

From Single Worker to Family Provider: Wage Adequacy Across Family Transitions in Morocco An Extended Synthetic Microsimulation with Regional, Employment-Status, Behavioural and Fiscal Sensitivity Analysis

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Abstract

Debates about wage adequacy usually focus on the earnings of an individual worker, even though the standard of living supported by those earnings changes when the worker marries and has children. This article examines that mismatch in Morocco through documentary analysis and a transparent synthetic microsimulation. The baseline follows a salaried worker with a monthly take-home wage of MAD 5,000 across five family states: single, married to a non-earning spouse, and married with one, two and three children. Household resources, including family allowances and the maximum usable tax reduction for dependants, are compared with a restrained adequate-living basket. The analysis then tests regional cost bands, loss of effective social-protection coverage, coping responses, inflation indexation, fiscal cost, threshold-based cost-effectiveness, financing incidence and an extension to families with four to six children. In the reference urban-renter case, the Family Wage Adequacy Ratio falls from 1.14 for the single worker to 0.85 after marriage and 0.63 with three children. Under the same assumptions, it declines to 0.48 with six children because the allowance falls from MAD 300 for each of the first three children to MAD 100 for each of the next three, while estimated needs continue to rise. The three-child ratio ranges from 0.70 in the lower-cost band to 0.54 in the high-cost band and falls to 0.52 when family-linked protection is removed at equal earnings. Food-linked indexation protects benefits better than headline indexation but cannot close a structural adequacy gap. Fiscal simulations also show why gross programme cost, net household gain and the number of families crossing the adequacy threshold must be reported separately. The findings support a coordinated package of wages, refundable tax support, family benefits, housing, childcare, transport and public services, while treating an individualised gap supplement as a benchmark or pilot rather than an immediately scalable entitlement.

1. Introduction

A wage is paid to an individual, but it is rarely consumed by an individual alone throughout the life course. A worker may enter employment as a single adult, marry without receiving any contractual increase in pay, and later become responsible for one or more children. The wage may remain unchanged, or rise only through seniority and general adjustments, while the needs supported by that wage change abruptly. This institutional asymmetry is especially important in economies where a single earner remains common, formal family benefits are modest, housing absorbs a large share of household resources, and access to education, health care and transport requires substantial out-of-pocket spending.

The central question of this article is therefore straightforward: does the income package available to a salaried worker evolve at the same pace as the worker's family responsibilities? The question differs from the conventional inquiry into whether a wage is high or low in absolute terms. A monthly wage of MAD 5,000 may permit a single worker to cover rent, food, transport and basic utilities with a small residual margin. The same wage may become inadequate when it supports a non-earning spouse, and markedly insufficient after the birth of children. A nominally stable wage can thus produce a declining standard of living even when employment is continuous and the worker has not suffered a wage cut.

This issue is visible in Morocco's current institutional design. The tax system recognises family responsibilities through an annual reduction for dependants, while the social-security system provides family allowances for eligible children. Yet the instruments do not create a coherent family wage. Marriage itself does not generate a social transfer. The tax reduction is small relative to household costs and is not equivalent to a refundable cash benefit for workers whose tax liability is low. Child allowances add a fixed amount for eligible children, but the allowance does not automatically vary with housing costs, regional prices, the age of a child, schooling needs or the number of adults who earn income. The worker's resources therefore respond only partially to the transition from individual worker to family provider.

Official household evidence reinforces the policy relevance of the problem. The 2022–2023 National Household Living Standards Survey reports average monthly household income of MAD 7,431, compared with a median of MAD 4,400, and finds that 71.8 per cent of households earn less than the national average. Average household expenditure is equivalent to about 93.9 per cent of average income, leaving limited room for saving or unexpected costs. Food accounts for 38.2 per cent of expenditure and housing and energy for a further 25.4 per cent. These figures show why a salary cannot be interpreted without considering family size and housing status (Haut-Commissariat au Plan [HCP], 2025a).

The article contributes to the literature in three related ways. Conceptually, it treats wage adequacy as a changing relationship between earnings and family responsibilities and introduces the Family Wage Adequacy Ratio (FWAR), the Family Transition Penalty (FTP) and a member-sensitive adequacy condition. Empirically, it combines Moroccan tax, social-security and household-expenditure rules in a reproducible synthetic model with regional, protection-status and behavioural sensitivity tests. From a policy perspective, it links benefit indexation and reform scenarios to fiscal envelopes, threshold crossings, financing incidence and administrative feasibility, and extends the analysis to children four through six.

The analysis remains a synthetic microsimulation rather than a nationally representative estimate. Its budgets are normative and transparent, not official poverty lines. Regional bands are calibrated to official spatial expenditure differences but do not claim to reproduce city-level rent indices. The behavioural scenarios are accounting experiments rather than estimated causal responses, and the fiscal envelopes are gross arithmetic costs before take-up, administrative expenditure, financing incidence and behavioural feedback. The financing-incidence rates are stress-test parameters rather than estimates of who ultimately bears a payroll charge, tax increase or expenditure reallocation. The indexation rates are stress-test assumptions rather than forecasts, and the threshold-crossing counts are mechanical upper bounds under perfect targeting rather than expected beneficiary outcomes. The extension to four through six children continues the same normative marginal-cost assumption solely to expose the declining generosity of the statutory schedule. These boundaries are deliberate: they allow every assumption to be inspected and provide a framework that can later be populated with household microdata, administrative beneficiary counts, local prices and interviews.

The remainder of the article proceeds as follows. Section 2 develops a family and member-sensitive conception of adequacy. Section 3 presents the Moroccan tax, social-protection, expenditure, spatial and employment context. Section 4 explains the household states, cost bands, formal-protection branch, behavioural simulations and fiscal-cost method. Section 5 reports baseline and sensitivity results. Section 6 compares policy packages and their budgetary scale. Section 7 discusses labour, gender and policy implications, and Section 8 concludes.

2. Conceptual framework: from individual wage to family and member adequacy

The idea of an adequate or living wage begins with the proposition that remuneration should allow workers and their families to attain a decent standard of living. It therefore differs from a purely market-based account in which wages are assessed only through productivity, bargaining conditions and labour demand. Both the ILO's adopted conclusions on living wages and its needs-based methodology place the needs of workers and their families at the centre of wage assessment, alongside national circumstances and economic factors (International Labour Organization [ILO], 2024, 2025). This approach is also consistent with living-wage measurement based on a modest but decent household basket rather than subsistence alone (Anker & Anker, 2017).

Three distinctions are important. The first is between an individual wage and household resources. A worker's salary may be supplemented by the earnings of a spouse, child benefits, transfers, in-kind support, remittances or housing provided by relatives. Conversely, the salary may support dependants who do not earn income. An individual wage can only be interpreted after identifying who shares it and what other resources enter the household. A two-earner couple and a one-earner couple with the same family size face different risks even if the principal worker earns the same wage.

The second distinction is between nominal income and command over an adequate basket. Nominal salary changes are not sufficient when rents, food prices, transport costs or school expenses move differently. Adequacy requires a cost standard. That standard should cover not only biological survival but also secure housing, basic utilities, health, education, mobility, communication, minimal social participation and some capacity to absorb ordinary contingencies. A household that can buy food only by postponing medical care or accumulating rent arrears cannot reasonably be classified as enjoying a decent standard of living.

The third distinction is between poverty measurement and adequacy measurement. Poverty lines identify severe deprivation according to an absolute or relative threshold. A family-wage standard asks a different question: what income package enables a working household to meet ordinary needs without recurrent debt, informal transfers or the sacrifice of essential items? The threshold may therefore lie above a strict poverty line and should be interpreted as a practical command over basic capabilities rather than income alone (Sen, 1999). Household-survey evidence remains essential, but income and expenditure must be read with care because the unit of observation, reporting period and valuation of in-

kind resources affect welfare comparisons (Deaton, 2018). Housing tenure and location are especially important: a worker living rent-free in an inherited family home may be materially better off than a renter with a higher salary.

Household comparison requires an adjustment for economies of scale. The modified OECD equivalence scale assigns a weight of 1.0 to the first adult, 0.5 to each additional adult and 0.3 to each child (Atkinson et al., 1995). This reflects the fact that a couple does not need twice the housing, electricity or durable goods of a single person. The choice of scale can nevertheless change measured poverty and mobility, particularly when household composition differs (Abanokova et al., 2020). An equivalence scale alone is therefore insufficient here: housing may rise discontinuously when another bedroom is needed, while childcare and schooling do not necessarily follow constant weights. The simulation uses equivalence-adjusted income as a diagnostic measure but builds the adequate basket by expenditure category.

The life-course perspective adds another dimension. Marriage, childbirth, school entry, adolescence, unemployment of a spouse and care for an older relative are transitions rather than static characteristics. They may occur faster than wages adjust. An employee does not renegotiate salary automatically after marriage, and most employers do not pay a higher wage because the worker has a child. Public policy is expected to mediate part of the difference through taxes and transfers. When recognition is weak, a family transition acts like a negative real-income shock despite unchanged employment.

A fourth distinction concerns the unitary-household assumption. A household-level budget can be sufficient in aggregate while access to money, food, medical care, mobility or personal expenditure remains unequal among its members. Collective household models show that preferences, bargaining power and the identity of the transfer recipient influence allocation (Chiappori, 1992; Browning et al., 1994). Evidence from child-benefit reforms also indicates that shifting income toward one spouse can alter expenditure patterns, which contradicts the assumption that all household income is perfectly pooled (Lundberg et al., 1997). Consequently, an aggregate family-wage ratio is necessary but not sufficient for evaluating welfare.

The gender issue is not reducible to whether a wife is formally listed as a dependant. In a one-earner household, unpaid care may enable the wage earner to remain continuously employed, while the caregiver bears time poverty and weaker independent entitlement. In a dual-earner household, the second wage may require childcare, commuting, meals outside the home and additional work clothing. A policy that mechanically treats the entire second wage as additional welfare exaggerates its effect. The relevant quantity is the net contribution after employment-enabling costs and after identifying who controls the resulting income.

This article formalises the mechanism through two indicators. Let R_h denote the monthly resources available to household type h after the worker's take-home wage, family allowances and effective tax

relief. Let B_h denote the monthly adequate-living budget for that household. The Family Wage Adequacy Ratio is defined as:

$$FWAR_h = R_h / B_h$$

A value of 1 means that resources equal the adequate basket. Values below 1 indicate an adequacy deficit, while values above 1 indicate a residual margin. The ratio is not interpreted as a utility index; it is a budget sufficiency measure. To measure deterioration across the family life course, the Family Transition Penalty is defined relative to the single-worker state s :

$$FTP_h = 1 - (FWAR_h / FWAR_s)$$

The penalty expresses the percentage loss of adequacy caused by the transition, after accounting for the benefits and tax recognition available in the new household state. A positive value means that the worker's economic adequacy has declined relative to being single. These indicators make it possible to separate three questions: whether the wage is adequate for an individual, whether family policy offsets the additional needs of dependants, and how much base wage would be required to restore adequacy under current policy.

To generalise the model, let g identify the geographic cost band and r the worker's protection status. The extended ratio is therefore:

$$FWAR_{hgr} = R_{hr} / B_{hg}$$

The model also proposes an Intra-household Adequacy Condition for future field application. For each member m , let A_{hm} denote resources or consumption effectively accessible to that person and N_{hm} the member-specific minimum need. IAC_h is the minimum of A_{hm}/N_{hm} across household members. A household is fully adequate only when aggregate FWAR is at least one and IAC is also at least one. The current synthetic data cannot estimate IAC; instead, the paper specifies how interviews and expenditure diaries should measure control, sacrifice and unequal access rather than treating pooled income as an observed fact.

$$IAC_h = \min_m (A_{hm} / N_{hm})$$

3. Moroccan institutional and household context

The documentary component examines how Moroccan institutions recognise family responsibilities in taxation, social security and the measurement of living standards. It draws on the 2026 General Tax Code, current CNSS guidance on family allowances, and the HCP's household-living-standard, informal-sector and labour-market publications (Caisse Nationale de Sécurité Sociale [CNSS], n.d.-a, n.d.-b; Direction Générale des Impôts [DGI], 2026; HCP, 2025a, 2025b, 2026). ILO guidance informs the needs-based wage framework, while OECD sources support the use of household equivalence and distribution-

sensitive analysis (ILO, 2024, 2025; Organisation for Economic Co-operation and Development [OECD], 2024, 2025).

The tax code recognises dependants through a reduction in annual personal income tax. Article 74 of the 2026 General Tax Code provides MAD 600 per dependant, subject to an annual ceiling of MAD 3,600, and includes the taxpayer's spouse and eligible children or legally fostered children (DGI, 2026). In monthly terms, the maximum statutory recognition is MAD 50 per dependant. Because this is a reduction from tax due rather than an unconditional transfer, its effective value is limited by positive tax liability. A worker whose calculated tax is zero or very small cannot necessarily convert the full statutory amount into cash. The instrument is therefore least effective for some lower-paid one-earner families, precisely where an additional dirham is likely to have high welfare value.

For eligible private-sector workers registered with the CNSS, family allowances provide a more visible cash response to childbirth. The monthly amount is MAD 300 for each of the first three children and MAD 100 for each of the next three, subject to eligibility conditions such as contribution history and a minimum declared wage (CNSS, n.d.-a, n.d.-b). Marriage without children does not trigger a comparable recurring allowance. A worker may therefore move from supporting one adult to supporting two while receiving no cash addition. After a first birth, household resources rise by MAD 300, but needs also rise through food, health, clothing, utilities, childcare or education, transport and, in some cases, a larger dwelling.

The legal design should not be read through a single male-breadwinner model. Article 74 recognises a spouse and eligible children as possible dependants, but the practical value of the reduction depends on who has taxable income and how much tax is due (DGI, 2026). CNSS rules prevent duplicate payment for the same child and recognise several custodial situations, including divorced parents and single mothers (CNSS, n.d.-b). The distributive question is therefore not only who qualifies, but also which adult receives, controls and converts the benefit into child-related expenditure. Recipient design and payment architecture are thus matters of gender equity, not merely administrative detail.

Household survey evidence shows why family-sensitive analysis matters. The HCP's 2022–2023 survey reports average annual household expenditure of MAD 83,713 nationally, with a marked urban-rural contrast: MAD 95,386 in urban areas and MAD 56,769 in rural areas. Average per-person expenditure is likewise much higher in urban than rural Morocco. Food represents 38.2 per cent of total expenditure and housing and energy 25.4 per cent. These averages pool owners, renters and households of different sizes, but they establish that food, housing and energy absorb most resources before discretionary spending begins (HCP, 2025a).

Spatial variation is substantial. The HCP reports wide regional differences in annual per-person living standards, with higher values in Dakhla-Oued Ed-Dahab, Casablanca-Settat and Rabat-Salé-Kénitra and lower values in several interior regions (HCP, 2025a). These data do not constitute a city-level rent index, but they show why a single national renter basket cannot be the only scenario. The model therefore uses

three transparent cost bands instead of assigning an allegedly precise rent to Casablanca, Marrakech, Fez or a rural commune without a harmonised local price database.

Employment informality also requires conceptual precision. The HCP's 2023–2024 survey defines the informal production sector as non-agricultural units without complete formal accounting and estimates that it accounts for 33.1 per cent of non-agricultural employment, or roughly 2.53 million jobs (HCP, 2025b). A broader employment-based definition - absence of affiliation to health or retirement protection - covers more than three quarters of total employment in the HCP's 2026 analysis (HCP, 2026). The first concept concerns production units; the second concerns the worker's protection status. The paper therefore avoids saying simply that 70 per cent of workers are in the informal sector and instead simulates an equal-earnings worker without effective CNSS and tax-family support.

The gender dimension reinforces the same concern. The HCP documents very low female labour-force participation relative to men and links informal careers and care-related interruptions to cumulative gaps in social rights (HCP, 2026). A second-earner scenario cannot therefore be treated as a costless household adjustment. It must deduct childcare, transport and other work-enabling expenses, while qualitative research should ask whether paid employment increases a woman's control over resources or simply finances the costs required to remain employed.

Table 1 summarises the institutional and analytical parameters used in the simulation.

Table 1
Institutional and analytical parameters used in the simulation framework

Instrument or dimension	2026/reference parameter	Treatment in simulation
Baseline take-home wage	MAD 5,000 per month under single status	Held constant across family transitions
Marriage allowance	No general recurring CNSS marriage allowance	MAD 0
Tax reduction for dependants	MAD 600 annually per dependant; ceiling MAD 3,600	Maximum MAD 50 monthly per recognised dependant; effective amount may be lower
Family allowance	MAD 300 monthly for each of first 3 children; MAD 100 for each of next 3	MAD 300 per child for children 1–3 in formal eligible branch
Protection status	Formal eligibility versus no effective family-linked benefits	Separate resource branches at equal wage
Geographic costs	Lower-cost, reference urban, high-cost metropolitan	Housing and non-housing multipliers
Household equivalence	Modified OECD scale	1.0 first adult; 0.5 second adult; 0.3 each child
Adequacy threshold	Resources equal normative essential budget	FWAR = 1.00
Fiscal scaling	Annual unit cost multiplied by beneficiary units	100,000; 500,000; 1,000,000 units
Note. Statutory tax recognition is shown as a maximum because a non-refundable reduction cannot exceed tax actually due. The no-protection branch isolates institutional coverage at equal earnings; it does not estimate the separate earnings penalty commonly associated with informal work.		

4. Methodology

4.1 Research design and household states

The research design combines qualitative institutional analysis with synthetic quantitative microsimulation. The documentary component identifies which family events trigger support, who qualifies as a dependant, whether support is paid as cash or delivered through tax relief, and whether access depends on formal declaration. The quantitative component translates those rules into monthly household resources and compares them with a transparent adequate-living budget. No causal effect is estimated; the model is an accounting framework designed to expose the scale and location of the gap.

The unit of analysis is a continuously employed worker whose take-home wage under single status is MAD 5,000 per month. Five household states are followed: H1, single worker; H2, married to a non-earning spouse; H3, couple with one child; H4, couple with two children; and H5, couple with three

children. The sequence is a synthetic life-course trajectory, not a panel of observed individuals. Two baseline resource measures are retained: a conservative cash-only amount and a maximum statutory amount that assumes the full monthly value of family-related tax reductions can be used.

4.2 Reference adequate-living basket

The reference basket covers housing, food, utilities, essential transport, health and hygiene, communication, education, minimal social participation and a small contingency amount. It is intentionally restrained: it excludes private luxury consumption, major durable replacement, international travel and substantial saving. At the same time, it does not equate decency with biological survival. A household that recurrently borrows for rent, postpones necessary treatment or removes children from ordinary educational participation is treated as inadequate even if caloric needs are met.

The basket is calibrated qualitatively against the HCP expenditure structure while making rent explicit for the reference tenant household (HCP, 2025a). Its structure follows the needs-based logic used in living-wage measurement: food and housing are costed directly, while other necessary goods and services are added without equating decency with luxury consumption (Anker & Anker, 2017; ILO, 2025). Costs rise with family size but not in direct proportion because housing, utilities and durable goods contain economies of scale. The model does not derive child costs by simply multiplying an equivalence weight; it allows food, education, transport and space needs to rise separately. Table 2 displays every amount so that future researchers can replace the assumptions with local price collection or microdata-based estimates.

Table 2
Reference adequate-living basket by family state (monthly MAD)

Household state	Housing	Food	Utilities	Transport	Health & hygiene	Communication, education, participation & contingency	Total
H1 Single worker	1,600	1,250	300	450	300	500	4,400
H2 Couple, one earner	1,900	1,950	400	600	450	650	5,950
H3 Couple + 1 child	2,100	2,400	500	700	550	950	7,200
H4 Couple + 2 children	2,300	2,850	600	800	650	1,250	8,450
H5 Couple + 3 children	2,500	3,300	700	900	750	1,550	9,700
Note. This is a reproducible normative scenario for a renter, not an official poverty line or a claim about average expenditure. The final category includes school-related spending, telephone/data, minimal participation and a modest contingency reserve.							

4.3 Geographic cost bands

To address spatial heterogeneity without inventing unsupported city-specific prices, the model applies two sets of multipliers around the reference basket. The lower-cost/peri-urban band multiplies housing by 0.75 and all non-housing categories by 0.95. The high-cost metropolitan band multiplies housing by 1.45 and non-housing categories by 1.08. These are sensitivity parameters informed by the direction and broad magnitude of HCP urban-rural and regional disparities, not statistical estimates (HCP, 2025a). Table 3 sets out the three cost bands and their interpretation.

Table 3
Geographic cost-band assumptions

Band	Housing multiplier	Non-housing multiplier	Interpretation
Lower-cost/peri-urban	0.75	0.95	Lower rent and slightly lower everyday prices; not necessarily rural
Reference urban renter	1.00	1.00	Baseline transparent basket
High-cost metropolitan	1.45	1.08	Higher housing pressure and moderately higher non-housing costs
Note. The multipliers define ranges for sensitivity analysis. A future empirical version should estimate local rent distributions, utility charges and food-price indices by region and tenure.			

4.4 Protection-status and behavioural branches

The protection-status test compares the formal maximum-statutory branch with an equal-earnings unprotected branch. In the latter, the worker still earns MAD 5,000 but receives no CNSS family allowance and no effective dependant tax reduction. Holding earnings constant isolates the institutional protection dividend. It is deliberately conservative because unprotected workers may also experience lower, irregular or seasonal earnings; incorporating those differences would reduce adequacy further but requires microdata.

Behavioural accounting is conducted for H5, the one-earner couple with three children. Five responses are examined: a MAD 700 monthly transfer from relatives; spousal employment yielding MAD 3,000 but requiring MAD 1,200 for childcare, transport and work-related consumption, for a net addition of MAD 1,800; shared housing or co-residence that reduces the basket by MAD 1,000; borrowing of MAD 1,500 per month; and a combined spousal-employment-plus-shared-housing response. Borrowing is reported as liquidity coverage but does not alter structural FWAR because debt finances the gap rather than removing it.

4.5 Indexation, fiscal cost and threshold effectiveness

The indexation module distinguishes protection against general price movements from protection against the prices most relevant to families. The finding that food represents 38.2 per cent of household

expenditure motivates a food-linked rule, while the H5 basket itself assigns MAD 3,300 of MAD 9,700 to food (HCP, 2025a). The one-year stress test assumes food prices rise by 5 per cent and all other components by 2 per cent. These are analytical assumptions, not observed or forecast inflation rates. The model compares no indexation, child-allowance indexation at the assumed 2 per cent headline rate, child-allowance indexation at the 5 per cent food rate, and indexation of all family-related additions at the food rate.

For fiscal scaling, annual gross cost equals the incremental monthly household entitlement multiplied by twelve and by the number of eligible households. Table 10 reports packages for 100,000, 500,000 and one million modelled H5 households so that the beneficiary unit remains consistent across reforms. A forecast of actual expenditure would additionally require administrative beneficiary counts, take-up, overlap with direct social assistance, tax-liability distributions, error and fraud, financing sources and administrative costs. Cost-effectiveness is evaluated against the H5 annual adequacy gap of MAD 43,200. The model reports both the number of identical H5 households crossing $FWAR = 1$ under a broad partial reform and the mechanical maximum that could be fully lifted using the same envelope under perfect targeting. The latter is an upper bound, not a forecast, because it assumes zero administration, full take-up, exact measurement and no exclusion error.

This distinction is central to policy design. A broad entitlement may provide horizontal solidarity and avoid sharp eligibility cut-offs even when no recipient crosses the adequacy threshold. A fully targeted top-up maximises measured threshold crossings for a fixed budget but may generate verification costs, non-take-up, stigma, exclusion errors and high marginal withdrawal rates. The two metrics should therefore be reported together rather than treating the number crossing $FWAR = 1$ as the sole criterion.

4.6 Financing incidence and administrative feasibility

Gross programme cost is not identical to net redistributive gain. Let G denote the monthly gross transfer assigned to a household and let r denote the share ultimately recaptured from that household through higher employee contributions, higher direct or indirect taxes, lower wage growth, reduced complementary benefits or other financing adjustments. The short-run net gain is therefore $G_{net} = G(1 - r)$. General-revenue financing may spread the burden beyond recipients, an employee contribution reduces take-home pay directly, an employer payroll charge may be shifted partly into wages, prices or formal hiring, and expenditure reallocation creates identifiable losers elsewhere in the budget. Because the current paper does not estimate these general-equilibrium channels, it reports a transparent recapture sensitivity rather than claiming a unique incidence result.

Administrative feasibility is assessed separately from accounting effectiveness. An indexed increase in existing child allowances requires relatively limited new information for workers already recorded by the social-security system. A refundable family credit requires verified annual household income, dependant status and a payment channel, but can still operate through broad income bands. An individualised gap supplement is substantially more demanding: it requires timely information on earnings, assets, family composition, housing costs, other transfers and changes in informal income, followed by frequent

reassessment and reconciliation. The gap supplement is therefore treated as a benchmark for measuring unmet need and as a possible pilot design, not as an immediately deployable nationwide entitlement.

5. Results

5.1 Baseline family-transition penalty

The simulation produces a clear result: family-related additions to resources are much smaller than the increase in the adequate budget. Under the conservative cash scenario, the single worker receives MAD 5,000 and has an adequate budget of MAD 4,400, yielding an FWAR of 1.14. Marriage to a non-earning spouse leaves cash resources unchanged at MAD 5,000 while the budget rises to MAD 5,950. The FWAR falls to 0.84. The worker moves from a modest positive margin of MAD 600 to a monthly adequacy deficit of MAD 950 without losing employment or experiencing a wage reduction.

The first child generates a MAD 300 allowance, increasing cash resources to MAD 5,300. Yet the adequate budget rises to MAD 7,200. The deficit therefore widens to MAD 1,900 and the adequacy ratio falls to 0.74. With two children, resources reach MAD 5,600 while the budget rises to MAD 8,450, producing a deficit of MAD 2,850 and an FWAR of 0.66. With three children, resources are MAD 5,900 and the budget is MAD 9,700. The household covers only about 61 per cent of the reference basket.

The statutory-maximum scenario is slightly more favourable because it assumes full use of the MAD 50 monthly tax reduction for each dependant. Marriage then raises resources to MAD 5,050, one child to MAD 5,400, two children to MAD 5,750 and three children to MAD 6,100. The effect is nevertheless small. The FWAR is 0.85 after marriage and 0.63 with three children. Full use of the tax reduction improves the three-child household's ratio by only about two percentage points relative to the cash-only scenario.

The equivalent-income calculation reaches the same conclusion from another perspective. The modified OECD weight rises from 1.0 for the single worker to 1.5 for the couple and 2.4 for the couple with three children. Under the maximum statutory scenario, equivalent monthly income falls from MAD 5,000 for the single worker to MAD 3,367 for the couple, MAD 3,000 with one child, MAD 2,738 with two children and MAD 2,542 with three children. Family allowances slow the decline but do not reverse it.

The Family Transition Penalty makes the deterioration visible relative to the initial state. Using the maximum statutory scenario, marriage reduces adequacy by about 25 per cent relative to the single worker. The penalty rises to 34 per cent with one child, 40 per cent with two children and 45 per cent with three children. The worker's family responsibilities therefore act as a cumulative negative real-income shock.

Table 4 reports the baseline in detail. The result should not be read as an argument that employers should vary contractual wages according to private family choices. It shows instead that the combined system of wages, taxes and transfers does not preserve a stable minimum-living position across

predictable family transitions. The distributional question is whether the resulting risk should be borne entirely by households or shared through wage policy, social insurance, refundable credits, public services and housing policy.

Table 4
Baseline family-transition results

Family state	Adequate budget	Cash-only resources	Maximum statutory resources	Gap under maximum resources	FWAR	Equivalent income	Transition penalty
H1 Single	4,400	5,000	5,000	+ 600	1.14	5,000	0.0%
H2 Married	5,950	5,000	5,050	-900	0.85	3,367	25.3%
H3 + 1 child	7,200	5,300	5,400	-1,800	0.75	3,000	34.0%
H4 + 2 children	8,450	5,600	5,750	-2,700	0.68	2,738	40.1%
H5 + 3 children	9,700	5,900	6,100	-3,600	0.63	2,542	44.7%
Note. Maximum statutory resources assume full use of tax recognition for each eligible dependant. Equivalent income uses modified OECD weights of 1.0, 1.5, 1.8, 2.1 and 2.4.							

Table 5 reports the base wage required to reach adequacy under current family provisions. For the single worker, the adequate budget is MAD 4,400, below the assumed MAD 5,000 wage. For the one-earner couple, the required base wage after the maximum spouse-related tax reduction is approximately MAD 5,900. With one child, it rises to MAD 6,800 after subtracting the MAD 300 allowance and MAD 100 in monthly tax reductions for the spouse and child. It reaches MAD 7,700 with two children and MAD 8,600 with three.

This required-wage schedule is not a recommendation that employers should ask workers about family status and individually discriminate wages. It is a diagnostic schedule showing what total monthly labour-and-family income is needed to finance the reference basket. The gap can be closed through several combinations: higher general wages, a second earner, larger cash benefits, refundable tax credits, lower housing costs, subsidised childcare, public transport, school support or health protection. The schedule therefore identifies the scale of coordination required across policy domains.

The results also clarify why a fixed per-child allowance has declining relative effectiveness. The first three children each add MAD 300 to resources, but the incremental adequate budget is MAD 1,250 for each child in the baseline. The allowance therefore covers about 24 per cent of the simulated incremental cost. Adding the maximum child-related tax reduction raises coverage to roughly 28 per cent, while the spouse's tax reduction is relevant only once and remains small. The decline becomes sharper after the third child. The statutory allowance falls to MAD 100 for children four, five and six; the

fourth and fifth children add at most MAD 150 each when the tax reduction is included, and the sixth adds only MAD 100 because the annual dependant-reduction ceiling has already been reached. Under the appendix extension, FWAR falls from 0.63 with three children to 0.57, 0.52 and 0.48 with four, five and six children. The architecture recognises the existence of larger families but replaces an already partial response with a still smaller marginal contribution.

Table 5
Base wage required to reach adequacy under current maximum family provisions

Family state	Adequate budget	Maximum family-related additions	Required base wage	Increase relative to single adequate wage
H1 Single	4,400	0	4,400	0%
H2 Married	5,950	50	5,900	34.1%
H3 + 1 child	7,200	400	6,800	54.5%
H4 + 2 children	8,450	750	7,700	75.0%
H5 + 3 children	9,700	1,100	8,600	95.5%
Note. The required base wage equals the adequate budget less maximum family-linked additions. It is an accounting requirement, not a recommendation to pay different contractual wages according to marital status.				

5.2 Geographic sensitivity

Table 6 shows that regional sensitivity changes the level, but not the direction, of the family penalty. In the lower-cost band, the single worker records an FWAR of 1.30 and the married one-earner couple approaches adequacy at 0.96. The three-child household nevertheless remains below the threshold at 0.70. In the high-cost metropolitan band, the single worker is already slightly inadequate at 0.94 and the three-child household falls to 0.54. A national claim that MAD 5,000 is either adequate or inadequate is therefore incomplete unless location and housing tenure are specified.

The cost bands also change the interpretation of policy. In a lower-cost area, a modest supplement might bring a married couple without children close to adequacy, whereas the same nominal transfer in a high-cost market is absorbed by rent. Housing policy and family-income policy are therefore substitutes at the margin: lowering essential housing cost raises FWAR just as a cash transfer does, although their incidence and implementation differ.

Table 6
Geographic sensitivity of adequate budgets and FWAR

Family state	Lower-cost budget	Lower-cost FWAR	Reference budget	Reference FWAR	High-cost budget	High-cost FWAR
H1 Single	3,860	1.30	4,400	1.14	5,344	0.94
H2 Married	5,272	0.96	5,950	0.85	7,129	0.71
H3 + 1 child	6,420	0.84	7,200	0.75	8,553	0.63
H4 + 2 children	7,568	0.76	8,450	0.68	9,977	0.58
H5 + 3 children	8,715	0.70	9,700	0.63	11,401	0.54
Note. Resources remain those of the maximum statutory branch. Lower-cost budgets apply 0.75 to housing and 0.95 to non-housing costs; high-cost budgets apply 1.45 and 1.08 respectively.						

5.3 Formal protection versus unprotected employment

Table 7 isolates the value of formal family-linked protection at equal earnings. For H3, maximum formal recognition raises FWAR from 0.69 to 0.75; for H5, it raises the ratio from 0.52 to 0.63. The absolute gain grows as children are added because allowances accumulate, but the protected household remains far below adequacy. The comparison has two implications: the baseline is optimistic when applied to workers without effective coverage, and extending coverage alone cannot close the gap unless benefit amounts or essential-service provision also change.

Table 7
Equal-earnings comparison by protection status

Family state	Formal maximum resources	Formal FWAR	Unprotected resources	Unprotected FWAR	Protection dividend in FWAR
H1 Single	5,000	1.14	5,000	1.14	0.00
H2 Married	5,050	0.85	5,000	0.84	0.01
H3 + 1 child	5,400	0.75	5,000	0.69	0.06
H4 + 2 children	5,750	0.68	5,000	0.59	0.09
H5 + 3 children	6,100	0.63	5,000	0.52	0.11
Note. The unprotected branch removes family allowances and effective dependant tax recognition while holding take-home earnings at MAD 5,000. It therefore isolates institutional coverage and does not include earnings volatility or lower average wages.					

5.4 Behavioural responses and the second-earner wedge

Households rarely remain passive when a deficit appears. Table 8 shows, however, that coping is not the same as adequacy. A regular MAD 700 transfer from relatives raises H5's ratio from 0.63 to 0.70 but shifts part of the burden to the extended family. Shared housing produces the same ratio by lowering the cash budget, yet may bring overcrowding, loss of privacy or longer commuting. Such adaptations can prevent an immediate crisis while concealing the inadequacy of earned income.

Spousal employment has the largest single effect among the modelled responses. A MAD 3,000 wage adds only MAD 1,800 after illustrative childcare, transport and work-related costs, increasing FWAR to 0.81. When combined with shared housing it reaches 0.91, still below the reference threshold. The result captures a possible gendered employment trap: entering paid work improves resources but part of the wage is spent merely to make employment feasible. Public childcare and reliable transport would increase the net family return from the same gross wage without requiring a larger employer payment.

Borrowing creates the most misleading improvement. Adding MAD 1,500 in monthly credit raises spendable resources to 0.78 of the basket in the current month, but structural FWAR remains 0.63 because the household incurs MAD 18,000 of new principal per year before interest. Debt can smooth timing; it cannot be counted as income in a welfare measure. A field study should therefore distinguish current consumption financed from earnings, transfers, asset depletion and liabilities.

Table 8
Illustrative behavioural responses for H5 (couple with three children)

Response	Spendable monthly resources	Adjusted budget	Immediate gap	Observed coverage ratio	Structural interpretation
Current maximum package	6,100	9,700	-3,600	0.63	Baseline structural FWAR
Kin transfer + 700	6,800	9,700	-2,900	0.70	Private transfer dependence
Spouse works: +3,000 less 1,200 costs	7,900	9,700	-1,800	0.81	Net second-earner contribution + 1,800
Shared housing: budget – 1,000	6,100	8,700	-2,600	0.70	Lower cash cost; possible crowding/privacy cost
Borrowing + 1,500	7,600	9,700	-2,100	0.78	Structural FWAR remains 0.63; debt + 18,000/year
Spouse works + shared housing	7,900	8,700	-800	0.91	Strongest coping package, still below threshold
<i>Note. Behavioural amounts are illustrative accounting assumptions, not estimated probabilities or causal labour-supply effects. Borrowing is excluded from structural resources because it creates a corresponding liability.</i>					

6. Policy scenarios and fiscal feasibility

The baseline and sensitivity results imply that isolated instruments are unlikely to preserve family adequacy. Table 9 compares five H5 counterfactuals. The current maximum package combines the MAD 5,000 wage, three child allowances and maximum tax recognition. A doubled-allowance scenario adds another MAD 300 per child. A refundable-credit scenario provides MAD 300 per dependant per month instead of a small non-refundable reduction. A combined scenario uses both measures, while the final scenario pays half of the remaining adequacy gap.

Neither doubling allowances nor introducing a refundable credit closes the H5 deficit; the combined package reaches an FWAR of 0.82 and a supplement equal to half the current gap reaches 0.81. Table 9A then addresses two implementation questions. Should family-linked benefits follow general inflation or the prices most relevant to families, especially food? And, for a fixed fiscal envelope, how many households receive partial relief and how many actually cross FWAR = 1?

Table 9
Policy counterfactuals for H5

Scenario	Monthly resources	Adequate budget	Monthly gap	FWAR
A. Current maximum statutory package	6,100	9,700	-3,600	0.63
B. Child allowances doubled	7,000	9,700	-2,700	0.72
C. Refundable credit: MAD 300/dependant/month	7,100	9,700	-2,600	0.73
D. Doubled allowances + refundable credit	8,000	9,700	-1,700	0.82
E. Current package + 50% gap supplement	7,900	9,700	-1,800	0.81
Note. Counterfactuals are illustrative. Scenario C replaces the current maximum MAD 600 annual reduction per dependant with a refundable MAD 3,600 annual credit, so the fiscal-cost table reports the net incremental amount of MAD 3,000 per dependant.				

Table 9
A. One-year H5 indexation stress test

Indexation rule	Monthly H5 resources (MAD)	Post-shock basket (MAD)	FWAR	Relative gain vs no indexation
No indexation	6,100	9,993	0.610	0.00%
Child allowance indexed at 2% headline assumption	6,118	9,993	0.612	+ 0.30%
Child allowance indexed at 5% food assumption	6,145	9,993	0.615	+ 0.74%
All family-related additions indexed at 5% food assumption	6,155	9,993	0.616	+ 0.90%
Note. The post-shock basket applies 5% to food and 2% to all other H5 components. Rates are illustrative stress-test assumptions, not forecasts. The current monthly family package is MAD 900 in child allowances plus a maximum MAD 200 in dependant tax recognition.				

Food-linked indexation performs better than headline indexation because it follows the component that absorbs a large share of family expenditure. It nevertheless raises FWAR by only 0.005 points, from 0.610 without indexation to 0.615 when child allowances follow the assumed food rate. The relative gain is 0.74 per cent, and the ratio remains below its pre-shock value of 0.63. Indexation therefore prevents part of the erosion of an existing entitlement; it does not substitute for benefit-adequacy reform. A permanent rule could use the annual change in an official low-income family consumption index, with a food sub-index weight, a floor of zero to prevent nominal cuts and periodic rebasing when housing or childcare costs diverge persistently from headline CPI.

Table 10 converts each counterfactual into a consistent H5 household-level envelope. Doubling the allowance for three children adds MAD 10,800 annually per household. Replacing the current maximum dependant reduction with a refundable MAD 300 monthly credit creates a net H5 increment of MAD 12,000 annually. The combined package adds MAD 22,800, while the half-gap supplement adds MAD 21,600. At the modelled wage and basket, none of these broad partial reforms raises H5 above FWAR = 1. This result is not evidence that the transfers have no welfare value; it shows that average gain and threshold crossing are different performance measures.

The household-level unit also reveals the scale of implementation. Applying the combined package to 100,000 H5 households costs MAD 2.28 billion annually, compared with MAD 2.16 billion for a half-gap supplement. For context, Morocco's direct social-assistance budget was reported at MAD 26.5 billion for 2025, with a planned increase to MAD 29 billion in 2026 (Maroc.ma, 2025). This comparison is illustrative rather than a claim that the programmes serve the same population or objective. Eligibility architecture still matters: a refundable credit may be more progressive than an allowance increase, whereas an income-tested gap payment requires verification and frequent updating. Financing through the state budget, CNSS contributions or employer payroll charges would also have different labour-market and distributional effects.

The cost-effectiveness comparison in Table 11 holds each 100,000-household envelope fixed and asks how many identical H5 gaps of MAD 43,200 could be closed under perfect targeting. The MAD 2.16 billion required to pay half the gap to 100,000 households could instead close the full gap for 50,000. The MAD 2.28 billion combined-package envelope could mechanically close 52,778 gaps. This is an arithmetic frontier rather than a policy recommendation: concentrating support increases threshold crossings but reduces coverage and can intensify exclusion, stigma and abrupt benefit withdrawal.

Table 10
Illustrative annual fiscal envelopes for modelled H5 households

Reform for modelled H5	Annual household increment (MAD)	100,000 households (MAD bn)	500,000 households (MAD bn)	1,000,000 households (MAD bn)	Post-reform FWAR / crossings per 100,000
Double child allowance (+ 300 x 3 children/month)	10,800	1.08	5.40	10.80	0.72 / 0
Refundable credit (net increment for 4 dependants)	12,000	1.20	6.00	12.00	0.73 / 0
Combined allowance and refundable-credit increment	22,800	2.28	11.40	22.80	0.82 / 0
50% H5 adequacy-gap supplement	21,600	2.16	10.80	21.60	0.81 / 0
<i>Note. Gross arithmetic scaling only. The first three rows convert all child/dependant units in the H5 package into a household increment, ensuring comparability with the household-specific gap supplement. Costs exclude administration, non-take-up, overlap, financing and behavioural effects. The final column combines post-reform FWAR with the number of identical H5 households crossing 1.00 among every 100,000 recipients.</i>					

Table 11
Threshold-based cost-effectiveness for a 100,000-household H5 envelope

Fiscal envelope	Envelope (MAD bn)	Households crossing under broad partial design	Maximum full-gap crossings with same envelope	Implied cost per full crossing (MAD)
Doubled child allowance	1.08	0	25,000	43,200
Refundable family credit	1.20	0	27,778	43,200
Combined package	2.28	0	52,778	43,200
50% gap supplement	2.16	0	50,000	43,200
Full H5 gap for all 100,000 households	4.32	100,000	100,000	43,200
<i>Note. Mechanical upper bounds based on the modelled annual H5 gap of MAD 43,200. Perfect targeting, full take-up, no administrative cost and identical household gaps are assumed. These counts are not forecasts. In real microdata, cost per crossing equals total net programme cost divided by the weighted number of households moving from FWAR < 1 to FWAR ≥ 1.</i>				

Table 11 reports the threshold-based metric. Under the homogeneous H5 assumptions, broad partial designs lift no recipient above FWAR = 1, so their observed cost per threshold crossing is undefined. The same envelopes can finance fewer complete gap closures, at a mechanical cost of MAD 43,200 per crossing. Representative microdata would produce a different pattern because households begin at different distances from the threshold: some would cross with a small transfer, while others would remain far below it. A credible decision dashboard should therefore report the distribution of baseline gaps, average gap closure, numbers crossing, cost per crossing, regional and family-type incidence, and the number remaining severely inadequate.

Table 12
Financing-incidence stress test for the H5 half-gap supplement

Household recapture share (r)	Gross supplement (MAD/month)	Amount recaptured	Net household gain	Spendable resources	FWAR
0%: no direct recapture	1,800	0	1,800	7,900	0.81
25% recapture	1,800	450	1,350	7,450	0.77
50% recapture	1,800	900	900	7,000	0.72
100% recapture	1,800	1,800	0	6,100	0.63
<i>Note. The gross half-gap supplement is MAD 1,800 per month. The recapture share is an incidence stress-test parameter, not an estimate. It represents the portion of the gross transfer ultimately returned by the same household through contributions, taxes, lower wage growth or lost benefits. Employer-side charges may be shifted only partly and over time, while general-revenue financing may be borne by other groups. The table therefore illustrates why financing must be specified before gross fiscal cost is interpreted as household welfare gain.</i>					

Table C1
Synthetic extension from three to six children

State	Children	Adequate budget	Maximum resources	Monthly gap	FWAR	Equivalent income	Marginal support for added child
H5	3	9,700	6,100	-3,600	0.63	2,542	Baseline
H6	4	10,950	6,250	-4,700	0.57	2,315	+ 150 (12% of added cost)
H7	5	12,200	6,400	-5,800	0.52	2,133	+ 150 (12% of added cost)
H8	6	13,450	6,500	-6,950	0.48	1,970	+ 100 (8% of added cost)
<i>Note. Values continue the reference urban-renter assumptions. Maximum resources include the statutory child-allowance schedule and maximum dependant tax recognition subject to its ceiling. Percentages compare the marginal family-linked addition with the assumed MAD 1,250 monthly incremental basket cost. Results are diagnostic sensitivity values, not population estimates.</i>							

Table C2
Administrative feasibility ladder

Instrument	Core information required	Update frequency	Main implementation risk	Near-term feasibility
Index existing child allowance	Verified child eligibility and covered-worker status	Annual	Excludes uncovered workers; weak income targeting	High within covered sector
Refundable family credit	Annual household income, dependants, payment account	Annual with reconciliation	Non-filing, misreporting, delayed payment	Medium
Categorical income-band top-up	Household composition and broad verified income band	Annual or quarterly	Cut-off effects and exclusion errors	Medium
Individualised gap supplement	Current income, assets, housing cost, transfers and household changes	Monthly or quarterly	High data burden, volatility, fraud, non-take-up and benefit cliffs	Low; pilot or benchmark
<i>Note. Feasibility rankings are institutional design assessments, not measured implementation scores. A less targeted instrument may be easier to deliver, while a theoretically precise instrument can perform poorly if information is incomplete or updating is slow.</i>				

Table 12 makes the financing-incidence problem explicit. With no direct recapture, the half-gap supplement raises H5 from FWAR 0.63 to 0.81. If one quarter of the transfer is effectively returned through the financing system, the ratio reaches only 0.77; at one-half recapture it reaches 0.72. Full recapture returns the household to its baseline position. These cases do not imply that beneficiaries alone should finance the reform. They show that the political question is redistribution: who pays, through which instrument, over what period, and with what effect on wages, prices, hiring, other benefits and public expenditure.

The administrative comparison also changes the ranking of policies. Doubling or indexing an existing allowance is easiest for already covered workers, but it remains weakly targeted and does not solve exclusion from social insurance. A refundable family credit offers better vertical targeting but requires annual income verification and a reliable payment channel. A categorical top-up based on broad income and family bands is more realistic than calculating every household's exact monthly basket. The individualised gap supplement matches measured need most closely but is the least feasible where income is informal, volatile or difficult to verify. It should first be used as an evaluative benchmark and, if tested operationally, through limited pilots with periodic rather than monthly reassessment, appeal procedures and safeguards against abrupt benefit withdrawal. Table C2 summarises this administrative-feasibility ladder.

7. Discussion

The main finding is not that MAD 5,000 is universally adequate for a single Moroccan worker or universally inadequate for a family. The finding is relational: family-related resources rise much more slowly than a restrained adequate budget as household responsibilities expand. This deterioration survives lower-cost assumptions, becomes severe in high-cost markets and is amplified when formal family-linked benefits are absent. Wage adequacy is therefore a function of household type, place, protection status and access to cost-reducing services.

The analysis exposes a weakness in individual-centred wage debates. Legal minimum wages, average salaries and payroll negotiations are usually expressed per worker. Yet the social objective invoked in those debates is often family welfare. A higher SMIG can improve all worker households, but the same increase cannot equalise the positions of a single worker, a dual-earner couple and a one-earner family with children. A family-sensitive tax-transfer system is needed if employers are not to differentiate pay by marital status, a practice that would be administratively intrusive and potentially discriminatory.

The formal-versus-unprotected comparison also sharpens the scope issue. Workers in informal production units and formal firms without effective declaration should not be collapsed into a single category, but both may lack family-linked protection. The protection dividend in Table 7 is meaningful, particularly after childbirth, yet it remains smaller than the underlying budget increase. Policy must therefore combine extension of coverage with benefit adequacy and enforcement of declaration. Otherwise, universalising a modest instrument universalises only partial protection.

Housing is a pivotal mediator. The geographic bands show that the three-child household's FWAR ranges from 0.70 to 0.54 without any change in wage or statutory benefits. International evidence similarly treats housing-cost overburden as a central affordability problem for low-income tenants and mortgagors (OECD, 2025). Direct housing assistance, social rental supply, secure tenancy and transport-oriented urban policy can therefore improve family adequacy without appearing in the wage packet. A model that ignores housing may attribute the whole deficit to pay or recommend wage increases that are partly capitalised into rents where supply is constrained.

The behavioural scenarios explain how measured poverty or hardship can remain hidden. Kin support, co-residence, consumer credit and unpaid care allow households to maintain consumption despite inadequate earned income. These mechanisms redistribute costs across generations, compress privacy, postpone asset formation and create debt. They should be measured as coping strategies, not as evidence that the wage is adequate. Survey modules should record the source of expenditure finance and whether the household would meet the basket without transfers, borrowing or foregone needs.

The second-earner result has direct gender relevance. Paid work by the spouse is the strongest modelled private response, but its effect depends on childcare and mobility infrastructure. Without affordable care and safe, reliable transport, a large portion of the second wage finances market substitutes for unpaid work. The household may be better off, but the net gain is smaller than the gross wage and may be

unevenly controlled. Integrated policy should therefore value childcare and transport as wage-adequacy instruments as well as employment policies.

Aggregate FWAR also cannot establish that all members live adequately. A household may preserve rent and food by postponing the mother's health care, reducing a child's educational participation or concentrating discretionary money in the wage earner's hands. Future qualitative work should interview partners separately where ethically and practically possible and examine control of salary and benefits, who reduces food or health spending, who borrows, how kin transfers are negotiated, and whether employment changes decision-making power. The proposed IAC converts this issue from a generic limitation into a measurable extension.

Fiscal costing changes the status of the counterfactuals. A reform can be effective for the modelled family but unaffordable or poorly targeted at national scale. The threshold exercise also shows that a programme may generate a meaningful average gain while producing no immediate transition above $\text{FWAR} = 1$ for a household far from adequacy. Conversely, concentrating the same envelope can maximise threshold crossings but leave a larger number entirely unsupported. Gross expenditure is only the first layer of evaluation. Financing through employee contributions can reduce take-home pay; employer payroll charges may be shifted into lower wage growth, prices or formal employment; general taxation distributes the burden across taxpayers; and expenditure reallocation reduces another programme. Public choice therefore requires an explicit beneficiary unit, financing channel, incidence assumption, take-up assumption, gap distribution, administrative model and performance target rather than a single headline transfer amount.

The preferred policy architecture is therefore a coordinated and sequenced package. General wage policy should protect labour's purchasing power; refundable family credits should reach low-tax-liability households; and family allowances should be indexed through an explicit rule rather than discretionary erosion. A practical rule could adjust benefits annually by the greater of headline inflation and a family-relevant essential-cost index capped or smoothed over several years, while periodically rebasing weights for food, housing and childcare. In the short term, administratively simple allowance indexation and categorical family supplements can operate through existing records. In the medium term, verified annual-income credits and interoperable registers can improve targeting. An exact individualised gap payment should remain a benchmark or pilot until income volatility, assets, housing costs, appeals and data updating can be handled credibly. Housing and direct social assistance should be coordinated rather than stacked blindly, and childcare, health, schooling and transport should reduce the cash price of essential needs. The appropriate policy target is not a single family wage imposed on employers, but family-adequate disposable resources after essential costs.

Several limitations remain. The MAD 5,000 wage and all basket values are stylised. Geographic multipliers are sensitivity parameters rather than estimated local price indices, and the assumed 5 per cent food and 2 per cent other-price shocks are analytical inputs rather than inflation forecasts. Equal-earnings protection comparisons do not capture wage volatility, seasonality or selection into informal

work, and the behavioural scenarios are not estimated probabilities. Fiscal calculations exclude take-up, administration and general-equilibrium effects; financing incidence is represented by hypothetical recapture shares; and threshold crossings assume identical gaps and perfect targeting. The four-to-six-child extension assumes a constant MAD 1,250 incremental basket cost, while the individualised gap supplement presumes information that is difficult to obtain and update. Intra-household adequacy is conceptually specified but not observed. National estimates would require HCP microdata, administrative tax and social-security records, regional price collection and member-level qualitative evidence, with distributional results compiled consistently across income and consumption sources (Deaton, 2018; OECD, 2024).

8. Conclusion

This article began with a simple observation: a worker may earn MAD 5,000 while single, receive no contractual increase upon marriage and obtain only limited additions after childbirth. The wage remains individual while the obligations supported by it become familial. The model shows that this mismatch is not confined to one basket assumption. It persists across family states, geographic cost bands and protection statuses, and it generates coping responses whose private costs are often omitted from wage analysis.

In the reference urban-renter baseline, FWAR falls from 1.14 for the single worker to 0.85 after marriage and 0.63 with three children. The H5 ratio ranges from 0.70 in the lower-cost band to 0.54 in the high-cost band. At the same MAD 5,000 earnings, removal of effective family allowances and tax recognition lowers it to 0.52. Spousal employment and shared housing narrow the deficit, but even their combined illustrative effect reaches only 0.91 after employment-enabling costs. Borrowing improves current liquidity while worsening future balance sheets.

The policy conclusion is not that one instrument should mechanically fill every calculated gap. Fiscal scaling demonstrates that modest monthly entitlements become multi-billion-dirham commitments when applied nationally. Indexation can prevent benefits from losing purchasing power, especially when food prices rise faster than the general index, but cannot make an initially inadequate entitlement adequate. Cost-effectiveness requires distinguishing coverage from threshold crossing, and financing incidence requires distinguishing gross budget cost from net household gain. The same envelope can provide partial relief to many households or complete relief to fewer households, while a payroll-financed package can return part of its apparent gain through lower take-home pay or wage growth. Administrative feasibility matters equally: existing allowances can be changed relatively quickly, whereas an individualised gap payment requires data and reassessment capacity that cannot be assumed. Each reform should therefore be judged simultaneously by average gain, numbers crossing $\text{FWAR} = 1$, numbers remaining far below it, incidence by family size and place, gendered access, protection coverage, financing burden, administrative cost and exclusion risk.

The Family Wage Adequacy Ratio, Family Transition Penalty, protection-status branch, geographic bands, behavioural accounts, indexation stress test, threshold-cost metric, financing-incidence sensitivity, extended-family appendix, administrative-feasibility ladder and proposed Intra-household Adequacy Condition provide a transparent research architecture. Populated with representative microdata, programme-administration evidence and member-level qualitative data, it could support a national family-adequacy dashboard and compare wage increases, refundable credits, child benefits, housing support, childcare and public services on a common outcome rather than evaluating each policy in isolation.

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Author Contribution

A E wrote all paper solely

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