

Neighbourhood Influences on the Developmental Trajectories of Children and Youth

This project has been peer-reviewed by SSHRC and was funded by that agency in its Standard Research Grants Program. SSHRC Reference Number is 410-031-464. The project is funded for three years from April 2003, but we expect to take advantage of the SSHRC automatic one-year extension period so the research will end on June 30, 2007.

We request access to the micro-data Master files from the following surveys.
 NLSCY (National Longitudinal Survey of Children and Youth, both cross-sectional and longitudinal data from Cycles 1-4 and Cycle 5 when available)
 NPHS (National Population Health Survey, both cross-sectional data (cycles 1-3) and longitudinal data from Cycles 1-4 and Cycle 5 when available)
 YITS (Youth in Transition Survey: Cycle 1 and Cycles 2-4 when available)
 GSS (Cycles 8, 10, 11, 12, 13 and 15 (when available) of the General Social Survey – cross-sectional only)

Members of the research team are listed in earlier parts of the application.

Each team member will obtain the appropriate security clearance before being allowed access to the confidential data in a Research Data Centre.

Statement of Objectives Including the Research Question or Questions

Our research will show the extent to which neighbourhoods matter for child development in Canada and will also illuminate the social processes by which neighbourhood characteristics have their impacts upon a range of child outcomes. We will create improved measures of *neighbourhood economic and social disadvantage* as well as *neighbourhood collective efficacy*, *social support* and *social capital* in order to demonstrate how neighbourhood and community context impact upon children's developmental trajectories in the domains of Physical Health, Mental Health, Cognitive Functioning, Social Participation and School Attachment. We aim to answer three general questions about how neighbourhood context relates to child outcomes.

- i. What are the relationships between *neighbourhood economic and social disadvantage* as well as *neighbourhood collective efficacy*, *social support* or *social capital*, and child/adolescent outcomes in the developmental domains of Physical Health, Mental Health, Cognitive Functioning, Social Participation and School Attachment?
- ii. Are the impacts of neighbourhoods upon child/adolescent outcomes the same for different age groups, or *are there certain ages where neighbourhood differences have more profound consequences* for child/adolescent outcomes?
- iii. To what extent do *the impacts of neighbourhoods upon child/adolescent outcomes vary* between these developmental domains? For example, is the impact of neighbourhood social support upon Social Participation greater than its impact upon Physical Health?

Census variables that have been linked to child outcomes in analysis of Canada's NLSCY include the incidence of female-headed lone-parent families and other indicators of neighbourhood affluence, such as the local unemployment rate, the percentage of families below a low-income cut-off, the percentage of high-income families and neighbourhood classifications derived from cluster analysis, (Kohen et al. 2002; Boyle and Lipman 2002; Law and Willms, 1998; Tremblay et al., 2002, Jones et al. 2002). Such census-based indicators are useful to the extent that contextual characteristics of places reflect aggregated characteristics of local populations, but they are very limited when it comes to measuring aspects of neighbourhood social organization. Sociologists have also used interviewer and adult respondent ratings of the helpfulness of neighbours, neighbourhood safety (Sampson et al. 1997). Qualitative and historical data are important in this approach which has been named "Ecometrics" by Raudenbush and Sampson (1999.)

In a recent review that includes assessments of a large number of empirical studies, Sampson, Morenoff and Gannon-Rowley (2002) emphasize as crucial for the advancement of research that neighbourhood characteristics such as aggregated respondent ratings "can and should be treated as ecological or collective phenomena rather than as individual-level perceptions..." (ibid: 456-7.)

Brief Statement of Proposed Statistical Methodology

Our approach builds on our previous work with waves 1-3 of the National Longitudinal Survey of Children and Youth (Jones et al. 2002.) This research has shown that in addition to the use of Census products, we can pool ratings made by respondents and interviewers from different surveys in order reliably to establish the aggregated survey characteristics of at least 135 neighbourhoods across Canada. We consider this an advance on the important research results reported by Tremblay et al. (2001) where respondent and interviewer ratings from a single survey were aggregated in such a way as to characterize 96 census tracts.

In the first stage of the proposed research, we will use an enhanced version of the same approach, pooling data from waves 1-4 (and wave 5, when available) of the NLSCY as well as from waves 1-4 (and wave 5, when available) of the NPHS. We shall increase the statistical reliability of our neighbourhood measures by adding geographically aggregated data from wave 1 (and wave 2, when available) of YITS, as well as selected later waves of the GSS) to increase the number of neighbourhoods for which reliable aggregated survey data can be obtained. Cycles 8 and 13 of the GSS are required in order to provide geographically aggregated measures of fear of crime while Cycles 10, 11, 12 and 15 of the GSS are required in order to provide geographically aggregated measures of social support. All these waves of the GSS include a measure of the respondent's frequency of religious attendance often used, along with membership of voluntary organizations, as index of social participation/social capital.

Statistical issues will arise in the integration of geographically aggregated scores from a number of Statistics Canada surveys. Since most of the surveys we are requesting use a

multistage probability sample with the Labour Force Survey sampling frame as the original basis for selecting households, it will be necessary to use appropriate sampling weights, as well as differentially weighting the contribution of each data source in a way that reflects the effective sample size for the relevant geographical unit. We are aware that this approach cannot produce reliable estimates of aggregate characteristics for all Census Enumeration Areas or Census Tracts in Canada but this is not a problem, given that our research questions only require reliable information on a diverse set of Canadian geographical areas that can stand as proxies for neighbourhoods.

Once we have constructed aggregate measures of geographical areas that are proxies for neighbourhoods, we will move to a second stage in which we use multilevel growth curve models (Snijders and Bosker, 1999; Raabe-Hesketh et al., 2001; Singer and Willett, 2003) to estimate the impact of aggregate neighbourhood characteristics upon trajectories of child and adolescent outcomes as measured in the NLSCY, NPHS and YITS. We will carry out data analysis using GLLAMM (in STATA), MLwiN and SAS PROC MIXED to estimate growth curve models that link neighbourhood characteristics to children's developmental trajectories over the first five waves ("cycles") of the NLSCY and NPHS. Our results will estimate fixed and random effects in order to disentangle the impact of neighbourhood level social processes from those of family level events.

Statements of Why Access to Confidential Data is Necessary

1) Public use microdata files do not provide detailed geographical information. Since our research methodology requires that we should be able to aggregate survey responses to the level of the census enumeration area or census tract level in which respondents were living at the time of the survey it is essential that members of the project team should have access to the Master Files for selected surveys.

Cross-sectional versions of NLSCY (Cycles 1-4 and Cycle 5 when available) and NPHS (Cycles 1-4 and Cycle 5 when available) include measures that can be aggregated to reflect neighbourhood characteristics, for example a social involvement dimension is measured by two items that reflect frequency of participation in voluntary associations and the frequency of attendance at religious services. The NLSCY includes several items and scales that bear upon interviewer and parental perception of neighbourhood safety, social cohesion and social support.

Cross-sectional GSS data are required in order to provide variables that can be aggregated to provide averages at census enumeration area and/or census tract levels.

GSS Master files include Census Tract, Census Subdivision, Census Division and Census Metropolitan Area identifiers. We believe that at the present time they do not include Census Enumeration Area or Postcode identifiers but they will still provide useful information aggregated to the Census Tract level. Each Cycle of the GSS includes a question on frequency of religious attendance (commonly used as an indicator of social involvement) and several contain at least one other variable related to topics that are

highly related to neighbourhood climate (fear of crime, social involvement, social participation, social support).

As noted above we request access to:

GSS Cycles 8 and 13 for perceptions of neighbourhood crime

GSS Cycles 10 and 15 (when available) for family support measures

GSS Cycles 11 and 12 for social support measures

2) Public use microdata files do not permit linkage of the same child from one wave to the next. In order to estimate growth curve models relevant to the developmental trajectories of children and youth it is essential that members of the project team should have access to the Master Files from the NLSCY, the NPHS and YITS. At the time of writing the NLSCY Master Files measure child's age in years rather than in months and this reduces the power of analytic techniques. We therefore request data on child's age in months at each wave of the follow-up.

Longitudinal data from NLSCY (Cycles 1-4 and Cycle 5 when available), NPHS (Cycles 1-4 and Cycle 5 when available), and YITS (Cycles 1-2 and Cycle 3 when available), are required in order to estimate multilevel growth models since the various waves of these three surveys include longitudinal data with good measures of child and adolescent outcomes including perceptions of health, parenting, hyperactivity, pro-social and anti-social behaviour, anxiety, self-concept and school dropout.

Summary of Data Files Requested

NLSCY (National Longitudinal Survey of Children and Youth, both cross-sectional and longitudinal data from Cycles 1-4 and Cycle 5 when available)

NPHS (National Population Health Survey, both cross-sectional data (cycles 1-3) and longitudinal data from Cycles 1-4 and Cycle 5 when available)

YITS (Youth in Transition Survey: Cycle 1 and Cycles 2-4 when available)

GSS (Cycles 8, 10, 11, 12, 13 and 15 (when available) of the General Social Survey – cross-sectional only)

Expected Project Start and End Dates

June 1 2003

June 30 2007.

References

- Boyle, Michael. H. and Ellen L. Lipman. 2002. "Do places matter? Socioeconomic disadvantage and child problem behaviour in Canada." *Journal of Consulting and Clinical Psychology*. 70 (2), 378-389. Also available as W-98-16E. Applied Research Branch, Strategic Policy, Human Resources Development Canada.
- Boyle, Michael H. and J. Douglas Willms. 1999. "Place effects for areas defined by administrative boundaries." *American Journal of Epidemiology*, 149, 577-584.

- Boyle, Michael H. and J. Douglas Willms. 2001. "Multilevel modelling of hierarchical data in developmental studies." *Journal of Child Psychology and Psychiatry*, 42, 141-162.
- Brooks-Gunn, Jeanne, Greg J. Duncan and J. Lawrence Aber (Eds.) *Neighbourhood Poverty*. New York : Russell Sage Foundation. 1997.
- Bryk, Anthony S. and Stephen W. Raudenbush. *Hierarchical Linear Models: Applications and Data Analysis Methods*. First Edition. Newbury Park CA : Sage. 1992.
- Dooley, Martin and Lori Curtis. 1998. "Child health and family socio-economic status in the Canadian National Longitudinal Survey of Children and Youth." Working Paper. Department of Economics. McMaster University.
- Dooley, Martin. 1999. "The evolution of welfare participation among Canadian lone mothers from 1973 to 1991." *Canadian Journal of Economics*. 32 (3), 1999: 589-612.
- Duncan, Greg J. and Stephen W. Raudenbush. 1999. "Assessing the effects of context in studies of child and youth development." *Educational Psychology* 34:29-41.
- Elliot, Delbert S., et al. 1996. "The effects of neighbourhood disadvantage on adolescent development." *Journal of Research in Crime and Delinquency*, 33: 389-426.
- Garner, C. L., and Stephen W. Raudenbush. 1991. "Neighborhood effects on educational attainment: A multilevel analysis." *Sociology of Education*, 64, pp. 251-262.
- Gephart, M. 1997. "Neighborhoods and communities as contexts for development." In J. Brooks-Gunn, G. J. Duncan, and J. L. Aber (Eds.), *Neighborhood poverty*, Vol. 1. *Context and consequences for children*. New York, NY: Russell Sage Foundation, pp. 1-43.
- Ginther, Donna, Robert Havemann and Barbara Wolfe. 2000. "Neighbourhood Attributes as Determinants of Children's Outcomes: How Robust are the Relationships?" *Journal of Human Resources*, 35, 4: 603-42.
- Guo, Guang and Kathleen M. Harris. 2000. "The Mechanisms Mediating the Effects of Poverty on Children's Intellectual Development." *Demography*, 37: 431-47.
- Hajnal, Z. L. 1995. "The nature of concentrated urban poverty in Canada and the United States." *Canadian Journal of Sociology*, 20, pp. 497-528.
- Hofferth, Sandra L., Johanne Boisjoly and Greg J. Duncan. 1998. "Parents' extrafamilial resources and children's school attainment." *Sociology of Education*, 71: 246-68.
- Israel, Glenn D., Lionel J. Beaulieu and Glen Hartless. "The influence of family and community social capital on educational achievement." *Rural Sociology*, 66: 43-68. 2001.
- Jencks, Christopher and Susan E. Mayer. "The Social Consequences of Growing Up in a Poor Neighbourhood." Pp. 111-186 in *Inner-City Poverty in the United States*, edited by Laurence E. Lynn, Jr., and Michael G. H. McGeary. Washington D.C., National Academy Press. 1990.
- Jones, Charles L., Lorne Tepperman, Joan Grusec with Gabriel Plickert and Randle Hart. "Poverty, Social Capital, Parenting and Child Outcomes in Canada." Final Report submitted to the Applied Research Branch; Strategic Policy; Human Resources Development Canada. March 31st, 2002.
- Hunter, Lecily. "Assigning 1996 EA Codes to Cycle 1 NLSCY Data." Statistics Canada Web document. March 23, 2001.
- Klebanov, Pamela K., Jeanne Brooks-Gunn, P. Lindsay Chase-Landsdale and Rachel A. Gordon. "Are Neighbourhood Effects on Young Children Mediated by Features of the Home Environment?" Pp. 119-145 in Jeanne Brooks-Gunn, Greg J. Duncan and J.

- Lawrence Aber (Eds.) *Neighbourhood Poverty*. New York : Russell Sage Foundation. 1997.
- Kohen, Dafna E., Jeanne Brooks-Gunn, Tama Leventhal and Clyde Hertzman. "Neighborhood Income and Physical and Social Disorder in Canada: Associations with Young Children's Competencies." To appear in *Child Development*, December, 2002.
- Kowaleski-Jones, Lori. 2000. Staying out of trouble: Community resources and problem behaviour among high-risk adolescents. *Journal of Marriage and the Family*, 62, 449-64.
- Kreft, I. G. G., Jan de Leeuw and L. S. Aiken. 1995. "The Effect of Different Forms of Centering in Hierarchical Linear Models." *Multivariate Behavioural Research*, 30 (1), 1-21.
- Law, Jane and J. Douglas Willms. 1998. Applied Research Branch Technical Paper Series [T-98-4]. Ottawa, Ontario. Applied Research Branch, Human Resources Development Canada, published as, "A Clustering of Enumeration Areas Based on Socioeconomic Status." In J. Douglas Willms (Ed.) *Vulnerable Children: Findings From Canada's Longitudinal Study of Children and Youth*, University of Alberta Press. 2002.
- Leventhal, Tama and Jeanne Brooks-Gunn. 2000. "The Neighbourhoods They Live In: The Effects of Neighbourhood Residence on Child and Adolescent Outcomes." *Psychological Bulletin* 126:309-337.
- Littell, Ramon C. Milliken, George A., Stroup, Walter W. and Wolfinger, Russell D. *The SAS System for Mixed Models*. Cary, NC : The SAS Institute. 1986.
- Lynch, Kenneth (Ed.) *Growing Up in Cities: studies of the social environment of adolescents*. MIT Press. 1977.
- Maughan, B., A. Pickles, R. Rowe, E. Costello and A. Angold. 2000. Developmental trajectories of aggressive and non-aggressive conduct problems. *The Journal of Quantitative Criminology* 16: 119-221.
- McCulloch, Andrew and Heather E. Joshi. 2001. "Neighbourhood and Family Influences on the Cognitive Ability of Children in the British National Child Development Study." *Social Science and Medicine*, 53, 5: 579-591.
- McLeod, Jane D. and Michael J. Shanahan. 1996. "Trajectories of Poverty and Children's Mental Health." *Journal of Health and Social Behaviour*. 37, (3): 207-20.
- McLloyd, V.C. 1998. "Socio-economic disadvantage and child development." *American Psychologist*, 53, 185-204.
- Myles, John, Garnet Picot and W. Pyper. 2000. *Neighbourhood inequality in Canadian cities*. 11F0019MPE, No. 160. Ottawa, Ontario: Business and Labour Markets Division, Statistics Canada.
- Pinheiro, José C. and Douglas M. Bates. *Mixed Effects Models in S and S-Plus*. New York: Springer. 2000.
- Plybon, Laura E. and Wendy Kliwer. 2001. Neighbourhood types and externalising behaviour in urban school-age children: Tests of direct, mediated and moderated effects. *Journal of Child and Family Studies*, 10: 419-37.
- Portes, Alejandro. 1998. "Social Capital: Its Origins and Applications in Modern Sociology." *Annual Review of Sociology*, 24: 1-24.
- Putnam, Robert D. 2001. "Social Capital: Measurement and Consequences." *Canadian Journal of Policy Research*, 2 (1), Spring, 2001.
- Rabe-Hesketh, Sophia, A. Pickles and A. Skrondal. 2001. GLLAMM: A class of models and a Stata program. *Multilevel Modelling Newsletter*, 13 (1), 17-23.

- Raffe, David and J. Douglas Willms. 1989. "Schooling the discouraged worker: Local-labour-market effects on educational participation". *Sociology*, 23(4), 559-581.
- Raudenbush, Stephen W. and Robert J. Sampson. 1999. "Ecometrics: Toward a science of assessing ecological settings, with application to the systematic social observation of neighborhoods." *Sociological Methodology* 29:1-41.
- Raudenbush, Stephen W. and Anthony S. Bryk. *Hierarchical Linear Models: Applications and Data Analysis Methods*. Second Edition. Newbury Park CA : Sage. 2002.
- Robert, Stephanie A. 1999. "Socioeconomic position and health: The independent contribution of community context." *Annual Review of Sociology* 25:489-516.
- Ross, Catherine. 2000. "Neighbourhood disadvantage and adult depression." *Journal of Health and Social Behaviour*, 41: 177-87.
- Ross, Catherine E. and Mirowski, John. 2001. Neighbourhood Disadvantage, Disorder and Health." *Journal of Health and Social Behaviour*, 42, 3: 258-76.
- Ross, Catherine E., Mirowski, John and Pribesh, Shana. 2001. Powerlessness and the Amplification of Threat: Neighbourhood Disadvantage, Disorder and Mistrust. *American Sociological Review*, 66: 568-591.
- Sampson, Robert J., and Jeffrey D. Morenoff. 1997. "Ecological Perspectives on the Neighbourhood Context of Urban Poverty." Pp. 1-22 in Jeanne Brooks-Gunn, Greg J. Duncan and J. Lawrence Aber (Eds.) *Neighbourhood Poverty: Policy Implications in Studying Neighbourhoods*. New York: Russell Sage Foundation.
- Sampson, Robert J., Jeffrey D. Morenoff and Felton Earls. 1999. Beyond Social Capital: Spatial Dynamics of Collective Efficacy for Children. *American Sociological Review*, 64: 633-660.
- Sampson, Robert J. and Steve Raudenbush. 1999. "Systematic Social Observation of Public Spaces: A New Look at Disorder in Urban Neighbourhoods." *American Journal of Sociology* 105: 603-651.
- Sampson, Robert D. 2000. "A neighbourhood-level perspective on social change and the social control of adolescent delinquency." In Lisa J. Crockett and Rainer J. Sampson, Robert J., Jeffrey D. Morenoff, and Thomas Gannon-Rowley. 2002. "Assessing 'Neighbourhood Effects': Social Processes and New Directions in Research." *Annual Review of Sociology* 28:443-78.
- Schuller, Tom. 2001. "The Complementary Roles of Human and Social Capital." *Canadian Journal of Policy Research*, 2 (1) Spring, 2001.
- Simons, Ronald L., Christine Johnson, Jay Beaman, Rand D. Conger and Les B. Whitbeck. 1996. "Parents and peer groups as mediators of the effects of community structure on adolescent problem behaviour." *American Journal of Community Psychology*, 24: 145-171.
- Singer, Judith. 1998. "Using SAS PROC MIXED to Fit Multilevel Model, Hierarchical Models and Individual Growth Models. *Journal of Educational and Behavioural Statistics*, Winter, 24, 4: 323-55.
- Singer, Judith and John B. Willett. 2003. *Applied Longitudinal Data Analysis*. New York: Oxford University Press.
- Skogan, Wesley. *Disorder and Decline*. New York : Free Press. 1990.
- Snijders, Tom and Bosker, Roel. *Multilevel Analysis: An Introduction to Basic and Advanced Multilevel Modelling*. New York : Sage. 1999.

- Solon, Gary, Marianne Page, and Greg J. Duncan. 2000. "Correlations between neighbouring children and their subsequent educational attainment." *Review of Econometrics and Statistics* 82:383-392.
- Tienda, Martha. 1991. Poor People and Poor Places: Deciphering neighbourhood effects on poverty outcomes. In J. Haber (Ed.) *Macro-Micro Linkages in Sociology*. Newberry, CA. Sage.
- Tremblay, Richard, Bernard Boulerice, Holly Foster, Elisa Romano, John Hagan and Raymond Swisher. 2001. Multi-Level Effects on Behaviour Outcomes in Canadian Children. Applied Research Branch. Strategic Policy. Human Resources Development Canada. W-01-2E.
- Turner, R. Jay and Marino, Franco. 1994. Social Support and Social Structure: A Descriptive Epidemiology. *Journal of Health and Social Behaviour*, 35: 193-212.
- UNESCO. *Growing Up in an Urbanizing World*. (Ed. by Louise Chawla.) Unesco Publishing. 2002.
- Upchurch, D. M., Carol S. Aneshensel, Clea A. Sucoff and L. Levy-Storms. 1999. "Neighbourhood and family contexts of adolescent sexual activity." *Journal of Marriage and the Family*, 61, pp. 920-933.
- Valkonen, Tapani. "A Typology of Ecological Fallacies." In Mattei Dogan and Stein Rokkan (Eds.) *Social Ecology: Quantitative Ecological Analysis in the Social Sciences*. Cambridge: MIT Press. 1969, 1974.
- Willms, J. Douglas, and M. Shields. 1996. *A measure of socioeconomic status for the National Longitudinal Study of Children and Youth*. Paper prepared for analyses of the first wave of data collection from the Canadian National Longitudinal Study of Children and Youth.
- Willms, J. Douglas. 2001. "Three hypotheses about community effects on social outcomes." *Canadian Journal of Policy Research*, 2 (1), Spring, 2001.
- Willms, J. Douglas. (Ed.) *Vulnerable Children: Findings from Canada's National Longitudinal Survey of Children and Youth*. University of Alberta Press. 2002.
- Wilson, William Julius. 1991. "Studying Inner City Dislocations: The Challenge of Public Agenda Research." *American Sociological Review* 56: 1-14.