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Problematizing the 'family' in welfare and social services data systems

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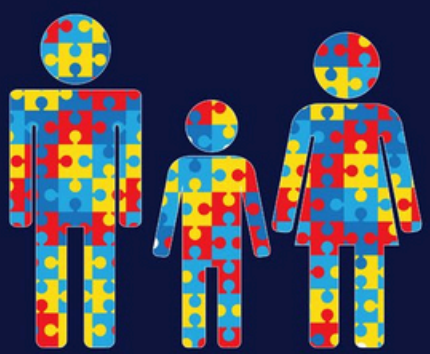

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Executive Summary

Governments have an obligation to provide social security welfare benefits in cash or kind, though the extent and methods through which this is implemented has varied between countries and over time. Modern welfare systems rely on identification systems and government record-keeping to process applications and determine eligibility.

Increasingly, governments are using data systems, algorithms, and AI tools as part of service provisions and collecting and linking much more personal information about individuals. One purpose for this linkage is to detect fraud: though there are numerous examples of inaccurate and harmful automated fraud detection, and storing and linking large amounts of data may not comply with the Fair Information Practice of data minimization.

Linking data about individuals together is also done when welfare benefits are designed to be received by groups of individuals: families, households, or other 'benefits units:' for example, Supplemental Nutrition Assistance Program (SNAP) in the US, or social services assistance through the 'Supporting Families Programme' in the UK. Eligibility for welfare services may be demonstrated through evidence provided by other family members, as in Pakistan's eligibility determination for the Computerized National Identity Card.

How individuals are linked together, however, often relies on assumptions about the relationships between individuals within families and households: which may not reflect people's lived experience. Family relationships may or may not be discernible from outside the family: families may be linked by genetics, legal relationships, or by choices made by individuals. Policy choices that impose a definition of 'family' often rely on cultural assumptions: this is particularly the case for whether 'extended' family members should be included. Family relationships are not necessary stable over time, nor even necessarily reciprocal. Linking individuals together in welfare data sets, however, often 'sorts'

individuals into static, mutually exclusive families, even where this does not reflect the reality of their lives.

Where eligibility for welfare benefits is determined based on a group of people--whether this is families, households, or other groups—then there may be multiple legitimate ways for people to apply as a group. An experienced benefits navigator can help ensure that applicants provide information enabling them to claim all the benefits to which they are entitled, in order to meet their needs. As more and more welfare benefits systems are datafied, automated, and outsourced to AI tools, however, the opacity of the system increases. This makes it harder for claimants—and navigators—to understand if benefits are being allocated correctly.

Recommendations

Policymakers determining welfare benefits policy should:

- Recognize the complexity of families and households, and avoid enacting policies which privilege certain forms of family or living arrangements.
- Ensure that welfare benefits applications and eligibility determination helps people who need it the most.

Data engineers creating and linking datasets about welfare applications and eligibility determination should:

- Consider the impact of their data structures on different forms of families, and on changing family and household relationships.
- Recognize that not everyone fits neatly into mutually exclusive families or households.
- Build data-minimizing systems: only collect the data that is required for a particular application.

Software and AI developers working on automation and application tools for welfare benefits should:

- Recognize that having a lot of data on individuals and families does not necessarily imply having relevant data for training AI models and tools.
- Consider how automation and AI tools could negatively impact transparency, or even be used to minimize eligibility

Introduction

The importance of welfare benefits

The obligation for governments to provide social security welfare benefits in cash or kind—to protect their people from a lack of income, unaffordable healthcare, or insufficient family support for children (or adult dependents)[1]—is internationally recognized.[2] Family support, in particular, should include "food, clothing, housing, water and sanitation."[3]

States interpret these obligations in different ways, which have changed over time. After World War II, a Keynesian model of welfare emerged, particularly in the global north, in which the state took a heavily interventionist role.[4] This was replaced from the 1980s onwards with a neoliberal model which prioritized the market as an allocation mechanism, adopted outsourcing and privatization, and aimed to shift responsibility for meeting human needs from the state to individuals and families.[5] The post-World War II shift towards a social investment approach—seeing social services as investments in people, who retain responsibility for meeting their needs—was reversed in the aftermath of the 2008 global financial crisis, as states returned to neoliberal policies[6] and added austerity measures to the challenges faced by state welfare systems.

Welfare benefits and data systems

Modern welfare systems, which emerged in the twentieth century, rely on identification systems and government record-keeping.[7] As computer technology has become more accessible, these systems have increasingly been digitized. Government administrations are increasingly using data systems, algorithms and AI tools to determine eligibility for welfare benefits.

> India's Aadhaar system, launched in 2009, assigns every Indian a unique 12-digit number linked to demographic and biometric data.[8] The system's coercive nature, and wide and poorly-regulated use of biometrics, have been widely criticized,[9] but the roll out of the system has continued.[10]

The increased digitization and use of computerized systems to administer welfare benefits has meant that government authorities collect and link much more personal information about individuals.[11]This enabled invasive surveillance and stigmatization in the form of what Virginia Eubanks has called the "digital poorhouse."[12] The examples she documented collected and retained large amounts of data for a long time. These included the Allegheny Family Screening Tool in Pennsylvania, which disproportionately targeted Black families for child removal, and Los Angeles's coordinated entry system for homelessness services, which required unhoused people to share extensive and intimate details of their lives: the data was retained even for those who did not receive any housing support.[13]

> Slovenia introduced the e-Sociala program—connecting multiple social service databases and later applying machine learning and AI processes to them, to optimize social workers' work processes—in 2010. E-Sociala can also access financial information for different members of the same family.[14]

At the same time, welfare systems shifted to focus less on meeting the needs of recipients, to maintaining an 'orderly society.'[15] Neoliberal changes to welfare policy shifted towards individual and familial responsibility, rather than the responsibility of the state to take care of its people.[16] While the idea of the 'deserving' and 'undeserving' poor had a long history, under neoliberalism, almost no-one was considered 'deserving' of state support.[17] Social welfare institutions were also framed not as meeting human needs, but as power grabs by bureaucrats that were run in the interests of their employees.[18]

> In the UK, the New Labour government (which came to power in 1997) was committed to 'joined-up working' including coordination between services, which required those services to share information in the form of data.[19] Underpinning this sharing of personal data was a view that rights (including to privacy) were reciprocal: data was seen as a reasonable contribution for individuals to make in exchange for support from the state.[20]

As new digital, data, algorithmic and AI tools have become available, governments have begun to adopt these into their public services, including in screening for child maltreatment and administering homelessness services.[21]

The adoption of these systems have however been criticized for their lack of transparency for the recipients of welfare benefits,[22] as well as for the staff administering benefit distribution.[23] In a report on the 'digital welfare state,' the UN Special Rapporteur on Extreme Poverty and Human Rights expressed concerns about increasing rigidity in benefits eligibility determination as a result of increasing digitization; he argued that countries need to "alter course significantly and rapidly to avoid stumbling, zombie-like, into a digital welfare dystopia…in which unrestricted data-matching is used to expose and punish the slightest irregularities in the record of welfare beneficiaries."[24]

> A 2025 press release from Prime Minister Keir Starmer promised to "mainline AI into the veins" of the UK including through "revolutionizing public services."[25]

Nonetheless, enthusiasm for data-driven welfare benefits systems—and in recent years, AI applications—continues to grow.

Linking and automation for fraud detection

The internationally-recognized right to social security includes the provision that "qualifying conditions for benefits must be reasonable, proportionate and transparent. The withdrawal, reduction or suspension of benefits should be circumscribed, based on grounds that are reasonable, subject to due process, and provided for in national law."[26]

> In 2012, the Danish government established a public agency to centralize the distribution of welfare benefits, together with a Joint Data Unit that linked data from multiple databases in an aim to identify welfare fraud.[27]

Fraudulently claiming (or attempting to claim) benefits is one of the permissible grounds for this to be done.[28] As well as linking individuals into 'families' or 'households,' data linkage and automation is often done by governments with the intent of addressing fraud.

> In 2020, the District of Columbia contracted a private company—Pondera Solutions—to deploy data analysis software to detect Supplemental Nutrition Assistance Program (SNAP) benefits fraud.[29]

A focus on identifying fraud has formed part of a neoliberal shift in the application of welfare policy, which constructs dependents on welfare benefits as 'undeserving,' and favours policies which increase insecurity.[30]

> In 2022, the Arkansas Division of Workforce Services (DWS) lost a case against Legal Aid of Arkansas who had sought public records on the use of automated decision-making to detect fraudulent claims for unemployment benefits. The DWS had claimed that it was exempt from disclosing records under freedom of information obligations, because—in applying algorithmic processing to detect fraud—it was acting as a law enforcement agency.[31]

This focus on fraud has coincided with the increasing use of computerized systems, data, and automated processing to administer welfare benefits,[32] and the more recent turn to machine learning and large language models in social services more broadly.[33]

> In the UK, the Department for Work and Pensions began using an algorithm to identify fraudulent benefits claims in 2021, and the following year deployed four algorithmic models which aimed to prevent fraud in Universal Credit claims in the areas of "people living together, self-employment, capital, and housing."[34]

Data minimization

In many countries, public and private sector enthusiasm for data linkage, algorithms and data analytics, and most recently training AI models, has encouraged the collection of more and more social services data in the belief that it will improve service provision.[35] In some cases, this has led to service efficiency and fraud detection being prioritized over one of the key principles of what has come to be known as Fair Information Practices:[36] the principle of data minimization.

> **Data Minimization Principle**
>
> Personal data should only be produced when needed, used solely for the purpose for which they were generated, be retained only until this task is complete, and should not be made available to others without the consent of the data subject.[37]

Data minimization is fundamental to privacy law[38] and the technical concept of 'privacy by design.'[39] It is a core element of data protection in the EU's General Data Protection Regulation (GDPR), which stipulates that "personal data shall be…adequate, relevant, and limited to what is necessary in relation to the purposes for which they are processed."[40] In the US, data minimisation also forms part of the California Privacy Rights Act (in force from 2023):[41] the Paperwork Reduction Act of 1980 also limits data collection, while the ability of federal agencies to link data was limited by the Privacy Act of 1974 (though this was amended to allow some records matching in 1988).[42] Practicing data minimization also forms part of responsible data best practice, as it limits the potential harms of data breaches.[43]

Despite this, data minimization practices are not always adhered to. The Dutch SyRI benefits fraud risk assessment model was criticized for its failure to adhere to the principle of data minimization by the Dutch Council of State:[44] it was later found to be discriminatory (see above). EPIC's investigation into the automated decision-making systems in the District of Columbia found that few contracts between the DC government and third-party vendors included data minimization requirements.[45] Welfare and social service providers who collect data about groups of people—families, households, or 'benefits units'—should consider whether doing so is really necessary for service delivery.

The limitations and harms of fraud detection

However, the recent history of fraud detection using data linkage and automation is littered with examples of inaccuracies, discrimination and harm to welfare claimants.

> The Swedish government used an automated system to confirm whether unemployment benefits claimants complied with their obligations: this system was turned off in 2018 after a review found that 10-15% of the decisions were wrong.[46]

For welfare claimants, errors can result in material harms, including loss of income.

> In Australia, the Robodebt scheme was a 2015-19 attempt to automate recovery of welfare overpayments by Centrelink (the federal social security agency). Press releases about the scheme conflated overpayments and fraud, contributing to stigma against welfare recipients.[47] It unlawfully raised AUS$1.76 billion against almost half a million people who did not not in fact owe money.[48] In 2019, the system was ruled unlawful.[49]

Automated fraud detection may form part of a broader system which treats inconsistencies as indicative of fraud (regardless of the accuracy of the underlying data) and which place the burden to demonstrate eligibility on the claimant.

> The Michigan Integrated Data Automated System aimed to detect unemployment benefit fraud by checking for inconsistencies between employment, state and federal data: failure to respond to requests for further information automatically triggered penalties. The system had an error rate of 93%.[50] Michigan stopped using the system in 2015 and the Unemployment Insurance Agency apologized in 2017.[51]

Errors in automation may result from bias in the system, disproportionately harming specific groups of people.

> In 2024, an internal assessment of a machine learning tool used in the UK to identify fraud in universal credit claims revealed that it was showing bias based on age, disability, marital status, and nationality.[52]

Data-based systems that detect fraud may not adhere to data minimization principles, and may collect more data than is justified.

> The SyRI risk assessment model used in the Netherlands to calculate the risk of benefits fraud was found in 2020 to discriminate on the grounds of socioeconomic and migrant status, and that the impacts on privacy were not justified by the aims.[53]

Automated fraud detection also needs ongoing monitoring to ensure that it continues to operate as intended.

> Two-thirds of housing benefit claims flagged as 'high risk' for fraud or error by an automated tool used by the Department for Work and Pensions in the UK were in fact legitimate: twice as many as a pilot had found.[54]

In addition, promises that automated fraud detection will save time and improve efficiency do not always prove true.

In 2019 and 2020, several UK councils ceased using Risk-Based Verification algorithms to identify Housing Benefit and Council Tax Benefit fraud, after finding that the algorithmic systems were expensive, inaccurate, and did not save staff time or improve processing time.[55]

Individual, 'family' and 'household' benefits

The forms of welfare benefits vary widely. The state may provide direct cash transfers, or vouchers that can be spent on essentials, or directly provide food or other needs. Who receives benefits also varies. Some benefits are received by individuals, others by groups of people: which might be termed a family, a household, or a 'benefit unit.'

Welfare reforms in the UK since 2012 combined several benefits that were previously paid to individuals[56] into a single payment called 'Universal Credit' – a benefit paid to a household (or 'benefit unit'), defined as a single person or a couple living together, and (if any) dependent children.[57]

How these groups are defined varies widely.

SNAP (Supplemental Nutrition Assistance Program) is a US food benefit provided to 'households:' these are defined as either an individual (living alone) or a group of individuals who purchase and prepare food together. Spouses must be part of the same household, and parents who live with their children aged under 22 must apply as part of the same household.[58]

These groups may also be defined with the intention of promoting a specific model of 'family.'

Temporary Assistance for Needy Families (TANF) in the US is a federal welfare benefits program with the statutory aims not only of supporting care for children, but also reducing parental dependence on state benefits by "promoting job preparation, work and marriage,"[59] reducing "out-of-wedlock pregnancies,"[60] and encouraging "the formation and maintenance of two-parent families."[61]

Linking individuals into families

As well as fraud detection and service efficiency, data is collected and linked in welfare and social services for the purposes of conditionality: "making access to, or eligibility for state support…dependent upon adhering to specified behavioural obligations."[62] Welfare conditionality has underpinned welfare reform across different countries, replacing protection from 'social risks' like unemployment with encouraging 'pro-social' behaviour,[63] and universalistic models—guaranteeing everyone the right to the same levels of welfare provision, regardless of need (or of contributions to social insurance schemes)[64]—with means-testing, even when this is more expensive overall to administer.[65]

Conditionality, especially in the UK and USA, is often influenced by concerns that without behavioural obligations, claimants may become 'dependent' on welfare benefits,[66] and it is often accompanied by increased powers to monitor and investigate behaviour outside of these obligations.[67] Welfare conditionality and neoliberal policies that require applicants to prove that they are deserving of benefits mean that even for individuals, there may be considerable documentation to provide when applying for benefits.

When benefits are paid to a group of people, there is even more complexity: as well as demonstrating that every person is eligible, the benefits application bureaucracy may also require linking these people together in the group.

In Spain in 2021, an individual electronic record replaced the Libro de Familia (family book) which Spanish families had used to record births, marriages, divorces and deaths for more than a century.[68] The book had been required for applying for unemployment benefits[69] as well as for other interactions with the government.

Assumptions about families and households

Systematised and datafied welfare benefits eligibility systems, however, rely on assumptions about the relationships between individuals within families and households which may not reflect the realities of people's lives.

These assumptions are not necessarily new. This model of family—centred around a heterosexual union—has historically, especially in the Global North, been considered 'natural' and therefore accorded a level of privacy from state supervision not accorded to other forms of family.[70] In the UK, the post-war welfare state was premised on stable, two-heterosexual-parent families with a male breadwinner supporting a female carer:[71] benefits focused on the 'family' as a unit. Shifting family roles and increased participation by women in the labour market resulted in a policy-making dilemma: to what extent should members of the same family be treated as individuals?[72]

> In Spain, the Libro de Familia (family book) was introduced in 1915,[73] before divorce was possible under Spanish law.[74] It became a point of contention in divorces when both spouses wanted to retain the book, and was replaced in 2021 by individual electronic records.[75]

Family relationships may or may not be discernible from outside the family: families may be linked by genetics, legal relationships, or by choices made by individuals.[76] Policy choices that impose a definition of 'family' often rely on cultural assumptions: this is particularly the case for whether 'extended' family members should be included.

> After the Taliban takeover of Afghanistan in August 2021, the British government evacuated more than 6,000 Afghans deemed at risk from the Taliban: many were separated from their families in the chaotic days during which evacuations took place. In 2024, the British government opened a family reunification scheme for partners and children of the people who were evacuated to the UK (as well as parents of evacuated children): but the scheme would only consider other family members in 'exceptional circumstances.'[77]

Family relationships are not necessarily stable over time, nor even necessarily reciprocal. Where welfare benefits eligibility and application systems are digitized and entered into databases, however, data structures often encourage individuals to be sorted into mutually exclusive 'families:' even where this does not reflect the reality of their lives.

> In India, the Federal government is developing a family version of the individual Aadhaar digital ID system,[78] and pilot programmes have been rolled out in states including Uttar Pradesh,[79] Telengana,[80] and Gujarat.[81] The Uttar Pradesh scheme, launched in 2023, uses the slogan Ek Parivar Ek Pehchan: 'one family, one identity.' The Telengana pilot, announced in October 2024, aimed to help people access welfare benefits: according to newspaper reports on the launch, it also aimed to ensure that every family was recognized as a single unit and that every individual was part of a single family.[82] The pilot scheme also required that a woman be named head of the family.[83]

Similarly, the composition of a household can change over time. Assuming households—let alone families—are externally discernible and unchanging over time—discriminates against people whose living situations and/or family relationships do not fit neatly into sets of mutually exclusive families or households. Datasets, however, may not be updated regularly enough to reflect changes in people's lives. And where the data and the reality is out of sync, this may trigger automated fraud detection processing.

> In Denmark, UDK's fraud control models identified 'unusual' or 'atypical' relationships or residency patterns as an indicator of fraud.[84]

Where eligibility for welfare benefits is determined based on a group of people--whether this is families, households, or other groups—then there may be multiple legitimate ways for people to apply as a group. An experienced benefits navigator can help ensure that applicants provide information enabling them to claim all the benefits to which they are entitled, in order to meet their needs.

As more and more welfare benefits systems are datafied, automated, and outsourced to AI tools, however, the opacity of the system increases. This makes it harder for claimants—and navigators—to understand if benefits are being allocated correctly. An austerity-minded operator could also exploit this to minimize the benefits that a claimant is allocated.

Case studies

The following sections show how attempts to impose a specific datafied definition of 'family' fail to recognize the realities of family and interpersonal relationships, and may harm those who are most at need of state support.

The UK: Supporting Families[85]

The Supporting Families Programme in the UK aims to provide targeted social service support to families through a dedicated keyworker. This programming was based on the idea that social service costs were disproportionately being spent on a small number of 'troubled'[86] families, who needed to be identified and their problems addressed so that they would be less of a burden on the rest of the community.[87] The Supporting Families Programme is also explicitly a driver of 'data maturity' in local authorities (who are responsible for administering the Programme)[88] and use of data-sharing powers under the Digital Economy Act 2017.[89]

However, the UK does not have a legal definition of who constitutes a 'family,' nor a household registry system, and so the data that is used to assess which families are eligible for the Programme in fact deals with individuals.[90] The choice of data to include and 'risk factors' to classify a family as eligible for support promotes a narrow definition of 'family,' in which families with two heterosexual parents in a stable cohabiting relationship, where the male partner works while the female partner carries out childcare, are less likely to be labelled 'troubled.'[91]

More concerningly, the Programme relies on the identification of 'headline problems' to identify families in need of support: problems under two such 'headlines' must be identified.[92] One such problem is domestic abuse in the family. Another is 'claiming Universal Credit' - a means-tested social security benefit, which is claimed by a single person or by a couple: payments made to couples are deposited into one bank account,[93] which has been criticized for risking enabling or exacerbating financial abuse,[94] a component of abuse experienced by most domestic abuse survivors.[95]

A family in which a couple is claiming Universal Credit, and in which one member of the couple is financially abusing the other, is eligible for inclusion in the Supporting Families Programme. A successful outcome for that couple—and an end to support—however, could include "an adult in the family has moved into continuous employment:"[96] even if the abuse has not been addressed.[97]

Pakistan: CNIC identity cards

Pakistan's modern identity card—termed the Computerized National Identity Card (CNIC)—is required in order to receive support from government programs, as well as to participate in elections, open a bank account, apply for a passport, or purchase a SIM card.[98] Pakistan's first identity registration system used kinship to verify an applicant's citizenship, including providing a list of household members and requiring family members to accompany a person applying for an identity card, a legacy that influences the operation of the current National Database and Registration Authority,[99] which issues CNICs. This linkage between family members poses problems for families where different members have different nationalities, as familial ties to a different country—particularly Afghanistan, due to concerns about Afghans acquiring Pakistani identity cards—can throw an individual's citizenship into question.[100]

This linkage presents problems for those without family support to apply for a CNIC: in a 2013 survey, 17% of women reported that a lack of support from their husband and/or relatives was a reason they had not applied for a CNIC (the equivalent figure for men was 2%).[101]

Until a high court ruling in 2021, applicants for digital ID cards had to present their father's ID card: meaning that individuals who were raised by single mothers, or others who did not have contact with their fathers, were unable to access a card.[102]

The USA: SNAP

The Supplemental Nutrition Assistance Program (SNAP) is the USA's largest food and nutrition benefits program.[103] The first country-wide food stamp program was authorized by the Food Stamp Act of 1964.[104] Food stamp benefits were intended for 'households,' defined by the Act as "a group of related or non-related individuals, who are not residents of an institution or boarding house, but are living as one economic unit sharing common cooking facilities and for whom food is customarily purchased in common."[105] Single individuals who purchased and cooked food at home were also considered a 'household.'[106]

In subsequent years this definition was amended by successive Acts: explicitly adding adopted and foster children, including elderly 'meals on wheels' recipients as 'households' and later participants in drug or alcohol addiction rehabilitation programs.[107] In 1993, the Mickey Leland Childhood Hunger Relief Act clarified that children over 21 living with their parents could be considered separate households if they bought and prepared food separately—as could adult siblings who lived together—but children under 21 could not unless they themselves lived with their own spouses and/or children.[108]

The current definition of 'household' is: "(1) An individual living alone; (2) An individual living with others, but customarily purchasing food and preparing meals for home consumption separate and apart from others; or (3) A group of individuals who live together and customarily purchase food and prepare meals together for home consumption."[109]

Benefits are granted for an initial period, and applicants are required to recertify at regular intervals.[110] Changes in household composition are not mandatory to report between recertification, but if SNAP is deemed to have been overpaid, then the overpayments will be reclaimed. If the overpayment was due to intentional misrepresentation by the application, it is referred for fraud prosecution. As enthusiasm for automation in welfare benefits grows, the risk of different family arrangements triggering a fraud investigation increases.

> Defining who counts as a 'household' is known to be challenging for some applicants.[111] At present, SNAP requires an interview, which gives an applicant the opportunity to discuss their situation with a caseworker. The more complex a household, the more documentary evidence is required to demonstrate income and other requirements.[112]

Recommendations

Policymakers determining welfare benefits policy should:

- Recognize the complexity of families and households, and avoid enacting policies which privilege certain forms of family or living arrangements.
- Ensure that welfare benefits applications and eligibility determination helps people who need it the most.

Data engineers creating and linking datasets about welfare applications and eligibility determination should:

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- Recognize that having a lot of data on individuals and families does not necessarily imply having *relevant* data for training AI models and tools.
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About the author

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