Locating Complexity

Wendy Bottero

Abstract: This reflective review examines the unique and original approach to locating complexity exemplified in Janet Siltanen's work. The review explores this deconstructive and reconstructive approach, focusing on three key sets of work: Siltanen's conceptual work on the full- and component wage; methodological work reconceptualizing the measurement of gender segregation and exploring the affordances of statistical techniques for intersectional analysis; and work on policy knowledges and critical praxis. The review explores how Siltanen's reconstruction of analytical and measurement categories derives from a focus on the situational and practical nature of knowledge categories. Siltanen's conceptual and methodological originality derives from her consistent focus on locating and situating analytical and measurement categories within a differentiated and contextual understanding of practical social arrangements, an approach which also reflects on the practical purposes and social organization of research.

Introduction

This review showcases the unique and original approach to locating complexity exemplified in Janet Siltanen's work. As Janet's former student I am keenly aware of her unstinting kindness, collegiality, and intellectual generosity. The scholarly debt that I (and many others) owe her is immense. Here I focus on Janet's remarkable intellectual contribution to debates on gender inequality, marked by her consistent emphasis on reworking research concepts, measures and practices to advance a more complex, inclusive, and grounded understanding of gendered experience. Janet's work is notable for its rigor and scope, with innovative interventions across conceptual, methodological, and policy debates. This originality emerges from her feminist focus on 'locating' analytical and measurement categories: situating categories within a more differentiated and contextual understanding of practical social arrangements, in order to better assess and reconstruct them. As befits Janet's feminist stance, the aim of such conceptual reworking always has a practical focus: to develop more critical and inclusive understandings of social arrangements as part of the task of challenging and reworking them.

I explore Siltanen's approach to locating complexity within three projects that span her remarkable career. Firstly, I consider Siltanen's reconstructive approach to gender divisions in conceptual work on the full- and component wage (1994). Here she develops a more inclusive theory of gendered patterns of employment, by locating *both* difference *and* commonality across gender categories within a broader, more differentiated understanding of the social relations shaping employment patterns. Secondly, I examine her work (with Bob Blackburn, Jenny Jarman, and Nicholas Scott) reconceptualizing the measurement of gender segregation and exploring the potential of different regression techniques for intersectional analysis. This work focuses on redesigning measurement strategies to facilitate more robust understandings of change over time and the complex multi-dimensional nature of inequality. Finally, I examine Siltanen's emphasis on the practical nature, and consequences of, knowledge production in her approach to policy knowledges and critical praxis (with Fran Klodawsky, Caroline Andrew, and Christine Pich). Here she seeks more plural and collaborative engagements to advance knowledge production and policy intervention, and reflects on the most effective and inclusive way of organizing such practices. In what follows, I consider Siltanen's distinctive approach to *conceptualizing*, *measuring* and *practicing* complexity, drawing out her key insights for advancing more complex understandings of social relations.

Conceptualising complexity

Siltanen's reconstructive approach to conceptualizing the complexity of gender divisions in employment is exemplified in her work on the 'full-' and 'component-wage' (Siltanen, 1986, 1994). She argues that understanding the salience of gendered experience requires better *specification* of this salience, 'locating' the operation of 'gender' (1994:22). Whilst employment is characterised by a high level of differentiation between women and men, for Siltanen, explanation of this skewed distribution requires a more critical and empirically differentiated location of 'gender' as an explanatory category. Such a 'location' requires both an intersectional understanding of other key aspects of social division operating within gender categories, as well as greater attention to the broader structuring of social relations and financial obligation which shape *both* difference *and* commonality across gender categories.

This argument emerged from Siltanen's research (1986, 1994) on gender segregation in the British Post Office (PO), where postal delivery and night-shift telephonist jobs were dominated by men, whilst day-shift telephonist jobs were dominated by women. However, all these jobs had incumbents from the minority gender. Siltanen argued this gender patterning was not satisfactorily addressed by existing explanations focused on the domestic division of labour or on the gendered construction of 'male' and 'female' jobs. Instead, the complex patterning of occupational gender segregation requires a fuller understanding of the social relations of employment, one acknowledging not just gender divisions but also the internal differentiation within, and overlap across, women and men's experiences.

> While we need a theory of the distribution of people to jobs which can explain sexual divisions where they occur, this must be a theory which can account for those aspects of social processes which yield similar outcomes for women and men. Taking "gender" or "sexual divisions" as a general statement of social experience and the object of explanation, has had two deleterious consequences: the importance of similarity in women's and men's experiences has been neglected and social processes giving rise to sexual divisions have not been understood adequately. (Siltanen, 1986:102)

At that time, theories of gender division were criticized for over-emphasizing the 'public/private' division in gender relations. Siltanen herself made a significant contribution to these debates (with Michelle Stanworth), in an intervention identifying problems in the 'analytical separation of the public world of politics and employment from the private sphere of family and interpersonal relations' — noting these problems within both 'male-stream' approaches and feminist critiques (Siltanen and Stanworth, 1984:91). Feminist writers had challenged the apolitical characterization of 'private' women, but still 'accepted the explanatory framework which seals women's experience in the private, and men's in the public' (ibid:91). This division was too simplistic, detracting attention from how 'women's political character is publicly generated, and…men's public profile is shaped by their relation to the private' (Siltanen and Stanworth, 1984:91-2).

Siltanen (1986, 1994) identified similar deficiencies— overly homogenised understandings of gender divisions— in explanations of gender and employment. The 'strength of the aggregate pattern in the gender composition of jobs' encouraged forms of explanation focused on the construction of 'women's jobs' and 'men's jobs' (Siltanen 1994:189-190). But workplace studies failed to show 'a consistent relationship between the substance of job tasks and the gender composition of jobs', and the focus on gendered jobs struggled to address 'the mixed composition of job incumbents' (1994: 189, 191). This empirical complexity had been recognized, but not in a manner that reworked explanatory categories (1986:97). Too ready an acceptance of 'gender distinction' as a general category of explanation means 'explanations focusing on the validity of this division have difficulty accounting for the presence of women in "men's jobs" and of men in "women's jobs"' (1994:191). Siltanen (1986) argued a more inclusive theory must be able to explain divisions within, as well as across, 'gender'.

Siltanen's approach to 'locating gender' focuses on the social processes generating not just aggregate gender differences but also variations within and similarities across gender categories. This broader and more differentiated focus returns attention to how the wider social circumstances of women and men shape their employment experiences, but with an important difference from previous explanations. The previous focus on 'sexual divisions' in the home is 'imprecise and insufficient' (ibid:101) because it highlights marriage and parenting at the expense of other household circumstances (such as relations to financial dependence and independence) —but also because the relationship of men and women to household and employment structures is more complex than the concept of 'sexual division' allows. Siltanen's PO research distinguishes jobs through their patterns of relations to household maintenance: 'full-wage' and 'component-wage' employment. The income of 'full-wage' jobs (postal and night-shift telephonist jobs) enabled incumbents to maintain an independent household, including dependents. Such jobs were highly gender-skewed (full-wage positions mainly held by male workers and component-wage positions mainly held by female workers), but this allocation was based on wider household circumstances. And Siltanen's changed focus helps explain not just gender differences but also similarities in these relations. The minority gender in jobs had the social circumstances atypical of their gender, but in common with other incumbents. Men in the component-wage day-shift telephonist jobs had limited financial obligations more akin to their female co-workers than to men in the full-wage postal worker jobs; whilst women in the full-wage postal jobs had more extensive financial obligations akin to their male co-workers, with sole financial responsibility for maintaining an independent household, including dependents.

Siltanen's approach locates the variable operation of gender categories to better explain them and, through this focus, demonstrates that relations to household maintenance, not gender or the domestic division of labour *per se*, is the key factor associated with the distribution of people to jobs. Establishing 'a link between the social obligations of wage earners and the social capacities afforded by differing wage levels allows for a direct examination of household and employment relations and the location of gendered experience within this' (1994:194). Significant policy implications arise from this reconstruction of conceptual and explanatory concerns. The full-wage/component-wage distinction centres relations to the financial maintenance of households, highlighting how particular kinds of social rights are embedded within employment. Component-wage jobs do not pay wages sufficient to allow an individual to support themselves as an independent adult. Component-wages are a chronic feature of women's employment, and even in full-time employment, 'many women are routinely earning wages that are not sufficient to support themselves as an independent adult' (1994:193). The full-wage/component-wage distinction is fundamentally a question of social citizenship within employment, providing a means 'of assessing the social adequacy of wages and tracing the social implications of changes in earnings distributions' (Siltanen, 1994:193).

Siltanen's work to 'locate gender' addresses the complexity of empirical patterns of gender inequality by moving beyond aggregate patterns to situate and rework key explanatory categories. She demonstrates the need to more thoroughly situate and, if necessary, reconstruct conceptual categories within a more differentiated understanding of the complex social contexts they seek to describe and explain. She demonstrates a similar close attention to the complex differentiated nature of patterns of inequality in her work on measurement, which tackles the significant difficulties of measuring complexity and social change.

Measuring Complexity

In work reconceptualizing the measurement of gender segregation and exploring the potential of different quantitative techniques for intersectional analysis (with Bob Blackburn, Jenny Jarman and Nicholas Scott), Siltanen aims to redesign measurement strategies to better address the multi-dimensional nature of inequality and the complex nature of social change. The focus here is not just on questions of measurement but also on conceptualization and interpretation: addressing how well quantitative measures address the component elements, within more complex social processes, that they seek to isolate and explain. The problem is how to measure shifts in occupational gender segregation free from other confounding processes of change—a problem with a 'sharp practical edge' (Blackburn, Siltanen and Jarman, 1995:325, 319). When measurement techniques struggle to capture processes of change, they produce a misleading picture of trends in segregation hindering policy and research agendas aimed at gender equity (ibid). This very practical problem emerges from the difficulties that complex processes of social change create for the measurement of inequality.

> Changes in patterns of employment are complex social events and the complexity of these events can make it difficult to isolate the particular type of pattern with which the analysis is concerned. This is an important, but under-researched, problem in the measurement of occupational gender segregation. (Siltanen et al 1995:14)

Occupational gender segregation— the tendency for women and men to work in different occupations or industries— is typically measured by indices which identify occupations where women or men are under or over-represented relative to their overall labour-force numbers[1].

[1] This strategy identifies 'female' occupations where the female proportion of workers is greater than the overall female proportion of workers and 'male' occupations where the male proportion is greater than the male labour-force proportion (Blackburn et al 1993:342).

However, as Siltanen and colleagues note, this means such indices are significantly affected by shifts in the labour force—that is, by shifts which may be unconnected to the actual pattern of segregation. 'Ideally' an index 'should be able to isolate the particular social dimension under investigation', but indices are 'often over-determined in that a number of social processes are implied in the components of the measure' (Siltanen, 1990:6). Increasing numbers of women in the labour market, or shifts in occupational distributions create 'noise' for segregation indices. What is required is a way to measure 'segregation alone, without distortion from any other component' (Blackburn et al 1993:341).

Siltanen and colleagues demonstrate that segregation indices are affected by shifts in occupational structure and the gender composition of the labour force, *even when these shifts do not change the underlying pattern of gender segregation*. Siltanen (1990:9) showed one prominent measure of segregation (the Sex Ratio Index [SR]) decreases when the female labour-force share increases—even under conditions of a stable pattern of complete occupational segregation. The problem rests with the index's 'sensitivity to the sex composition of the labour force', with additional 'problems of interpretation' occurring from how it aggregates occupations into disproportionately female and male jobs (1990:16). The *size* of these aggregates independently affects the index which, ironically, is a problem connected to the distinctive concentration of female employment:

> …the relative size of the occupational aggregates is a salient issue for two prominent changes in occupational distributions by gender over this century: the expansion of female employment in areas already disproportionately female, and the feminisation of clerical work. With respect to both types of change […] despite increased concentration of female employment in disproportionately female jobs, the SR index declines indicating a reduction in occupational segregation by sex. (Siltanen, 1990:22)

Such difficulties occur across a range of indices. When various measures of occupational gender segregation are applied to the same datasets they produce 'different pictures of the pattern of change', because indices are variably affected by different 'aspects of change or difference in labour force distributions (Blackburn et al 1993:377, 340). For Siltanen and collaborators, a more 'acceptable measurement strategy' must attend more closely to the 'ways in which indices respond to labour market variations' (Blackburn et al 1993:341).

In showing how the construction of measures can distort the picture of gender inequality over time and place, Siltanen and colleagues do not advocate for 'an "ideal" index': because 'no matter how one modifies existing measures, basic problems in making comparisons remain' (Blackburn et al

1993:366). Instead, they recommend paying more attention to the *meaning* of segregation, which should be 'understood as a relationship rather than a quantity to be measured from some fixed point' (Blackburn et al 1995:326). Starting from an understanding of gender segregation as the tendency for women and men to be separated into different occupations, they point out that 'if women are separate from men then, equally, men are separate from women' (Blackburn et al 1995:324). When segregation is understood as a symmetrical relationship it can be measured as the extent of the separation of women from men in the employment structure—that is via a measure of association within a segregation table:

> Rather than thinking of segregation as a quantity, it should be understood in terms of the closeness of relationship. Thus, the strength of the approach is not that it gives a "true" measure of segregation, whatever that might mean, but that it gives measures which are comparable across situations. (Blackburn et al 1995:327).

The difficulty of comparing measures of association in tables with different marginal distributions has long been acknowledged. Since the gender composition of the labour force shifts over time (and varies across place) techniques for assessing and comparing occupational segregation must be able to cope with these changes in marginals. Siltanen and colleagues tackle this problem directly by using the procedure of marginal matching (MM). Here the data in segregation tables are organized to match marginals before a measure is applied, to produce a consistent measurement of segregation.

The marginal match (MM) statistic measures the extent to which gendered occupations and the gender of incumbents vary together (Blackburn et al., 1993:349)[2]. The new approach also adopts a different *definition* of gendered occupations to avoid the artefactual problems of previous measures. In those measures, 'female' occupations are those where the proportion of women incumbents is greater than the proportion of all workers who are women. MM uses another definition, in which 'female' occupations are those with the highest concentration of women which together have the same absolute number of workers, male and female, as there are women in employment (and 'male' occupations are those with the highest concentration of men which together contain the same number of workers as there are men in employment). The benefit of this changed definition is that it allows construction of a measure which takes direct account of changes in women's share of employment and shifts in occupational distributions. The procedure of Marginal Matching essentially defines

[2] The MM measure varies from 0-1, from a pattern of complete equality (where women's employment is distributed on the same pattern as that of men's); to complete dissimilarity (where men are all employed in male occupations and all women in female occupations).

gendered occupations in terms of potential maximum segregation (in which the "female" category would contain all the women workers and only women, while "male" occupations would contain all the men and only men) and then measures the deviation from this hypothetical total segregation (Siltanen et al, 1995:37). The advantage of MM is that the total number of workers in female occupations is 'matched' to the total number of women in employment, and the total number of workers in male occupations is 'matched' to the total number of men in employment, a procedure which involves arranging the data before calculating a statistic, 'to control the effects of irrelevant factors' (Siltanen et al, 1995:36-37).

Siltanen and collaborators adopt this measurement strategy to address the complex and uneven impact of social change on patterns of gender inequality. Their approach seeks a less distorted picture of shifts in occupational segregation across time or place *by taking context into account*— but in a manner that focuses on only those elements of context that shape the operation of the process in question. A similar interest in strategies that can better measure the complex nature of inequalities can be seen in Siltanen's assessment (with Nicholas Scott) of the affordances of multiple-regression techniques for a feminist intersectional analysis. This, again, has an explicit practical component, with a 'major motivation' the 'wish to promote feminist social justice claims' in policy development (Scott and Siltanen, 2017:374). In policy research, quantification is often regarded as the gold-standard, so it is important to bring 'a feminist understanding of intersectionality into research practices and evidence-based policy' (Siltanen and Scott. 2017:374). Doing so means 'addressing the capacity of quantitative methods to produce results that are experientially and theoretically meaningful' (ibid:374). Scott and Siltanen (2017:373-4) argue that quantification involves 'not only issues of measurement but also of interpretation': the question of 'how social processes are captured (or not) by the component parts and logic of the technique'. Feminist work on the potential of quantitative analysis (McCall, 2005; Winker and Degele 2011) directs attention to 'how intersectionality is itself positioned in research investigations, and in particular, if it is positioned as an "add on" or as definitive of the overall structure of inequality' (Scott and Siltanen, 2017:375). So when using different statistical techniques it is necessary to see how 'the characteristics of quantitative techniques actively shape the interpretation, and position the operation, of the theoretical concepts under investigation' (2017:374).

Scott and Siltanen (2017:374-5) argue a fully intersectional statistical analysis must support three conceptual issues common to intersectional approaches: attention to the significance of context; a heuristic orientation to the relevant dimensions of inequality at play in given situations; and ‘embracing the complexity of the multidimensional structuring of inequality’. These aspects are related, although they raise ‘distinct theoretical, political, and analytical issues’ (2017:374). The importance of context is ‘ubiquitous’ in feminist discussions of intersectionality, resonating with trends towards ‘contextually-specific’ policies and activist strategies (2017:374). The capacity of intersectional analysis to inform strategies for social change ‘depends on an analytical specificity that is contextually located’, so it is ‘crucial’ for contexts of experience ‘to be explicitly identified and brought into the analysis of intersectionality’ (2017:374). However, it is also important not to prejudge the importance of such factors, and the relevance of key categories for ‘the configuration of inequality under analysis needs to be a question, not an assumption, of the research’ (2017:374-5). A heuristic and exploratory approach to analysis, which makes no ‘*a priori* assumptions about what factors of inequality are operating in any specific situation’, is required (2017:375). This is a strategy for addressing the complex, multidimensional nature of inequality complexity, with a ‘multi-level approach capable of examining relations between structural and individual characteristics’ and assessing which are in operation in given configurations (2017:375). Conventional regression models, based on individual-level data, ‘ignore the fact that people are “nested” within various higher-order contexts that have their own characteristics, such as neighbourhoods, schools, workplaces, and localized labour markets’ (2017:380). A more fully intersectional approach to statistical analysis needs to unpack how inequality outcomes for individuals emerge from the ‘combination of their own characteristics and the characteristics of the social contexts in which they are embedded’ (ibid).

Scott and Siltanen use these three criteria of intersectional analysis to evaluate different kinds of regression technique (multiple regression including context as a higher-order interaction; multiple regressions run within different contexts and compared; and multilevel regression including context as a higher-order level of analysis). Each model ‘marks an attempt to move beyond the limitations of standard regression procedures and additive conceptualizations of intersectionality’ but vary in the degree to which they can incorporate context directly into the analysis. This is key, because ‘greater capacity regarding context also offers more in terms of heuristic investigation and the analysis of complexity’ (2017:375). Scott and Siltanen (2017:384) note that standard multiple-regression approaches typically treat intersectionality as an interaction term, and even extensions of this model, where context is included as a higher-order interaction, ‘are fairly limited with respect to advancing complex understandings of intersectionality.’ In such models, context is treated ‘not as its own level of analysis but as an individual-level characteristic when present in the higher-order interaction terms’, consequently ‘exploration and assessment of its impact is limited’ (2017:377). The models they examine do a progressively better job at satisfying the criteria, but the third 'offers a conceptualization of intersectionality that is the most consistent with the feminist literature' (2017:373).

While the first two regression models 'treat intersectionality as an add-on, marginal feature to the main effects in regression equations', multilevel modelling positions intersectionality 'more centrally in the structuring of complex inequalities' (2017:384). In the empirical example they use to demonstrate this, Scott and Siltanen examine how unequal relations of gender and unpaid domestic work are affected not only by individual-level characteristics but also intersect in complex ways with context, in this case, levels of neighbourhood-level poverty. This cross-level interaction shows that neighbourhood-level poverty explains a significant amount of variation in the individual-level relationship between gender and unpaid housework (2017:382) By incorporating context directly into the regression model as a higher-order level of analysis, multilevel regression offers the 'most sophisticated, and analytically elaborate, means of addressing context' (2017:384). This approach extends beyond treating intersectionality as an interaction term, moving closer to positioning intersectionality as a 'feature of the overall structure of inequality' (ibid:382).

Scott and Siltanen conclude that by 'offering the possibility to simultaneously investigate higher-order effects alongside conventional individual-level relationships', multilevel modeling provides a 'context-sensitive approach to intersectionality' (2017:382). They prefer this model as part of an overall strategy to measuring complexity which supports not just greater attention to context but also a more open 'heuristic exploration of what dimensions of inequality are operating in particular circumstances, and in what relationships with each other' (2017:383). And, as in Siltanen's work on segregation, identifying how, and when, context-specific factors shape gender inequality is part of a critical-praxis approach which seeks context-specific *interventions* to challenge inequality. Siltanen's distinctive approach to conceptualizing and measuring complexity arises from her feminist commitment to greater gender equity, and to the practical and policy purposes of research. Her focus on these practical purposes is most explicitly demonstrated in her work on policy knowledges and 'critical praxis' (with Fran Klodawsky, Caroline Andrew, and Christine Pich).

Practicing Complexity

Siltanen's 'critical-praxis' approach to locating complexity seeks more plural and democratic engagements in knowledge-production and policy intervention: to bring different perspectives to bear on social problems and to uncover and challenge the distortions of power. The collaborative co-production of research 'offers much in terms of resources, energy, and expertise' (Klodawsky et al 2017a:33) and Siltanen and her colleagues argue more plural knowledge practices can better address and challenge the complexity of inequality. The aim is for research practices that can support 'common goals of knowledge production for audiences both within the academy and among larger communities of interest', conducting research that 'matters' (Klodawsky, Siltanen and Andrew, 2017a:9):

> …acknowledging the specificity of any one perspective helps to construct a new form of objectivity based on the inclusion of multiple, and particularly marginalized, perspectives. Critical praxis-oriented research aims to examine whose values have the upper hand in shaping specific contexts of experience and by what mechanisms of power these values are given priority. Sorting these issues out is an important step in conceptualizing interventions (Klodawsky et al, 2017a:9).

But there is also a question of the complexity of the collaboration itself, and the challenges of bringing theory, research practice, and social justice commitments together:

> Such challenges include coming to an agreement about research priorities and criteria of success, avoiding cooptation when collaborating with power, how to be meaningfully inclusive of multiple and marginalized voices, how to share or even relinquish control over the research process, and how to engage respectfully as well as critically with opposing views both within the research team and outside of it. (Klodawsky, Siltanen and Andrew, 2017a:33)

Siltanen and her colleagues seek collaboration practices that can recognise and address these complex challenges, and I consider two examples of their approach to *practicing complexity*. Firstly, I examine a collaboration with feminist activist networks developing urban policies advancing safer cities for women; secondly, I consider a collaboration with the City of Ottawa, the City for All Women Initiative (CAWI) (an all-women community-based organization), and the Federation of Canadian Municipalities (an advocacy organization) to develop equity and inclusion initiatives within City Hall. Such critical praxis-oriented collaborations seek to learn 'from both scholarly critique and on-the-ground interventions' but also to develop research practices that 'reflect on, and attempt to re-balance, power relations in the production and valuing of knowledge' (Klodawsky et al 2017a: 8).

A plural, praxis-based approach to knowledge production is exemplified in Siltanen and colleagues' research (Siltanen et al., 2015; Klowdawsky et al., 2016) with the *Women in Cities International*

[WICI] and the *Safer Cities for Women Network* [SCWN]): a partnership seeking to develop policy knowledges for safer cities through promotion of Women's Safety Audits. Collaborating with 'a variety of actors who are not typically acknowledged as policy-makers' provides insight into how policy discourses can be 'challenged from below' (Klodawsky et al, 2016:309). Via engagement with this long-standing network of groups working to identify and organise for policies promoting safer cities for women, Siltanen and colleagues examine factors facilitating the development of policy knowledge, in this case via Women's Safety Audits. Such audits ask women to reflect on how their environments might be made safer, as a basis for organizing for policy changes in urban governance.

> WSAs are centrally about the translation and refinement of participatory action research in order to, on the one hand, provide "local" women— "experts of experience" —with tools and strategies for systematically identifying problems they face in the public sphere in their day-to-day lives with the support of "professional experts", and on the other hand, to inform the primarily municipal-scale decision makers who have authority to implement (or not) the diverse array of recommendations generated through these action research activities (Klodawsky et al, 2016:319)

The aim is to trace the decision-chain shaping a particular environment, and to use 'that same chain to challenge the status quo and to work for changes that produce safer cities' (Klodawsky et al, 2016:319). As a critical-praxis collaboration founded in local expertise, the approach locates complexity via a focus on the 'context-specific factors and conditions that structure inequality', since 'complexity and context go hand in hand as cornerstones of a research practice that aims to produce praxis-relevant knowledge' (Klodawsky et al 2017a:9-10). The aim is 'contextually situated' policy knowledge which is 'hopefully, as a result, of more use to people within that context' (ibid:10), But the focus is not just on how to challenge a 'particular set of issues in one locale', but also on how activist networks facilitate *circulating* policy knowledges that can be deployed transnationally (Klodawsky et al, 2016:311-2).

Successful policy mobilization *across* contexts occurs through 'the circulation and engagement of both local and non-local people experts', but this depends on developing the necessary organizational resources to facilitate 'circulating' knowledges (Klodawsky et al, 2016:315). The WICI provides such infrastructure connecting 'experts of experience', 'professional experts' and policy decision-makers transnationally:

> WICI has helped to enhance the ties between geographically dispersed groups with an interest in safer cities for women. As well as consolidating knowledge about what was known about WSAs, it became a leader in developing projects that have taken WSA adaptations to a new level of practice that incorporated a comparative element and broadened the manner in which WSAs intersected with other types of participatory action research. In doing so, WICI together with other SCWN members have also amplified efforts to further mobilize local expertise. (Klodawsky et al, 2016:322)

The organization of critical-praxis collaborations is a crucial question, not least because such collaborations are affected by the very power structures they engage with and seek to challenge. Siltanen and colleagues argue there is a need for better understanding of ‘the day-to-day organizational work required both to cultivate subjects capable of political intervention, and to identify opportunities for progressive intervention’ (Siltanen et al 2015: 262). They stress ‘the importance of pre-existing research, advocacy, and collegial relationships’, and ‘mutual commitment, trust, and respect’ in making such collaborations succeed (Klodawsky et al 2017). They also argue for a prefigurative approach within partnerships, which models the changes such collaborations seek to make by ‘nurturing alternative imaginaries in ways that both challenge status quo practices and work toward institutionalizing alternatives’ (Siltanen et al 2015: 262).

Siltanen and colleagues’ research promoting and evaluating equity and inclusion initiatives in the City of Ottawa demonstrates this prefigurative approach (Siltanen et al, 2015; Klodawsky, Siltanen and Andrew, 2017a, b; Siltanen, Pich, Klowdawsky and Andrew, 2017)). A key partner in this collaboration was the City for All Women Initiative (CAWI), an all-women community organization which began as an action-research effort to promote and assess gender-inclusive governance practices in Ottawa (Siltanen et al, 2017). Siltanen and her colleagues have a long-term involvement with CAWI and argue that the ‘ethos and governance’ of this collaboration made a substantial contribution to the research process and to outputs assessing governance initiatives in Ottawa (Klodawsky et al 2017a:17). CAWI not only advocates for gender equality issues in local governance but also seeks to ‘empower a diversity of women to make their concerns known at City Hall’ (Siltanen et al, 2017:61). These prefigurative aims translate into two main paths of activity: capacity building to provide women from minority and marginalised communities with the knowledge and tools to lobby the City (for example via a 9-month civic participation training program); and the establishment of community-municipal partnerships ‘to promote equality and inclusion throughout City Hall’ (Siltanen et al, 2015:266).

CAWI seeks to work with the local state 'while at the same time challenging and disrupting understandings and practices that marginalize the diversity of women's needs, contributions and concerns' (Siltanen et al, 2015:260). Siltanen and colleagues acknowledge the danger of such collaborations being co-opted or subverted by the power structures with which they engage (Siltanen et al, 2015:262). However, they stress the multi-faceted nature of the local state, as 'a collection of practices and processes that are not all always in concert with one another' (ibid). Such complexity within local governance (between, for example, elements focused on social justice, diversity, 'service excellence' as well as more neo-liberal concerns about cost effectiveness) provides opportunities for intervention, for challenging existing practices, and advocating for progressive alternatives (ibid). Of course, trying to 'work "inside" the local state while maintaining an "outside" critical perspective involves a tricky balancing act' (ibid: 260). In managing this balance, Siltanen and colleagues stress the importance of CAWI enacting 'a strategic use of prefiguration both within the organization and when engaging the local state' (ibid).

> CAWI … consciously tries to keep a visible profile at City Hall and does so by making use of City Hall resources. One reason for doing so is to help its members feel more at home within City Hall premises—to be seen as, and to feel themselves as, insiders who know their way around. Another is to keep the presence of CAWI and its interests visible to city staff and councillors. To maintain a visible presence, CAWI holds Steering Committee meetings in City Hall offices, uses City Hall premises for its Civic Participation Training activities, and books City Hall meeting rooms for its own Women's Action Forum meetings. (Siltanen et al, 2015:269)

These community-municipal partnerships led to the production and implementation of two organizational change initiatives in the City of Ottawa: a Gender Equality Lens, and then later, an Equity and Inclusion Lens (EI Lens), with the latter seeking to bring 'the issues and concerns of 11 marginalized groups to the attention and action of city staff' (Siltanen et al, 2015: 266). In their research assessing the move to the EI initiative, Siltanen and colleagues identify tensions and conflict over the dynamics of organizational change, and different views about the purpose, direction, and success-criteria of the initiative (Siltanen et al, 2017). Crucially, they see the collaborative and plural nature of their research partnership as key to grasping this complexity.

> Bringing in a greater diversity of voices provided opportunities to see points of agreement, difference, and tension in how the EI Lens initiative was viewed and how its significance was assessed. It also helped to underline the value of multi-vocality itself as part of the process of change (Siltanen et al, 2017:73).

The inclusion of multiple points of view helped to 'identify shifting understandings and claims regarding the origin, significance, and purpose of the equity and inclusion initiative' and ensured that 'alternative accounts to the current dominant narrative, particularly those stressing social justice advocacy and the significance of a more genuine community involvement, could be recovered and voiced' (Klodawsky et al 2017a:35-6).

Conclusion

In this review I have examined Janet Siltanen's distinctive approach to 'locating complexity', in her innovative interventions across conceptual, methodological, and policy debates. Janet's unique approach to locating complexity, in work on gendered employment, measurement, and policy knowledge, emerges from the distinctive way she goes about conceptualizing, measuring and practicing complexity, with these three aspects always interlinked. Siltanen 's approach to conceptualizing complexity seeks a more critical and empirically differentiated understanding of explanatory categories. She consistently foregrounds those elements of empirical patterns which are inconvenient for key conceptual categories, as part of a reconstructive endeavor to reshape more inclusive description and explanation. In seeking measurement strategies to address complex inequalities, she insists on a detailed examination of how techniques of measurement position the operation of the theoretical concepts we seek to explore. Her approach to locating complexity seeks an analytical specificity that is always contextually located. This means a consistent emphasis on situating concepts, measures, and policies within practical social contexts. However, taking context into account also means identifying and isolating only those elements of context that shape the operation of the specific processes we want to assess. Siltanen argues it is important not to prejudge the importance of explanatory categories, or which aspects of inequality are operating in any given situation, so that the relevance of key explanatory categories —such as gender—are always a question, not an assumption, of our research.

A recurrent theme in Siltanen's work is the question of how *what* we research is fundamentally affected by *how* we go about our research. Siltanen's focus on *conceptualizing* or *measuring* complexity is always also a focus of how to *practice* complexity, the question of how to most effectively organize the practical social arrangements of knowledge collaboration to advance both research and advocacy. The aim of reworking concepts and measures always takes a practical focus in Siltanen's work: she seeks more critical and inclusive understandings of social arrangements as part of the task of challenging injustice and inequality. The collaborative nature of Siltanen's remarkable body of work is evident throughout this review, and she sees such collaboration as key to advancing researcher reflexivity (Siltanen et al, 2008), which she identifies as a collective, not individual, process. Such collaboration is also important for locating complexity. Siltanen's 'critical-praxis' approach to advancing policy knowledges adopts a broad notion of collaboration in partnerships that include perspectives from academic, everyday practice and political advocacy. The point of seeking more plural and democratic engagements in knowledge-production is to bring different perspectives to bear on social problems in order to rework our understanding of them, and so to develop more inclusive and effective processes of policy intervention. However, Siltanen does not advocate a particular or prescriptive approach to locating complexity: her argument is always that we must adjust our concepts, measures, and research and policy practices to the practical problems we face in concrete situations. Her approach shows a practical and situational focus ,which foregrounds the difficulties we face in our research and collaboration practices in order to reconstruct them in more productive and inclusive ways.

Bibliography

Blackburn, R.M., Jarman, J. and Siltanen, J. (1993). The Analysis of Occupational Gender Segregation Over Time and Place. *Work, Employment and Society*, 7(3):335–362.

Blackburn, R. M., Siltanen, J., & Jarman, J. (1995). The Measurement of Occupational Gender Segregation. *Journal of the Royal Statistical Society. Series A (Statistics in Society)*, 158(2):319–331.

Klodawsky, F., Andrew, C., & Siltanen, J. (2016). 'The City Will be Ours: We Have So Decided' Circulating Knowledges in a Feminist Register. *ACME: An International Journal for Critical Geographies*, 15(2):309–329.

Klodawsky, F., Siltanen, J., and Andrew, C. (2017a) Introduction: Doing Critical Praxis-Oriented Research in F. Klodawsky, J. Siltanen and C. Andrew (eds) *Toward Equity and Inclusion in Canadian Cities:Lessons from Critical Praxis-Oriented Research*. McGill-Queen's University Press

Klodawsky, F., Andrew, C., and Siltanen, J. (2017b) 'Closing Reflections' in F. Klodawsky, J. Siltanen and C. Andrew (eds) *Toward Equity and Inclusion in Canadian Cities: Lessons from Critical Praxis-Oriented Research*. McGill-Queen's University Press

Scott, N & Siltanen, J (2017) Intersectionality and quantitative methods. *International Journal of Social Research Methodology*, 20(4):373-385

McCall, L. (2005) The complexity of intersectionality. *Signs.* 30:1771–1800.

Siltanen, J. (1986) 'Domestic responsibilities and the structuring of employment', in Crompton, R. and Mann, M. (eds.) *Gender and Stratification*, Polity.

Siltanen, J. (1990). Social Change and the Measurement of Occupational Segregation by Sex. *Work, Employment and Society*, 4(1):1–29

Siltanen, J. (1994). *Locating Gender*. UCL Press.

Siltanen, J, Jarman, J, Blackburn, R.M (1995) *Gender inequality in the labour market: Occupational concentration and segregation. A manual on methodology*. Geneva, International Labour Office, 1995

Siltanen, J., Klodawsky, F. and Andrew, C. (2015). 'This is how I want to live my life': An Experiment in Prefigurative Feminist Organizing for a More Equitable and Inclusive City. *Antipode*, 47(1):260–279.

Siltanen, J. C. Pich, F. Klodawsky, C. Andrew (2017) 'The Challenge of Complexity: Reflections on researching an organizational change initiative promoting equity and inclusion in the City of Ottawa' in F. Klodawsky, J. Siltanen and C. Andrew (eds) *Toward Equity and Inclusion in Canadian Cities:Lessons from Critical Praxis-Oriented Research*. McGill-Queen's University Press

Siltanen, J. and Stanworth, M. (1984). The Politics of Private Woman and Public Man. *Theory and Society*, 13(1):91–118.

Siltanen, J., Willis, A. and Scobie, W. (2008). Separately Together: Working Reflexively as a Team. *International journal of social research methodology*, 11(1):45–61.

Winker, G., and Degele, N. (2011). Intersectionality as multi-level analysis: Dealing with social inequality. *European Journal of Women's Studies,* 18:51–66.