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Study of Living Standards
Centre d'étude des
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Personal Security Index -PSI

Centre for International Statistics at the
Canadian Council on Social Development

Insurance Bureau of Canada

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Personal Security Index - PSI

Proposed Model

October 1998

In conjunction with the
Insurance Bureau of Canada

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The Canadian Council on Social Development (CCSD) is a voluntary, non-profit organization. Its mission is to develop and promote progressive social policies through research, consultation, public education and advocacy. Affiliated with the CCSD is the **Centre for International Statistics**, whose mandate is to provide statistical research services to the CCSD and a wide range of other organizations. The Centre – a non-profit, self-sustaining division of the CCSD – collects, analyses and disseminates Canadian and international data on families and children.

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Personal Security Index

Introduction

The combination of societal and economic changes that have characterized the 1990s have placed issues related to personal security at the forefront of Canadians' concerns. As we emerge from a period of profound economic restructuring, the working lives of many Canadians are being radically transformed. Economic security is arguably the issue of our times – a reality that is reflected in the public's concern about high unemployment and the growing prevalence of less secure forms of work. Growing apprehension about declining economic security is accompanied by the perception that Canadian society itself is becoming less secure – that the streets are less safe, our homes more vulnerable to break-in – and that threats to our health are more prevalent.

In order to measure the personal security of Canadians, the Canadian Council on Social Development (CCSD) and the Insurance Bureau of Canada (IBC) are working together to develop an annual "Personal Security Index" (PSI). The PSI will be comprised of a series of indicators organized under two sub-indices: economic security and physical security. We propose to use a combination of objective and subjective indicators, drawing primarily on existing Statistics Canada and IBC data bases as well as commissioning survey questions to solicit Canadians' perceptions of personal security. These measures will be combined to form a single national Index that will assess historical trends in personal security and will chart change over time. In addition to producing a national snapshot of personal security, we will examine Index scores for men and women, different age groups, and persons in different regions, if data permit, to give a more detailed picture of security among Canadians. Once the national Index has been constructed, we also plan to explore the possibilities of producing the Index for other industrialized countries.

The objectives of the project are:

- to accurately document levels of personal security in Canada and selected industrialized countries over the past decade and into the future;

- to provide a readily accessible and credible reference source on an annual basis in order to inform public policy and programs as well as local and civic initiatives that enhance the personal security of Canadians;

- to inspire action at the national, provincial, and local levels to make the personal security of Canadians an economic and social priority; and

- to stimulate research and exploration of personal security among Canadians and with citizens in other industrialized countries.

The CCSD proposes to publish the Personal Security Index each year in January in conjunction with the Insurance Bureau of Canada, and other funders. We envision a short report that would be accessible to a broad audience. We hope to develop a tone that strikes a balance between the technical nature of the material being presented and the accessibility necessary for the PSI report to serve as a useful tool for public education and policy-making.

Since the Second World War, governments have systematically collected statistical information about the health of the economy. In this time of social and economic change, it is equally as important to develop and monitor indicators such as personal security to accurately reflect the challenges facing Canadians today. The CCSD and IBC hope that this project will inform Canadians and motivate action to enhance personal security, a key measure of well-being and future prosperity. For public and private policy-makers, the Personal Security Index will be an important tool in assessing the impact of policies and of programs on the well-being of Canadians.

Defining Personal Security

The feeling of insecurity lies at the root of concerns about many single issues that are addressed almost daily in the media: public deficits and debts, population aging, privatization of health care, global warming, family breakdown, and violence. The concern is immediate and personal; Canadians are worried about the ramifications of these larger issues for their families, and their children's families.

What, then, makes people feel insecure? Being poor? Being sick? Losing one's job? Being isolated and lonely? Environmental threats? By contrast, what makes people feel secure? Owning a home? Having a registered retirement savings plan? Environmental regulations that ensure water quality?

There are arguably many dimensions of security. For the purpose of creating the Personal Security Index, we have decided to break the PSI down into two main components: economic security and physical security, and to choose subjective and objective indicators under each which measure those things that threaten, and conversely, enhance security. The intent of the PSI is to capture both the "perception" and "reality" of personal security in the lives of Canadians.

Economic security

> ***Economic security refers to an assured and stable standard of living that provides individuals and families with a level of resources and benefits necessary to participate economically, politically, socially, culturally and with dignity in their community's activities.***
>
> ***Sub-components***: adequacy of income; stability of income

Economic security is a leading concern of Canadians. Personal income, which is one element of economic security, is linked directly to the basics of life – shelter, food, clothing, education and health care. Individuals with greater financial resources generally have more secure living conditions and greater access to social, health, educational, occupational, and recreational opportunities for themselves and their families – important factors shaping health and well-being. The benefits are both immediate and long term. Adequate financial resources allows one to plan for the future, i.e., to purchase a house, to purchase insurance, or to plan for retirement.

In addition to adequate income, economic security refers to the stability of income. People who experience unemployment face a sudden drop in income, while many others who still have jobs are fearful of the continuing cycle of cutbacks and downsizing. Due to stubbornly high unemployment rates and the growth of non-standard forms of employment, many families feel insecure about their economic futures. Some accumulate

unmanageable debt in their efforts to keep afloat financially. These are key dimensions of economic security in the 1990s.

Physical security

> ***Physical security refers to physical and mental well-being, the quality of natural and built environments and the status of one's personal safety.***
>
> ***Sub-components***: physical and mental well-being; personal safety

Under this second component, we group concerns about one's current and long-term health, threats of physical security due to injury or environmental contamination, and threats from crime and violence.

Broadly speaking, physical security encompasses many different components. For our purposes, we concentrate on two questions: is my health at risk? and am I safe? Under the first subcomponent, we propose to look at perceived threats to health from the environment (i.e., water quality), morbidity (i.e., incidence of cancer) and injury in the home, workplace and in the community (i.e., motor vehicle accident rate).

Our second sub-component takes up public concern among Canadians about crime and violence. People are principally worried about volume and type of crime that takes place in their communities. This includes incidents which are reported to police, and thus included in national crime data, as well as threats to physical safety and property. We divide this component into two parts, one of which focuses on the threat of violent crime while the other focuses on the threat of property crime.

Our proposed model is summarized below.

Indicator model: Subjective and objective indicators
1. Economic security Adequacy of income Stability of income 2. Physical Security Physical and mental well-being Personal safety: Violent crime; Property crime

Indicator Selection Criteria

At its most basic level, an indicator reflects or represents a more complex whole; it is a proxy for a larger concept or condition. Indicators are used to measure repeatedly the same phenomena over time. Rossi and Gilmartin define indicators as a "time series allowing the identification of long term trends, periodic change, and fluctuations in rates of change." (1980: xiii) Similarly, indicators can be used to highlight possible directions of future change.

In this project, our task is to select indicators that accurately capture subjective and objective dimensions of personal security. To this end, we propose the following criteria to guide the selection process.

- indicators should measure the personal security of *adults and their family members*.
- subjective indicators should measure each individual's *personal experience of security*, rather than their perceptions of the general level of security in Canada.
- indicators should be *meaningful* in that they are descriptive of the personal security of Canadians at a given point in time. They should be relatively *easy to understand* and *compelling* for the general population.
- indicators should be *valid*, that is well-recognized in the research literature.
- indicators should be *responsive to change* over time and among different populations where possible. Indicators should show a degree of *variability*.
- indicators should measure those things that have a *high probability* of influencing an individual's personal security.
- indicators should take into account *sources of "extraneous variation"*, that is, changes in the population over time, changes in the time period during which measurements are made, and changes in monetary values over time.
- indicators should be available ideally on an *annual* basis. The most recently available data will be used in constructing the PSI.
- indicators should be available at the *national* level and for selected *demographic groups and geographic areas*. Ideally, the objective indicators should be available for other selected countries as well.
- indicators should be readily *available* from established data sources.

Proposed Indicators

Economic security

Adequacy of income	*Objective* ♦ Median household income (after tax) ♦ Proportion of households with low incomes (i.e., under LIM) ♦ Household savings *Subjective* ♦ Adequacy of household income to meet family's basic needs ♦ Adequacy of income to meet unforeseen contingencies ♦ Satisfaction with economic outlook
Stability of income	*Objective* ♦ Unemployment rate (incidence times average duration) ♦ Proportion of individuals / households who experience a drop / increase in income one year to next ♦ Proportion of individuals / households with "significant" consumer debt; student debt; personal bankruptcies *Subjective* ♦ Proportion who fear job loss ♦ Subjective probability of finding an equivalent job in the event of job loss ♦ Confidence in income security programs in the event of job loss

Physical security

Physical and mental well-being	*Objective* ♦ Proportion of adult population with at least one health problem ♦ Rate of non-intentional deaths among adults ♦ Incidence of cancer *Subjective* ♦ Proportion of persons who do not perceive themselves to be in good health ♦ Proportion who report living under stressful conditions ♦ Proportion who believe they would get adequate care in case of illness
Personal Safety	**Violent Crime** *Objective* ♦ Violent crime (number of founded incidents) ♦ Number of homicides/murders (all criminal incidents resulting in death); Number of Level 3 assaults *Subjective* ♦ Individual perception of level of violent crime in their communities (i.e, during the last five years, do you think your neighbourhood has a higher amount of violent crime, about the same or a lower amount of crime? how safe do you feel (or would you feel) walking alone in your area after dark?)
	Property Crime *Objective* ♦ Property crime (number of founded incidents) ♦ Number of residential, commercial, auto break-ins; Number of motor vehicle thefts *Subjective* ♦ Individual perception of level of property crime in their communities (i.e, during the last five years, do you think your neighbourhood has a higher amount of property crime, about the same or a lower amount of crime?)

Proposed Model

For the most part, research into social indicators points out the difficulties in constructing composite measures. While we have monetary units for describing economic transactions, and energy units such as calories for describing different sorts of physical activities, a social index - by definition - involves combining dissimilar factors or phenomena such as air quality and crime rates. In order to develop a social index, it is *first* necessary to link the individual variables into a common conceptual framework within which the combination makes sense. *Second*, a method is needed to transform each variable into units on a common scale so that they can be combined (Rossi and Gilmartin, 105).

We have already detailed our conceptual model and its suggested component parts above. In this section, we would like to propose a method for creating the PSI based on a review of existing models such as the Human Development Index, the Fordham Index, and the new Ontario Quality of Life Index.

Steps for Creating the PSI

1. Final Indicator Selection

The Personal Security Index will be comprised of two major components (economic security and physical security), each of which is broken down into two main subcomponents, detailed on pages 3 and 4. Three objective indicators and three subjective indicators have been proposed for each subcomponent of economic security, for a total of 12. Under physical security, three objective and three subjective indicators for physical and mental well-being, and three indicators (two objective, one subjective) for each of violent crime and property crime have been selected (again for a total of 12).

The objective indicators will be selected from published surveys and micro databases (please see suggested sources in the Appendix). The CCSD will undertake to produce the Canadian data, and seek comparable information for four countries: United States, United Kingdom, Germany and France. (Additional countries may be added in the future.) The most recently available data will be used in the construction of the PSI. Where a data point is missing for a specific year, the last known value will be incorporated.

The subjective indicators will be drawn from representative surveys of public opinion. The CCSD plans to develop and commission eleven questions on public perceptions of personal security at the end of each year. (The CCSD will also determine the feasibility of polling in the countries identified above). Ideally, polling questions will be worked into an existing survey to reduce costs; questions from past opinion polls might be used, if appropriate, to establish historical trends in personal security. In identifying subjective indicators and commissioning opinion research, cost, size and representativeness of the sample, and reliability of the findings will be guiding considerations, especially in seeking comparable cross-national data.

In order to select the final 24 indicators, the CCSD submitted the list of proposed variables to a group of experts (including the members of our Advisory Expert Panel) and had these individuals select and rank those indicators which best captured the different dimensions of personal security, taking the criteria outlined above into account. (Please see Proposed Indicators)

Once the objective and selective indicators have all been selected, the significance of the direction of change for each indicator will be clearly established. For example, a rise in unemployment would be interpreted as negative, while a decline in the crime rate would be interpreted as positive.

2. Base Year Data Collection

The PSI will use 1998 as the base year against which past and future trends in personal security will be compared. The composite index for all selected indicators for 1998 will be set at a score of 100 and future composite index scores will be compared to the 1998 baseline.

In the first report to be published in 1999, data will present an assessment of personal security in 1998 and, if data permit, the past ten years in order to establish recent trends among Canadians.

3. Weighting

Once the individual indicators are selected, the next step is to determine the relative value of each indicator within the composite index. Do some indicators weigh more importantly in the personal security considerations of Canadians than others, and how should differences in the relative importance of various indicators be accounted for?

As noted above, the value of the PSI in our base year - 1998 - will be set at 100. In order to assign the weights to the individual indicators, the CCSD proposes to conduct a survey of Canadians regarding their top personal security concerns, specifically asking individuals to weigh each of our four subcomponents every year. We propose to vary the weights of the subcomponents across time (and by selected demographic characteristics if data permit) in order to capture changing public sentiment about personal security. The individual indicators under each subcomponent will be weighted equally. The chosen weighting method will be clearly detailed in the each report of the PSI.

4. Creating the Index

The next step in calculating the Personal Security Index is to transpose the raw data into common units of analysis so that changes in all 24 indicators can be added into an overall score. As stated above, the Index will be set at 100 in our base year. In subsequent years, change in the value of individual indicators will be converted into standard deviation units (z scores) and then assigned their appropriate weights (derived through the

consultation process outlined above). Change in the overall value of the Index from one year to the next will tell us whether Canadians are feeling more, or less, secure over time.

5. Three Level of Analysis

In the report, there will be three levels of analysis. First, the report will track the performance of the 24 individual indicators each year. Second, individual indicators will be rolled up into four sub-indices: an objective economic security and physical security sub-index and a subjective economic security and physical security sub-index. We have chosen to present the objective and subjective sub-indices in order to look at the question of perception versus reality: does the sub-index of objective measures reveal similar trends as the subjective sub-index? or do they produce contradictary results? Lastly, the indicators will be rolled up into the overall PSI.

We will also explore the possibility of deriving the overall index for different demographic groups and regions of the country. This analysis will identify which groups - youth or women, for example - are feeling more secure than others. This analysis will help us to understand the complexity of issues and perceptions around personal security which could be obscured if only the overall index number were reported.

6. Testing and Reliability

Over the course of the project, indicator performance will be assessed regularly. The CCSD proposes to review the 24 indicators periodically to determine whether they still adequately reflect different dimensions of personal security, are reliable, and readily available. In some cases, indicators may be modified or eliminated all together, keeping in mind the integrity of the index over time.

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Appendix

Indicator Charts: Objective Indicators

Indicator	Level of Aggregation	Source / Background
Economic Security: Objective Indicators		
Median household income (before and after tax)	National, provincial	SCF, SLID
Proportion of individuals with low incomes / low earnings (i.e. under LICO, LIM)	National, provincial	SCF, SLID
Income disparity (i.e. Gini co-efficient, income disparity between top quintile and bottom quintile of earners)	National, provincial	SCF, SLID
Unemployment rate, average duration of unemployment	National, provincial, CMAs	LFS
Proportion of individuals / households who experience a drop / increase in income one year to next	National, provincial	SLID
Proportion of workforce under-employed (involuntary part-time, prefer to work more hours, prefer permanent employment)	National, provincial	SCF, SLID, SWA, LFS
Proportion of households with multiple earners	National, provincial	SCF, SLID
Proportion of individuals / households with "significant" investment income (or track total investment income)	National, provincial	SCF, SLID
Proportion of individuals / households who own their homes	National, provincial	SCF, SLID, HIFE
Proportion of individuals / households with "significant" consumer debt; student debt; personal bankruptcies	National, provincial	Bank of Canada, Industry Canada

Proportion of workforce who have registered private pensions, RRSPs (amount invested, withdrawal rates)	National, provincial	SCF, SLID
Physical Security: Objective Indicators		
Proportion of adult population with at least one health problem	National, provincial	NPHS
Rate of non-intentional deaths among adults, by age	National	Causes of Death
Suicide rate	National	Vital Statistics
Incidence of cancer, other selected illnesses	National, provincial	NPHS; National Cancer Incidence Reporting System; morbidity surveys
Proportion of population sustaining injuries that require medical attention	National, provincial	NPHS
Proportion of population with a long-term disability	National, provincial	HALS, Census, NPHS
Motor vehicle accident victim rate	National, provincial, regional	Accident Report Registry, Transport Canada (annual)
Proportion of motor vehicle occupants using a restraining device	National, provincial	Transport Canada surveys (annual)
Incidence of workplace injuries, fatalities	National, provincial; by occupation	WCB, Labour Canada - Occupational Injuries Database
Air quality (number of days in selected cities with airborne particles exceeding national levels); water quality (proportion population with wastewater treatment)	National, provincial	Air Quality Research Branch of Environment Canada; Canadian Institute for Health Information (CIHI)
Total government spending on health care, accessibility (% GDP)	National, provincial	CIHI
Youth, adult crime rate (number/rate of criminal incidences known to police)	National; type of crime, by most serious crime within incident	UCR
Property crime rate: residential break-ins, thefts from motor vehicles	National	UCR
Violent crime rate: homicides, serious assaults	National	UCR

Data Sources

The success of the Personal Security Index rests ultimately in the timely availability of quality data. We plan to draw on two principal sources of data: published surveys and micro databases; and opinion polling. In choosing data sources and commissioning opinion data, we have used a number of criteria:

- data sources should be representative of the Canadian adult population (i.e. by region, sex, age).
- data sources should rely on relatively large surveys that ensure the statistical reliability of findings.
- data sources should be available at least on an annual basis. The most recently available data will be used in constructing the Index.
- data sources should be credible, compiled in compliance with recognized standards of quality (i.e., high response rates, high confidence levels).

Below, we outline the possible sources of data for our objective indicators.

Source	Methodology	Timing	Comments
Economic Security			
*Labour Force Survey (LFS)	Direct, sample survey, cross-sectional; national, provincial, sub-provincial/CMAs, economic regions. Sample size approx. 62,000 households or 115,000 individuals	1945 to 1997, consistent since 1975. Monthly collection of data; published monthly, annually. Released within 13 days of collection	Gives current labour force statistics (actual hours worked, type of employment, occupation, duration of unemployment, "discouraged workers"). Long time series
*Survey of Consumer Finances (SCF)	Cross-sectional; national, provincial, sub-provincial/CMAs. Sample size approx. 45,000 households (supplement to LFS)	Annual since early 1970s. Reference period is previous calendar year.	Excellent source of data on individual and family structure, labour market activity and income characteristics. Good source of data on income adequacy and inequality
*Survey of Labour and Income Dynamics (SLID)	Longitudinal; national, provincial (excluding Yukon, NWT). Sample size approx. 15,000 households, 31,000 individuals	1993, 1994. 1995 data will be released in spring 1998. Data gathered twice a year (labour force in January, income in May)	Longitudinal data tracking labour market and income characteristics of individuals over a 6 year period. Looks at employment and unemployment dynamics, life cycle transitions, job quality, and economic mobility

*Survey of Work Arrangements (SWA)	Sample survey, cross-sectional; national, provincial, CMAs. Sample size approx. 59,000 households or 102,000 individuals (subset of LFS)	1991, 1995	Excellent source of data on jobs, employment relations, wages, benefits, hours, working schedules, overtime
*General Social Survey (GSS)	Sample survey, cross-sectional; national, regional, provincial. Sample size approx. 10,000 households	Annually since 1985. Core questions repeated every year, with various cycles on specific topics every five years (crime/victimization, work, education, family)	Rich source of qualitative data, including attitudinal surveys
Bank of Canada			
Insurance Bureau of Canada			
Physical Security			
Uniform Crime Reports (UCR)	Direct; national, provincial, CMAs. UCR2 (computerized format) used by 210 police departments; UCR (paper format) used by 1,590 police departments. 1,800 total	Monthly, annual data gathered since 1962, switched to UCR in 1988. Special revised UCR Survey conducted in 1992 (non-random sample of 46% of criminal incidents). 1988 to 1995 complete	Characteristics of accused, victim, incidents. All offenses reported / known to police (count of charges, not individuals). Some data not easily captured (e.g. domestic violence). Variation in programs, record-keeping per province
*National Population Health Survey (NPHS)	Longitudinal; national, provincial (data available for smaller areas). Core sample size 20,000 households	Produced on two year cycle. Data collected quarterly, released 6 months after final collection of data for period	Longitudinal survey on physical/emotional health; frequency / type of illness; alcohol / drug use; disability; workplace-related stress. Also demographic information

Adult Correctional Services Survey (ACSS)	Direct; national, broken into federal and provincial jurisdictions (excluding QC, NWT, YT)	Annual. Since 1978. 1980 to 1994 (complete)	Looks at information for different facilities. Inmate demographics, crime, release, etc. Cannot do cross-jurisdictional analyses due to definitional inconsistencies, administrative policies.
Homicide Survey (HR)	Direct; national and provincial, by police department	Annual. Since 1961. 1961 to 1993 (complete). Continuous collection. Published 10 months after end of reference calendar year	Depicts nature and extent of all known homicide incidents, victims, perpetrators. Some US-Canada comparisons
*Census	Cross-sectional; quinquennial. National, provincial, CMAs, census tracts; 100% (general) and 20% (long-form)	Since 1901, labour force data since 1952 and income data since 1961. 1971, 1976, 1981, 1986, 1991, 1996	Detailed demographic information, family income, education, ethno-cultural background, disability, immigration.
Canadian Association of Workers' Compensation Boards (WCB)	National, provincial	Annual. Labour Branch of HRDC compiles national data on occupational injuries. Collected from provincial WCBs and Statistics Canada (industries under federal jurisdiction). Injury rate is adjusted to reflect employment levels of census; interim years uses LFS	Reports on fatalities, time loss and non-time loss injuries and associated costs paid to workers and their families
*Absence from Work Survey (AWS)	Cross-sectional; national, provincial. Sample size approx.. 31,000 households (supplement to LFS)	Since 1970s. 1990-1994 (complete). Data collected Feb., released mid-summer, on previous calendar year information	Report of absence from work due to pregnancy, illness; compensation paid out, hours worked, etc. Can be linked to LFS data

*Household Income Facilities and Equipment (HIFE)	Survey; national, provincial, regional	Subset of SCF. HI: 1991, 1993, 1994; FE: 1991, 1992, 1994, 1995; and Environment: 1994	Automobile ownership, information on purchases of household goods (alarm systems), state of dwellings, recycling programs
Automobile Registration	National, provincial, city	Annual	Number of automobiles registered
Accident Report Registry	National, provincial, city	Annual	Number of reported MV accidents. Up to officer to determine degree of "injury". Not all accidents reported
*Annual Demographic Statistics	National, provincial. Projections based on Census data	Released each winter on previous calendar year	Population size, mortality rate, birth rate, major illnesses, immigration
*Report on the Demographic Situation in Canada	National, provincial, CMAs, census tracts. Projections based on Census data	Released 6 months after end of previous calendar year	Population change (birth, deaths, immigration, emigration), family type
*Causes of Death		Annual	Must buy data directly from Statistics Canada. General information released on-line
State of the Environment, Environment Canada	National, provincial	Every five years	
Air Quality Index			Three to four years behind

* produced and published by Statistics Canada

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