/ sales workers	0.121	0.247
Share of clerical/administrative workers	0.185	0.274
Share of other workers	0.068	0.211
Incentive system coverage		
Individual incentives	0.347	0.916
Productivity/quality gain-sharing and other group incentives	0.118	0.582
Profit-sharing plan	0.138	0.678
Merit or skill-based pay	0.244	0.862
Employee stock plan	0.047	0.403
Industry		
Retail trade and consumer services (Ref.)	0.313	—
Labour intensive tertiary manufacturing	0.034	—
Primary product manufacturing	0.014	—
Secondary product manufacturing	0.025	—
Capital intensive tertiary manufacturing	0.032	—
Construction	0.077	—
Transportation, warehousing, and wholesale trade	0.129	—
Communication and other utilities	0.013	—
Forestry, mining, oil and gas extraction	0.013	—
Finance and insurance	0.062	—
Real estate, rental, and leasing operations	0.037	—
Business services	0.123	—
Education and health services	0.112	—
Information and cultural industries	0.016	—

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