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ECONOMIC INDICATORS FOR GENDER ANALYSIS

Report on gender pay gap: Data availability and measurement issues

Note by the Secretariat

Summary

This paper examines various substantive, methodological and practical issues related to the measurement of gender differences in income from employment. Comparable measures of the gender pay gap (GPG) are crucial in order to monitor various aspects related to the attainment of gender equality in employment and in society at large. Based on national data compiled by UNECE, this paper seeks to shed light on the current availability and comparability of the statistics needed to calculate the GPG as well as on the effects of using different sources of data and types of income in the calculation and interpretation of measures of the GPG.

I. INTRODUCTION

1 Promoting gender equality in employment is widely recognized as an essential component of economic and social development. Indeed, the Millennium Development Goals highlight the attainment of full and productive employment and decent work for all, including women and young people as one of its key targets.¹ From a gender equality perspective, this implies that women and men should have equal access to the labour market, including equal opportunities to access the broadest range of jobs and occupations; to attain the various professional levels; and to receive adequate and comparable remuneration for the work performed. Measures to assess these aspects of gender equality in employment are needed in order to inform policy and to monitor progress in their attainment.

2. At present, several internationally agreed indicators exist to assess and monitor women's and men's access to and participation in the labour market. This, however, is not the case for the economic remuneration that women and men receive from employment. Among current efforts to develop such a measure is the Gender Pay Gap (GPG). Simply put, the GPG aims to capture the gap in income from employment between women and men. This gap is usually expressed as the difference between men's and women's average income from employment, as a percentage of the men's average income from employment. Differences exist, however, in the sources of data used to calculate this indicator, and as a consequence in the concept of income used and worker coverage. Also, there are differences in the way the indicator should be interpreted: namely whether the focus should be on differences in pay for work of equal value, in the overall position of women and men in the job market, or in take-home pay. As a result, estimates of the GPG tend to vary widely between countries, and their interpretation to be unclear, thereby limiting their usefulness for comparisons across time and countries.

3. The United Nations Economic Commission for Europe (UNECE), as part of its activities towards improving gender statistics, conducted in 2007 an inquiry among selected countries in the region in order to explore various methodological and substantive issues related to the measurement of the GPG. The central goal of the inquiry was to better understand the effects of using different sources of data and concepts of income in the calculation and interpretation of the GPG. A second goal was to identify the types of data on income from employment currently available in the region in order to assess the viability of compiling comparable data on this important aspect of gender equality for inclusion in the UNECE Gender Statistics Database. The database serves as a central repository of national statistics and indicators on key gender issues of policy concern in the region.

4. This paper presents the results of the UNECE inquiry and proposes a set of actions in order to promote further advances in the development and refinement of a set of indicators to assess and monitor the relative economic returns that women and men receive from employment.

¹ See resolutions 55/2 and 60/1.

5. The first part of the paper explores the key policy concerns underlying the need for a set of indicators that capture gender differences in income from employment; various measurement considerations that need to be taken into account in order to construct the indicators; and current approaches used in their calculation. The second part describes the current availability of income from employment data in selected countries in the region and explores various methodological and substantive issues related to the calculation of measures of GPG. The final part proposes a set of actions in order to promote the development of a comparable set of indicators to assess and monitor gender differences in income from employment.

II. GENDER ISSUES AND INCOME FROM EMPLOYMENT

A. Policy Concerns

6. Measurement of gender differences in income from employment is important on several counts. From a policy perspective, it is important to monitor whether women and men receive **equal pay for work performed of similar value**. The issue of equal pay for work of equal value is directly linked to the attainment of gender equality in the workplace. Equal pay for work of equal value is recognized as a basic human right in the Universal Declaration of Human Rights² and as a fundamental workers' right in the Convention (No. 100) concerning Equal Remuneration for Men and Women Workers for Work of Equal Value, adopted in 1951 by the General Conference of the International Labour Organization.³ A statistical measure to assess the extent to which women are paid the same as men for work of equal value would be needed in order to monitor potential sex-based discrimination in pay.

7. There is also a need for an indicator of the **overall position of women and men in the job market**. Throughout the world, important differences exist in the employment patterns of women and men. In particular, women tend to concentrate in low-paying occupations and/or industries; to work in informal jobs; and to work without pay as contributing family workers.⁴ Whether due to societal norms, wage structure effects, differences in education or skills and/or in family responsibilities, women's employment patterns translate, over time, into consistently lower incomes as compared to men's. The gender gap in income from employment, thus, can be used as a summary measure of the overall position of women and men in the job market.

8. Finally, it is also important to monitor gender differences in take home pay; that is in the average income from employment that women and men take home over a specified period of time. A statistical measure of the **gender gap in take-home pay** is of policy relevance due to the importance of personal income for economic welfare and empowerment. In the case of women, income from employment can translate into greater bargaining power and decision-making

² See Article 23 of the Universal Declaration of Human Rights adopted and proclaimed by General Assembly resolution 217 A (III) of 10 December 1948.

³ See ILO Equal Remuneration Convention (1951), No. 100.

⁴ See UN (2000), *The World's Women 2000: Trends and Statistics*. New York: United Nations, and UNIFEM (2005), *Progress of the World's Women 2005: Women, Work and Poverty*. New York: UNIFEM.

ability within the household or family, greater economic independence, as well as economic security for her and her children in the event of a change in family circumstances (due to death or separation from the spouse). Such statistical measure, thus, would serve as an indicator to monitor the attainment of gender equality in society; and more specifically, as an indicator of gender equality in access to economic resources.

B. Measurement considerations

9. Development of indicators to address the various gender concerns outlined above requires taking into consideration various methodological, substantive and practical factors. These factors include such issues as the policy concerns to be addressed, the desired coverage and comparability of the indicators, the types of income measures needed, and the availability of data.

1. Policy concerns to be addressed

10. Different indicators may need to be constructed in order to address the various policy concerns outlined above. Although the overall focus is on gender differences in income from employment, the specific use for which each indicator is needed may call for different approaches in its calculation.

(a) Equal pay for work of equal value

11. Addressing the issue of “equal pay for work of equal value” requires comparing the income from employment of women and men in similar jobs. Determining which jobs are to be considered as “similar” or as having “equal value” would require a detailed assessment of various job aspects including skills, effort and responsibility required to perform the job, and the working conditions in which it is performed. Assessment of these aspects and their relevance to the performance of a job, however, can be a rather complex and subjective task. In addition, the specific factors that would require evaluation can vary widely across industries, occupations, and even establishments. Thus, to assess the principle of equal pay for work of equal value would require the development of a new set of refined statistical indicators that separately compare the income from employment of women and men within comparable classes of jobs deemed to be of equal value.

12. In addition, because the policy focus is on the pay received by women and men for performing jobs of equal value, the measure of income used should refer only to the income received for the particular job being compared. That is, it should include all components of income received for the performance of the job in question but should exclude all income received from other secondary jobs.

(b) Gender pay gap as indicator of position in the job market

13. A focus on the overall position of women and men in the job market demands the use of an indicator that captures the differences in the types of jobs and occupations that women and men perform. That is, the indicator should measure the unit-value of the work carried out by women and men independently of the number of hours worked. Thus, it may be most appropriate to use average hourly income data to calculate such an indicator.

14. As a summary measure of the overall position of women and men in the job market the indicator should also refer to all types of employment, all worker categories, and all components of income before deductions. Also, the use of gross income figures may be more appropriate than net as deductions for tax, pension or social security contributions may also differ among men and women depending on national regulations.

(c) Gender gap in take-home pay

15. A focus on gender differences in the income women and men take home (as a measure of economic welfare and/or empowerment) calls for comparison of the average income of women and men over a specified period of time. Because women and men have different work patterns, with women working on average fewer hours compared to men, it may be most appropriate to use monthly or annual income data to calculate the indicator. Average monthly and annual income data capture not only differences in pay received for the type of work performed but also due to differences with regards to work duration (i.e. full-time, part-time, seasonal, casual employment, etc.). In addition, annual income data may also capture differences in the receipt of end of year bonuses, which can be an important component of income from employment in some settings.

16. In addition, as the focus is on overall take-home pay, the measure of income used should include the incomes received for all jobs performed (main and secondary) during the reference period. Also, the use of net income figures may be more appropriate than gross in order to correct for deductions such as tax, pension or social security contributions.

2. The need for disaggregated measures

17. In addition for aggregate summary measures to address the various policy concerns outlined above it is also important that the indicators be computable for specific groups of workers based on characteristics such as: age, sector, industry, occupation, level of educational attainment, and years of seniority in employment. Such measures are essential for analytical purposes in order to better understand and distinguish between the factors underlying gender differences in pay, as well as to identify specific groups or sectors where the gender gaps may be greater and to better inform policy.

3. Coverage

18. In general, to ensure representativeness and to limit potential biases, indicators that are intended to be used as summary measures of gender differences in income from employment should be based on data that cover all types of workers in all types of employment as well as all components of income as defined by the 16th International Conference on Labour Statistics (ICLS).⁵

⁵ ILO (1998), Measurement of income from employment. Sixteenth International Conference of Labour Statisticians, (ICLS/16/II), Geneva 6-15 October 1998.

19. Full worker and employment coverage is necessary because women and men are not equally distributed across employment sectors, industries, occupations, grades or working arrangements and sex differentials in income may vary widely across the various employment situations and categories of workers.⁶

20. Full income coverage is also necessary because women and men may not receive all components of income to the same extent (i.e. overtime payments, irregular bonuses, employment-related social security benefits, etcetera).⁷

4. Type of income measure

21. Average income may be more appropriate than median income in order to take into consideration incomes at both extremes of the distribution as gender differences can be very pronounced among those receiving the highest and lowest incomes.

5. Comparability

22. For each indicator to be comparable across time and countries, it is crucial that countries use similar concepts and methods in their calculation. In particular, it is important that countries use data that are similar in terms of worker, employment and income coverage and type of income measure used (gross or net; median or average; hourly, monthly or annual, etcetera) as these can affect the estimates of the gender gap in income from employment and their interpretation.

C. Availability of data and main sources of income from employment data

23. National availability of income data is an important factor in determining ultimately which data are to be used in the calculation of the various indicators. There are three main national sources of income data: (1) household surveys such as labour force surveys, household budget and household income and expenditure surveys; (2) establishment surveys; and (3) administrative records such as income tax records and social security registers.

24. Careful consideration of the data source to be used is important as the sources tend to differ in terms of worker and income coverage as well as in the types of income measures that can be derived from them and the jobs such income measures refer to.

1. Household surveys

25. Depending on the survey and sample design, these sources of data have the potential to provide full worker coverage, including those in paid- and self-employment, as well as in formal- and informal employment. In addition, household surveys tend to be a rich source of additional characteristics of workers which allow further analysis and the calculation of the indicators for specific groups of workers. Full income coverage is also possible although

⁶ ILO (1997), Incorporating gender issues in labour statistics. STAT Working papers No. 99-1.

⁷ *Ibid.*

concerns exist about the accuracy of self-reported income data. In practice, however, income coverage varies widely, with most surveys capturing only earnings, usually only net earnings (i.e., excluding workers' contributions to social security and pension schemes), and only a few capturing total employment related income, depending on the focus of the survey. In addition, income may be captured for the main or usual job only, for the main and secondary jobs, or for all jobs together.

2. Establishment surveys

26. Worker coverage of establishment surveys is most often limited to paid workers in medium to large establishments, excluding those engaged in self-employment and in micro-enterprises. They may also exclude those employed in certain industries, as well as workers remunerated predominately by a share of the profits (ie. salaried directors and managers) and those paid on a commission basis without a retainer (ie. outworkers, subcontracted workers). The income data collected relates to the earnings concept, and tends to include those elements paid directly and regularly by the employer (total cash earnings) but may exclude irregular payments, income in kind and end of year bonuses. Because the data collection focuses on the jobs carried within the establishment, it excludes income earned in other jobs by multiple-job holders.⁸

3. Administrative records

27. Worker coverage of administrative records, such as social security records, often includes workers in paid employment and in self-employment who are covered by the administrative system. It may miss those in informal employment, who are usually not covered. Income coverage generally includes, for those in paid employment: total earnings and, in some cases, social security contributions; and for those in self-employment: net profit or entrepreneurial income.⁹ Administrative data, however, may not be available by key relevant characteristics of the employed persons, thus preventing the calculation of the GPG for specific categories of workers.

III. CURRENT PRACTICES IN THE CALCULATION OF GENDER PAY GAPS

28. Among current efforts towards the development and use of a common measure of the gender pay gap in employment is the work being conducted by Member States of the European Union (EU) and EUROSTAT. The GPG is one of the Structural Indicators selected by the Lisbon Strategy –the action and development plan for the EU– to monitor the principle of equal pay for work of equal value. In addition, the GPG, broken down by private and public sector, age and education is also used as an indicator for monitoring progress in EU Member States in the implementation of employment guidelines to address gender inequality in the labour market.

⁸ ILO (1998), Measurement of income from employment. Sixteenth International Conference of Labour Statisticians, (ICLS/16/II), Geneva 6-15 October 1998.

⁹ *Ibid.*

29. In this context, EUROSTAT has proposed to define the GPG as: “*the relative difference between average gross hourly earnings of male paid employees and of female paid employees in the whole economy*”, and has noted that the calculation of the GPG should be based on¹⁰:

- (a) Hourly wages including paid overtime and without non-regular payments
- (b) Mean earnings
- (c) Gross earnings
- (d) Coverage of full and part-time workers
- (e) Coverage of all employees regardless of number of working hours
- (f) Coverage of all age groups
- (g) Coverage of all industries of the economy

30. For comparability reasons, the primary national source of data currently being used by EUROSTAT to compile the indicator is the Structure of Earnings Survey.

31. Work in this area by UNECE has focused on the development of an indicator of the gender pay gap in order to monitor differences in the income from employment that women and men take home. As a result, UNECE currently defines the GPG as the “*Difference between average gross monthly earnings of male employees and of female employees as a percentage of average gross monthly earnings of male employees*”.¹¹ Preliminary calculations of the GPG as such defined have been made available through the UNECE gender statistics database. The estimates of the GPG included in the database are based on various national and international (ILO) official sources of income data.

32. The approaches currently used by EUROSTAT and UNECE to calculate the Gender Pay Gap share several features such as the use of the same formula, the focus on paid employment and exclusion of self-employment; the use of average or mean earnings; and the suggested coverage in terms of working hours (inclusion of full- and part-time workers), age groups, and industries of the economy.

33. The principal differences between the two approaches relate to the policy focus of the indicators; the type of income measurement used (gross hourly earnings versus gross monthly earnings); and the source of data (establishment survey versus any available source of data).

IV. UNECE SURVEY INQUIRY

34. In November 2007, UNECE conducted a survey inquiry in order to explore various issues related to the calculation of the GPG. A questionnaire on income from employment statistics was sent to eighteen national statistical offices from countries in the region. The main purpose of the inquiry was to better understand the effects of using different data sources and methods in the computation and interpretation of the GPG as well as to gauge the availability and comparability of national income-related statistics in the region. Specifically, the key objectives of the inquiry were to:

¹⁰ *Ibid.*

¹¹ *Ibid.*

- a) Compare data derived from the three alternative sources of income from employment
- b) Assess the effects of including self-employment in the calculation of the GPG
- c) Compare differences between annual, monthly and hourly income data.

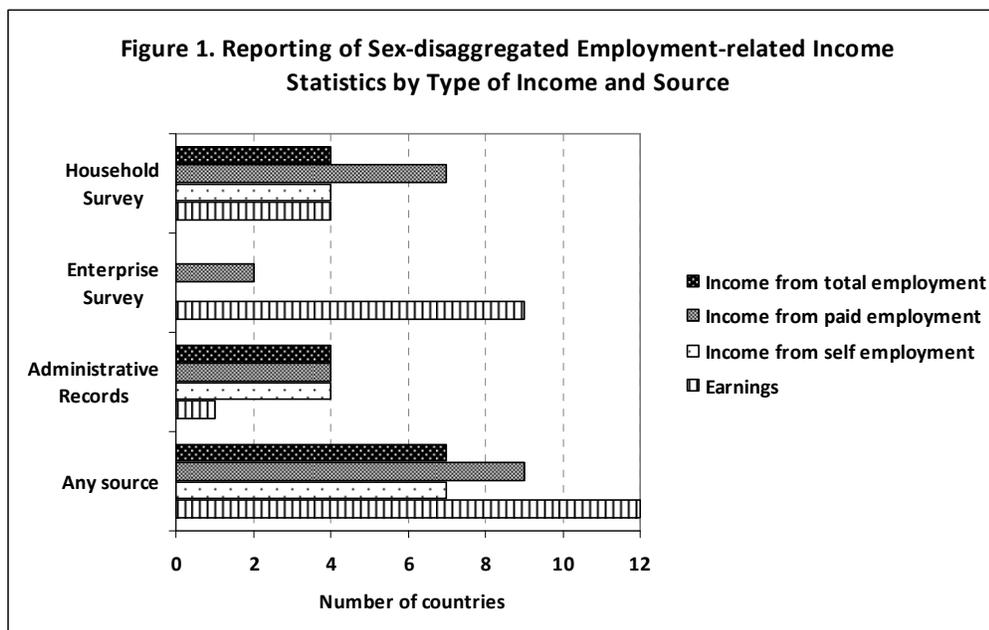
35. In order to gauge the comparability of the statistics compiled, the UNECE questionnaire included a set of definitions on the various types of income statistics requested and their sub-components (see Appendix I). Respondents were asked to compare their national definitions to those provided in the questionnaire and to describe the differences. In addition, respondents were asked to provide detailed information regarding worker, industry and sector coverage and sample size of the source, as applicable.

36. Completed questionnaires were received from twelve countries (Bulgaria, Canada, Estonia, Germany, Israel, Kazakhstan, Moldova, Netherlands, Poland, Serbia, Switzerland and Ukraine). The replies received, although not representative of the region, provide an indication of the availability of income statistics at the national level and of their comparability within and across countries.

37. The remainder of this section describes the findings of the inquiry regarding: (1) the availability and comparability of income from employment statistics; (2) the effects using different sources of data on the estimation of measures of the GPG; (3) the effects of including self employment in calculations of the GPG; and (4) the effects of income measurement (hourly, monthly, and annual) on the estimation of the GPG.

A. Availability of Income Data by Source

38. The majority of countries that completed the questionnaire reported at least one type of income from employment statistics disaggregated by sex. In a few cases, countries were able to report sex-disaggregated income statistics from more than one source. Figure 1 shows the number of countries reporting sex-disaggregated income from employment statistics by type of income and source. It reveals significant diversity in the data sources used by countries to generate the various types of income statistics explored here (income from total employment, income from paid employment, income from self-employment and earnings).



39. Not one primary source appears to be used by all countries to generate a given type of income statistics. While household surveys are the most common source of sex-disaggregated statistics on income from paid employment, some countries report these data from administrative records and, a few, from enterprise surveys. Similarly, although enterprise surveys are the most common source of sex-disaggregated statistics on earnings, a few countries report such data from household surveys and, to a lesser extent, from administrative records. Finally, data by sex on income from total employment and from self-employment is reported to a similar extent from household surveys and administrative records.

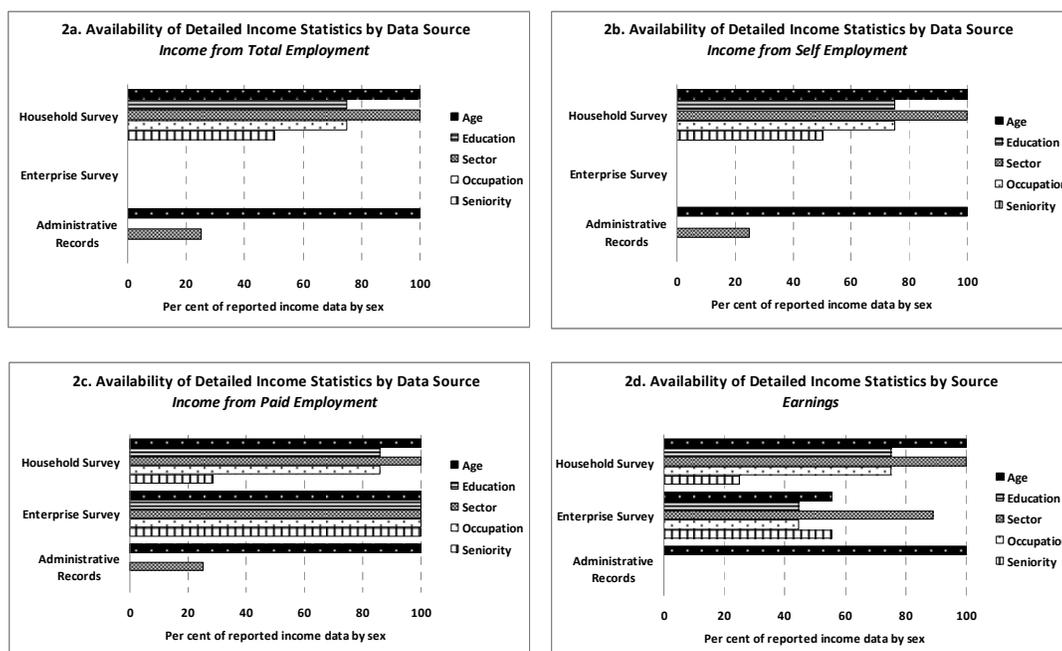
40. Overall, household surveys appear to offer the broadest coverage in terms of types of income statistics reported followed by administrative records. Both sources are used by countries to generate sex-disaggregated statistics on the four types of income explored here. Enterprise surveys, by contrast, are used by countries to generate statistics by sex on only two types of income: income from paid employment and earnings.

41. Figure 1 shows also that the only type of income statistics by sex reported by all countries, regardless of source, are earnings. Earnings is the narrowest component of income from employment asked in the survey. It refers to remuneration in cash and in kind paid to employees, as a rule at regular intervals, for time worked or work done together with remuneration for time not worked, such as annual vacation, other paid leave or holidays. It excludes employers' contributions in respect of their employees paid to social security and pension schemes and also the benefits received by employees under these schemes, as well as severance and termination pay. It also excludes all income from self-employment (see Appendix I).

42. The second most commonly reported type of income data by sex, regardless of source, is income from paid employment (9 out of 12 countries) which includes direct wages and salaries and other payments received by workers in paid employment, but excludes the income of those in self employment. Finally, although conceptually, data on income from total employment would be the most appropriate for the calculation of measures of the GPG, this type of data is the least reported by countries (7 out of 12).

43. Figure 2 explores the availability of additional breakdowns for the reported income statistics by source. Each graph in Figure 2 refers to a particular type of income statistics (2a: Income from total employment; 2b: Income from self-employment; 2c: Income from paid employment; and 2d: Earnings). Overall, the graphs evidence significant differences in the availability of sex-disaggregated income statistics by additional breakdowns as needed in order to better understand the factors underlying the GPG. In general, household surveys appear to provide the greatest coverage of income statistics by additional personal and job characteristics, especially age and sector of activity, followed by education, occupation and to a lesser extent years of seniority in employment. This pattern is the same for all types of income statistics explore here.

44. In the case of enterprise surveys, graphs 2c and 2d show different patterns in the availability of income data by additional break downs. On one hand, all countries reporting sex-disaggregated statistics on income from paid employment (graph 2c) can provide the data by the additional breakdowns. On the other hand, only about half of the countries reporting sex-disaggregated statistics on earnings (graph 2d) can provide the data by the additional breakdowns. The only additional detail that most countries reporting sex disaggregated earnings from enterprise surveys can provide is sector of activity. These differences in the availability of detailed income statistics from enterprise surveys point to national differences in the data collection and/or processing practices.



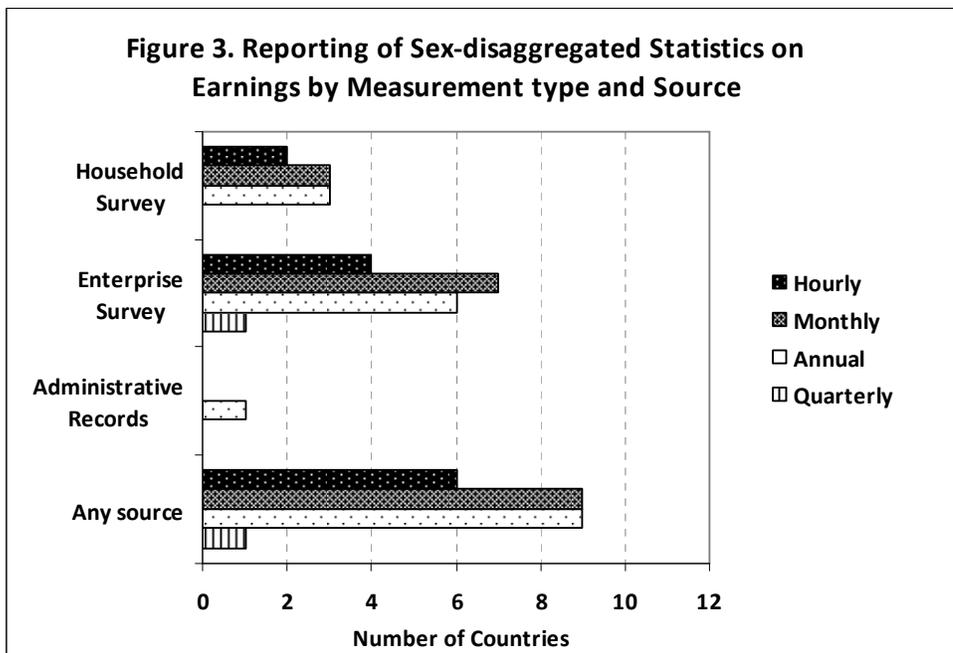
45. Finally, Figure 2 shows that administrative records, in general, do not collect sex-disaggregated income statistics by additional personal and job characteristics. All countries reporting income statistics from administrative records can provide the data further disaggregated by age, and to a much lesser extent, by sector of activity. Sex-disaggregated income data from administrative sources, however, is not available further disaggregated by educational attainment, occupation, or years of seniority in employment.

46. In general, it is possible to conclude that all countries produce some type of sex-disaggregated income from employment statistics that could be used to calculate basic estimates of the GPG. These statistics, however, vary widely across countries in terms of the primary source used to collect the data, the type of income they refer to, and the availability of additional break downs. The next section further compares the statistics reported in terms of worker and income coverage as well as type of income measurement in order to further assess the extent to which the available data may be used to construct measures of the GPG that are comparable across countries.

B. Comparability of Available Data

47. The previous section showed that the most common type of sex-disaggregated income statistics reported by countries are earnings. It also showed, however, that countries use different sources to generate the statistics on earnings, with most countries reporting the data from enterprise surveys followed by household surveys and, finally, by administrative records. Figure 3 shows, in addition, that the statistics reported also differ in terms of type of income measurement; that is whether the statistics refer to average hourly, monthly, quarterly or annual earnings.

48. Considering all data sources, three quarters of the countries reported average annual and monthly earnings by sex and half reported average hourly earnings by sex. If restricted to a particular data source the number of countries reporting comparable sex-disaggregated wage statistics in terms of measurement type is lower. For example, considering enterprise surveys, half of the countries reported average monthly and annual wage statistics by sex and one third reported average hourly wage statistics by sex. Reporting of comparable wage statistics data from household surveys is even lower.



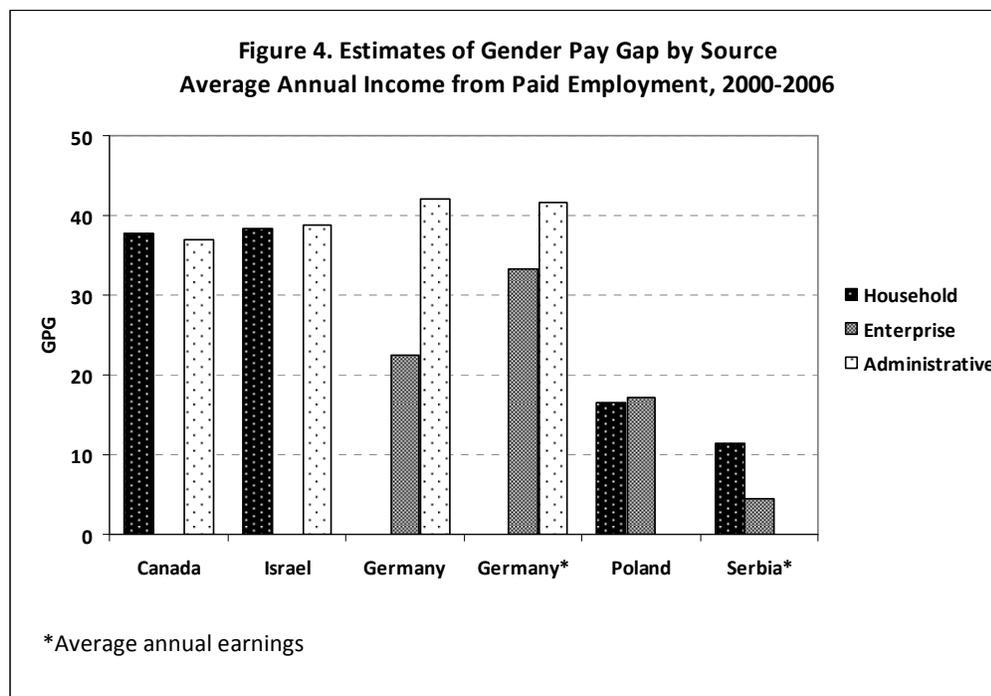
49. Another source of variability in the statistics reported is whether the figures refer to gross or net earnings. Among the responding countries, ten reported gross earnings, three reported gross and net figures, and two only net figures (data not shown).

50. The survey also revealed significant variability in the definitions of the various components of income from employment used by countries. The differences relate primarily to the inclusion or exclusion of such components as: overtime payments, in kind payments, profit-related pay, cost of living housing and transport, cash bonuses and gratuities; and employers contributions to social security and insurance funds. The differences in definitions are not only restricted to between countries. There are also definitional differences in the income statistics reported by countries from two different sources.

51. Finally, differences in worker coverage are also observed among a few countries, particularly with regards to the exclusion of part-time workers.

C. Effect of Data Source on Estimates of the Gender Pay Gap

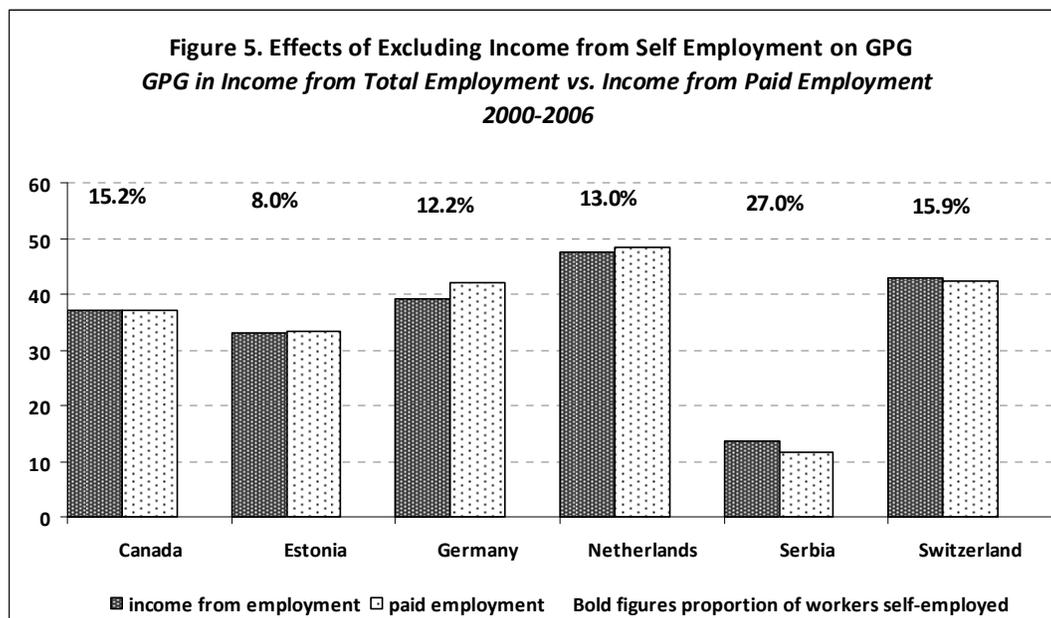
52. Choice of data source matters in the calculation of the GPG. Figure 4 shows estimates of the GPG based on data on income from paid employment from different sources. It shows that, in cases where the two national sources compared use similar coverage, concepts and definitions, the differences in the estimated GPG are relatively small (ie. Canada, Israel and Poland). However, where the sources differ in the coverage, concepts and/or definitions used, the differences are much larger (ie. Germany and Serbia).



53. In the case of Germany, the differences are particularly large due to the exclusion of various industries (NACE sections M-O) from the coverage of the enterprise survey as well as to the exclusion of part-time employees. In the case of Serbia the differences are due to the reporting of different types of earnings by the two sources: net earnings in the case of the household survey and gross earnings in the case of the enterprise survey.

D. Employment Coverage: Relevance of self-employment

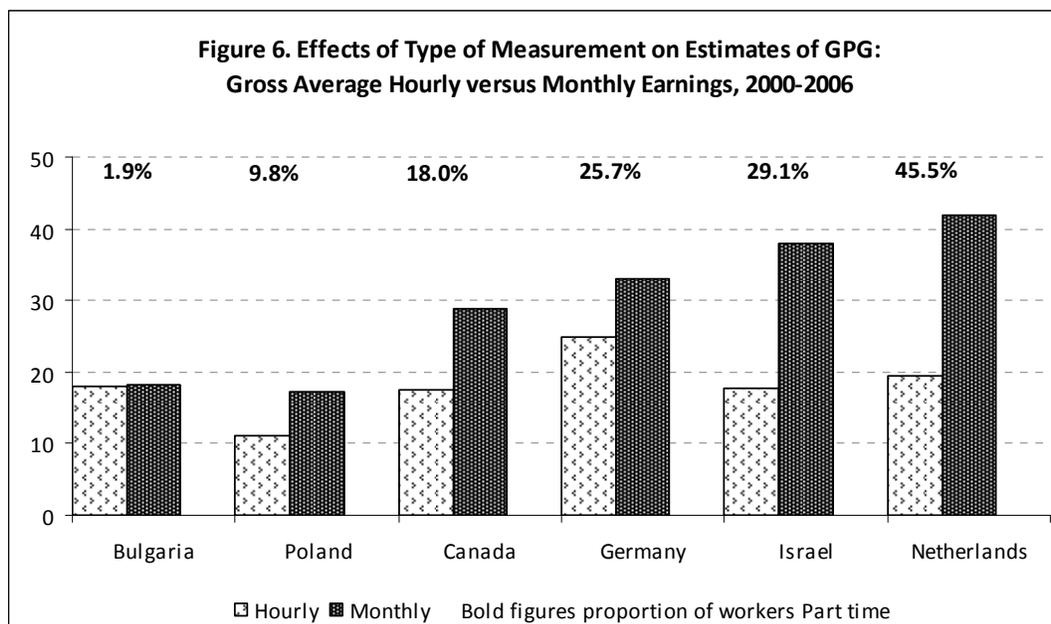
54. To see the impact of including self-employment in the GPG, we can compare estimates of the GPG based on data on income from total employment with estimates of the GPG based on data on income from paid employment. Figure 5 shows, in general, a relatively small difference in the estimates of the GPG based on income from total employment and from paid employment. Inclusion of self-employment, thus, appears to have a small impact in the measurement of GPG. The size and direction of the impact, however, appears to depend on national circumstances, particularly on the composition of the self-employed population. For example, the country in figure 5 with the highest proportion of self-employed workers (bold figures), Serbia, also displays the greatest difference in the two estimates of the GPG. In this case, inclusion of income from self-employment results in a higher estimate of the GPG. By contrast, Germany displays the second smallest proportion of self-employed workers yet at the same time, the second largest difference in the two estimates of the GPG. In this case, inclusion of income from self-employment results in a lower estimate of the GPG.



55. Although our analysis refers only to a few countries, it does suggest that the gender pay gap among the self-employed can be rather different from the gender pay gap among those in paid-employment. Therefore, use of data that refers to paid-employment only in order to calculate the GPG as a summary measure of gender differences in the income received from total employment may not be entirely accurate, particularly in countries with a large share of self-employed workers.

E. Income measurement: Hourly, monthly, annual measures

56. To examine the effect of type of income measurement in terms of time reference on the GPG, we compare the estimates of the GPG based on average gross hourly earnings versus those based on average gross monthly earnings. Figure 6 shows the results of the comparison. It shows that, for most countries, the GPG based on hourly data is smaller than that based on monthly data. When we compare the size of the difference in the two estimates of the GPG with the proportion of part-time workers in the country (bold figures), it becomes apparent that the difference in the estimates of the GPG are closely associated with part-time work. This is because women tend to be disproportionately concentrated in part-time work compared to men and because those in part-time work tend to earn less compared to those in full-time work. As a result, the difference in the estimates of the GPG based on hourly and monthly data tends to be rather small in countries with a low proportion of part-time workers, such as Bulgaria. By contrast, the difference in the estimates of the GPG tends to be rather large in countries with a high proportion of part-time workers, such as Israel and the Netherlands. Comparison of estimates of the GPG based on monthly and annual income data revealed no significant difference (results not shown here).



57. The close positive association between the proportion of part-time workers and the difference in the estimates of the GPG based on hourly and monthly data suggests that countries with a significant proportion of part-time workers need to carefully consider the appropriateness of using hourly versus monthly data in the calculation of estimates of the GPG. This is particularly important if the intended policy focus of the measure is to serve as an indicator of the gender gap in take-home pay.¹² Use of hourly data can severely underestimate the size of the GPG in the average income that women take home compared to men. Specifically, such a measure would lead to overestimate women's access to economic resources from employment and their economic welfare compared to men.

V. CONCLUSIONS

58. The UNECE inquiry revealed significant diversity in the availability of official sex-disaggregated income from employment statistics at the national level. Not only do countries differ in the primary source used to derive the statistics, there are also important differences in the concepts and definitions used to capture income data as well as in the worker, employment, and income coverage of the data. These differences limit the comparability of the available income data and, therefore, the comparability of measures of the gender gap in the economic remuneration that women and men receive from employment.

¹² In this case, it may also be more appropriate to use net figures instead of gross figures in order to eliminate the effects of differences in deductions such as tax, pension or social security contributions.

59. At the national level, there is a need to improve the comparability of the various sources of income statistics through the use of similar concepts and definitions across sources, and, where appropriate, through the delineation of similar worker, job, and income coverage. At the regional level, use of a common source of national income data is important in order to improve the comparability of measures of the GPG across countries and over time.

60. Although from a conceptual point of view, estimates of the GPG should be based on data on income related to paid and self employment, many countries do not produce these data owing to the complexity of measuring income from self-employment and to the reliance on establishment surveys which focus on paid employment only. Exclusion of self-employment appears not to have a large effect on the estimates of the GPG in the countries that were able to provide such data. This is because these countries have a relatively small share of self-employed workers. Countries with sizeable shares should carefully examine the effects that excluding self-employment may have on the estimates of the GPG in order to limit potential biases.

61. In general, the most commonly available type of sex-disaggregated income from employment statistics at the country level appears to be earnings. Comparison of estimates of the GPG based on gross annual average earnings versus gross annual average income related to paid-employment showed no significant differences (not shown here). Data on earnings, thus, could be used initially to improve the availability of estimates of measures of GPG at the regional level. At the same time, efforts should be made in order to improve the availability and comparability, at the national level, of statistics on all components of income from employment as defined by the 16th International Conference on Labour Statistics (ICLS).¹³

62. There is also a need to carefully consider the type of measurement, in terms of reference period, used in the calculation of the GPG. Estimates of the GPG vary significantly depending on choice of time reference of the wage statistics used. Use of hourly wage statistics results in much smaller estimates of the GPG compared to the use of monthly wage statistics. This is due to the fact that hourly measures do not capture the impact that gender differences in working time have on the income received by women and men. Particularly, the choice of measurement needs to be carefully considered with regards to the intended policy use of the indicator. Capturing the effects of gender differences in working time is important in cases where the indicator is to be used as a measure of gender differences in take-home pay. By contrast, in cases where an indicator of the overall position of women and men in the job market is desired, it may be more appropriate to eliminate such differences from the comparison of the pay gap by using average net hourly income from employment data.

63. In general, there is a need to continue work towards improving the quality and comparability of the indicators related to measurement of gender differences in income from employment. This requires work at the conceptual level to ensure that the indicators are properly defined in relation to the intended policy uses. This paper outlines three policy issues related to gender gaps in income from employment for which different measures are needed: (i) equal pay

¹³ ILO (1998), Measurement of income from employment. Sixteenth International Conference of Labour Statisticians, (ICLS/16/II), Geneva 6-15 October 1998.

for work of equal value; (iii) gap in the overall position of women and men in the job market ; and (ii) gender gap in take-home pay.

64. Further work is needed to more thoroughly examine and identify the relevant policy issues related to gender differences in income from employment for which indicators are needed. Once the key policy issues have been identified and defined, the methodological work should focus on identifying the best possible approaches to measure and calculate the indicators. Ultimately, it is important that the indicators to be developed are clearly identifiable and distinguishable by name and calculation method.

65. This paper explores some of the main methodological issues associated with the calculation of the indicators, given the policy requirements and available data. A more comprehensive study, however, is needed in order to more fully document the availability of income statistics in countries of the ECE region and to better understand the implications of using the available data in order to develop measures that address the various policy concerns related to gender gaps in income from employment.

Appendix I: UNECE Survey Income Definitions

1. The UNECE questionnaire asked respondents to provide national per capita income from employment statistics from three main sources of data: household-based surveys; enterprise-based surveys; and administrative registers. For each data source, the questionnaire asked respondents to provide data by sex and total on: (a) **annual average gross and net income from employment**, including breakdowns by paid-employment and self-employment (as well as more detailed break-downs by income sub-component, i.e. cash remuneration, remuneration in kind and in services, profit related pay, employment related social security benefits); and (b) **gross and net earnings from paid-employment** classified by hourly, monthly, and annual measurement.

2. The following definitions were used in the UNECE questionnaire:

Income from employment: It consists of the receipts in cash, in kind or in services, which accrue to individuals, for themselves or in respect of their family members, either as a direct result of their involvement in paid or self-employment jobs or by virtue of their employment status. Income from employment excludes income derived from other sources such as property, social assistance, transfers, etc., not related to employment. Income from employment should be calculated taking into account full-time and part-time workers.

Income from paid employment: All receipts and benefits in cash, in kind, or in services, which accrue, over a given reference period, to persons in paid employment, for themselves or in respect of their family members, as a result of their involvement in paid employment jobs. Such receipts and benefits may be paid by the employer, social security and insurance schemes or the State, in so far as they are derived by virtue of their employment status. It includes regular remuneration in cash and kind received by employees from their employers as a rule at regular intervals, together with payments for time not worked (annual vacation, public and other paid holidays or other time off granted with pay) and irregular payments (13th and 14th month, profit share, bonuses, etc.). It excludes employers' contributions to social security funds, insurance or other institutional units responsible for social insurance schemes. It also excludes family allowances and other social security benefits paid without regard to the employment status.

Income from self employment: Income which accrues over a given reference period to self-employed persons, for themselves or in respect of their family members, by virtue of their involvement in self-employment jobs. Self employment jobs are those jobs where the remuneration is directly dependent upon the profits derived from the goods and services produced.

Earnings: The total cash remuneration received in return for work done during the accounting period, regardless of whether it is paid on the basis of working time, output or piecework and whether it is received at regular intervals or not. It includes incentive, shift and premium payments, cost of living housing and transport, tips and commissions, payments for odd jobs and casual works. Remuneration of trainees and apprentices is included, as well as fees and salaries of managerial staff. It also includes remuneration for time not worked, such as annual vacation, public holidays and other time off granted with pay (e.g. for family reasons or sick leave).

Cash bonuses and gratuities: All bonuses, gratuities and exceptional payments, whether contractual or non-compulsory bonuses and premiums, year-end and seasonal bonuses (13th, 14th or 15th month's salary, additional vacation pay, etc.).

Remuneration in kind and services: Includes the receipt of free or subsidized food, drinks, fuel, clothing, housing and similar payments given to the employee as part of their total remuneration. It also includes the imputed rental value of free or subsidized housing or the imputed values of other benefits such as business vehicles, facilities, transport, loans, etc.

Profit related pay: Profit-sharing bonuses, whether paid monthly, quarterly or annual, include workers' participation schemes and share ownership plans. They include both payments paid in addition to basic wages and salaries and salary conversion schemes where employees put some part of their salary at risk.

Employment related social security benefits: They include benefits for which the status of employee is a precondition for their receipt. They may be paid from employer, social security, insurance schemes or the State.
