Bocconi

A FRAMEWORK FOR ACTIVE LABOR MARKET POLICY IMPLEMENTATION IN ITALY

POLICY BRIEF 10

Employment Skills and Productivity in Italy
A Research Project coordinated
by IGIER-Bocconi, in partnership with
JPMorgan Chase Foundation

Università Bocconi
IGIER
Innocenzo Gasparini Institute
for Economic Research

NEW SKILLS AT WORK
JPMORGAN CHASE & CO.

A Framework for Active Labor Market Policy Implementation in Italy

by **Nicola Pavoni** (Bocconi University)[1]

Policy Brief

Introduction

Public expenditure devoted to labor market policies in OECD countries exceed 3% of GDP. About two-thirds of this expenditure is allocated to 'passive' policies like unemployment insurance and social assistance, while one-third is allocated to 'active' policies like job-search assistance, training and wage subsidies. The share of expenditure on active programs has risen substantially over the past 20 years, as many European governments began large-scale interventions. In several countries, passive and active policies are now combined into extensive Welfare-to-Work (WTW) schemes. A typical example is the United Kingdom's "New Deal for Young People", a mandatory program for all unemployed between ages 18 and 24 that augments standard unemployment insurance with training activities, wage subsidies and personal assistance with job searches. In 2015, Italy introduced a similar WTW scheme under the name of the Jobs Act. The key objective of these policies is to support income while providing unemployed workers with the tools to upgrade their skills and to match them to suitable jobs.

Recently, a consensus has emerged on the rules for the effective design of welfare reform. It should rest on three equally important pillars, which are its three key objectives: supporting living standards (assistance), promoting economic self-sufficiency through work (incentives), and keeping government costs low (efficiency or budget constraint). Achieving these objectives is challenging because providing assistance interferes with individual incentives to find and retain a suitable job. In order to tackle this insurance-incentive trade-off successfully, governments use a wide range of policy instruments. An efficient WTW program is a mix of policy instruments that achieves a certain set of goals at the lowest level of government expenditure.

In this policy brief we provide a framework for evaluating existing policies and policy guidance toward an effective design of a WTW program for Italy. The key to the analysis is to consider all policies together within a unified framework. Specifically, we propose a framework that allows the answering of questions such as: (i) What set of policies best suits the different unemployed in a given economic condition? (ii) If different policies are allocated to a given individual, what is the optimal sequence in which the policies should be implemented in a WTW scheme? (iii) What is the corresponding structure of benefits, wage taxes and wage subsidies in the various policies?

We will not provide a `number' for the payment of the UI benefits nor we will `recommend' a given policy as optimal. The outcome of our analysis will be the identification of a set of key trade-offs that determine the desire to implement a specific policy (or policy sequence) for an individual with a given pre-displacement skill level. We start from the assumption that agents are very different to each other so it is hopeless

[1] The author wishes to thank Sergio Cappellini for the valuable research assistance.

to think of a 'policy that fits all'. Instead, efficiency requires different individuals to be allocated to different policies. Second, we argue that the opportunity of implementing a given policy also depends, crucially, on the generosity of the WTW program. Finally, an accurate policy suggestion for a given individual requires the simultaneous evaluation of all available policies.

Policy Instruments Available for Italy: The Jobs Act

Italy is one of the countries with the lowest spending in active labor market policies across the OECD countries. In 2014, the annual spending per unemployed was €1800, less than one fourth of the spending per unemployed in France, for example. Italy also has one of the highest ratios of job-seekers-to-staff in public employment services.

At the end of 2014, Italy introduced The Jobs Act (Law 10 December 2014, No. 183): a comprehensive labor market reform (implemented in 2015), in which the coverage and duration of unemployment insurance benefits were increased and a new National Agency for Active Labor Market Policies (ANPAL) was created with the aim of enhancing the effectiveness of job search and training. ANPAL's main tasks also include the coordination and supervision of regional centers implementing job search and training.

The first key ingredient of our analysis is the available policies, which are briefly described next.

Social Assistance (SA): The backbone of most welfare programs around the world is a combination of Unemployment Insurance and Social Assistance. We use the term Social Assistance as an umbrella to capture all those policies of pure income support such as the Supplemental Nutritional Assistance Program (formerly called Food Stamps) in the case of the United States. In Italy, the Jobs Act introduced a social assistance allowance for the unemployed named the *Assegno Sociale per la Disoccupazione* (**ASDI**), which is reserved for poor workers (with minors or the unemployed over age 55) who have exhausted unemployment benefits. In 2016, the government also extended an experimental minimum income scheme (called the *Sostegno per l'Inclusione Attiva* (**SIA**)) throughout the national territory. This policy has been replaced by the *Reddito d'Inclusione* (**REI**). Finally, the *Carta Acquisti* (**CA**) is a (possibly permanent) electronic debit card that can be used to purchase basic goods or pay bills. All of these measures are means tested.

Unemployment Insurance (UI): The Jobs Act also introduced the *Nuova Assicurazione Sociale per l'Impiego* (**NASpI**). This is an income support limited in time and amount, to be activated in the case of unemployment. Such a measure is conditional on both past job history (number of months spent working, last salary before unemployment), and participation in activation measures designed by ANPAL. In order to be entitled to NASpI, the worker must have worked for at least 13 weeks in the four years before displacement and at least 30 working days in the 12 months preceding the last displacement. It lasts for half the total number of weeks of employment in the four years before layoff. As such the maximum duration of NASpI is 26 months. For the first 4 months NASpI is 75% of the pre-displacement wage and then decreases by 3% each month following the 4th.

Job-Search Assistance (JA): Here, we focus on the interventions in which the public employment agency actively helps the participant to find a job by providing contacts with suitable employers, making referrals, and so on.

The Jobs Act introduced the *Assegno di Ricollocazione* (**AdR**) which is an endowment paid by the government to a placement agency called the *Centro per l'Impiego* (**CPI**), on the condition that it manages to find a new job offer for the worker. The AdR can be requested by any worker who either has been unemployed for at least 4

months and is entitled to unemployment insurance (NASpI), or is subject to a Collective Outplacement Agreement (CIGS), and it can be received together with NASpI and/or CIGS.

Mandatory Work (MW) and Transitional Work (TW): A variety of interventions are based on work requirements. At one end of the spectrum, the work requirement is purely intended as a social obligation for the receipt of the welfare check. At the opposite end, the work requirement is meant to function as a transition into self-sufficiency through private employment. For example, while the participant is mandated to work in a public or non-profit agency, the caseworker actively assists with the search for private employment in a similar job. Or, the caseworker directly matches the individual with a private employer, with the expectation that the worker might be retained by that same employer. To distinguish the first type of work (work in exchange for benefits) from the second (stepping stone to private employment), we label them *Mandatory Work and Transitional Work*.

The Extra-Curricular Internship (**ECI**) is a temporary job where the employer benefits from weaker legal requirements (higher flexibility, lower minimum wage). This measure can hence be cast within the Mandatory Work class. When ECI is paired with AdR, the combined measure becomes a Transitional Work policy.

Wage Subsidies and Training: Many programs include financial incentives for employment such as reemployment bonuses and earnings subsidies, for example the U.S. Earned Income Tax Credit.

Italy is one of the countries with the highest tax wedge, ranging between 38% and 48% depending on demographics. A sizable part of such wedge is constituted by employers' social security contributions. The Jobs Act introduced temporary cuts to employers' social security contributions on newly created jobs. Exemptions were reduced in 2016 and then completely lifted.

Finally, another important class of interventions based on training is aimed at augmenting the market value of the participant's skills. The range of skill-enhancing policies is wide, going from formal to vocational training, both classroom and on-the-job based. The EIC policy does implicitly include some on-the-job training, however in this policy brief, we do not consider training measures as we believe they deserve independent treatment.

In 2019, the new government replaced the Jobs Act policies ASDI, REI (which replaced SIA) with a new `policy' named *Reddito di Cittadinanza* (RdC). The name RdC is somewhat misleading as the program – although highly means tested – it is not a mere minimum income program. Instead the recipients must: (i) actively search for work (for a minimum of 2 hours per day); (ii) work in social task for at least 8 hours per week (iii) follow training programs. They are assisted and monitored by a CPI and might even receive something very similar to the AdR (in case the CPI does not assist the recipient). As such, the new measure is similar to a combination of NASpI, AdR and ECI with means testing and a more direct monitoring of the recipient's effort. Unfortunately, we have no data to calibrate and evaluate the new policy as the first entitlements started in the month that the present brief was completed (April 2019).

Table 1. Summary of Labour Market Policies in Italy

Italian Measure	Policy Classification
Assegno Sociale per la Dissocupazione (ASDI); *Supporto per l'Inclusione Attiva (SIA)* *Reddito d'Inclusione (REI), Carta Acquisti (CA)*	Social Assistance
Nuova Assicurazione Sociale per l'Impiego (NASpI)	Unemployment Insurance
Assegno di Ricollocamento (AdR)	Job-Search Assistance
Extra-Curricular Internship (ECI)	Mandatory Work
AdR+ECI	Transitional Work

TECHNICAL BOX: Costs and Returns of the Different Policies

The approach adopted in this policy brief is to see each policy as a different combination of the following four ingredients. (i) The technology allocated to the worker, with associated costs and returns; (ii) the effort intensity associated with the policy; (iii) the informational and search frictions associated with the policy; (iv) the payments associated with the policy that need to both compensate the worker for the effort supplied and take account of the incentive constraints implied by the informational frictions.

The framework for policy implementation is based on individuals with infinite lives (the unemployed) with additive per-period separable preferences over consumption and search/work effort: **u(c)-a**, where effort can take two values: the worker can either actively search (or work), that is, **a=e** or s/he can rest, a=0. In order to obtain closed form expressions for the values associated with each policy reported in Table 1, we assume log consumption and study what we call a `soft' welfare to work program. This program guarantees that an agent's utility remains constant or increases over time. The main advantage of such a program is that we do not have to worry about the potential desire of the worker to save during unemployment and identify consumption with the net income received by the worker. Workers are heterogeneous in the skill level **h** which affects both the wage upon reemployment **w(h)** and the probability of finding a `good/suitable' match in the primary market upon active search p(h). Both w and p are increasing functions of the skill level h. If the worker does not actively search for a job s/he cannot find any good match in the primary labor market. As well, in order to convert a good match into a productive job (an occupation), the worker must pass the job-interview. The probability **p(h)** already discounts for the potential decision by the firm not to hire the worker. The worker can still intentionally misbehave at the interview and avoid being hired. This feature will be important below and captures the fact that the worker may always remain unemployed if so desired. The incentive constraint that prevents such misbehavior implies the intuitive property that the utility obtained from employment always exceeds that of unemployment (a property not always satisfied in similar frameworks considered in the literature).

The government has access to two additional technologies: job-search assistance and secondary-sector production. The publicly assisted search costs **k** to the government (e.g., the wage of the public employee allocated to the task) and allows the worker to use the services of a public agency that searches on behalf of the worker who, in turn saves the job-search effort cost. To reduce parametrization, we assume the effectiveness of public search technology to find a 'good/suitable' match to be the same as that of private search: p(h). Of course, the worker can always intentionally misbehave at the interview and prevent hiring. Finally, the government can allocate a worker to a secondary-sector job. In this case, the worker produces a fixed net amount w independent of the skill level h, which is inclusive of administrative costs. Secondary-sector jobs are immediately available, that is, there is no search friction, and require the supply of positive effort to the worker: a=e.

SA: The Social Assistance policy represents the case where the worker is 'released from duty'. Within this policy, the worker is not required to actively use any technology, so s/he does not produce in the secondary market, nor finds a job in the primary market, and a=0. In other words, the direct return of this policy is nil. At the same time, s/he might receive a transfer of assistance whose value depends on the generosity of the system, namely it depends on what level of lifetime utility U the government aims (and is able) to grant to the worker. In this case, for example, the per period payment guaranteeing utility U to the worker is $\mathbf{c_{SA}(U)=exp\{(1-ß)U\}}$ as the solution to the equation U=log(c)+ßU, where ß is the worker's discount factor (potentially inclusive of the probability of death).

MW: This program is similar to SA with the main difference being that in this case the worker is required to produce and hence must be compensated for the work effort supplied. The equation delivering the payment that guarantees utility U is now U=log(c)-e+ßU and hence $c_{MW}(U)=E*exp\{(1-ß)U\}$, where **E=exp{e}>1**. The net return from this activity is $\underline{w}$.

UI: Here the worker is required to search for a job. This implies that s/he must be compensated for the search effort; in addition, the worker must receive the right incentives for job search and this implies consumption dispersion on a risk averse individual: a cost for the government in consumption equivalent terms. In exchange for that, the worker finds a job with probability p(h)>0 and in the case of employment, the worker produces w(h) every period. The direct per-period return of this policy can be represented as G(h)w(h), with 0<G(h)=ßp(h)/(1-ß(1-p(h)))<1, increasing with h; while the transfer needed to guarantee utility U, inclusive of the effort

compensation and incentive constraint (in certainty equivalent consumption), is $c_{UI}(U)=E*I_S(h)*\exp\{(1-ß)U\}$, with $I_S(h)>1$ decreasing with h, where the subscript S indicates that the cost refers to the search-incentive constraint.

JA: Since the search activity is delegated to the public agency there is no effort cost to be compensated for during unemployment, while at the same time the returns from search are reduced by the administrative costs that must be paid during unemployment. The net return of this policy can hence be represented as $G(h)w(h)+(1-G(h))(-k)$ while the compensation required to guarantee utility U (in certainty equivalent consumption) equals: $c_{JA}(U)=E*G(h)*I_R(h)*\exp\{(1-ß)U\}$. In the above, the coefficient $IR(h)>1$ decreases with h, and is due to the job-retention constraint guaranteeing that the worker is willing to accept the job and hence does not misbehave during the job-interview.

TW: As we discussed above, the transitional work policy is the combination of JA and MW, with the advantage that requiring the worker to produce during unemployment makes employment more attractive, eliminating the need to provide consumption dispersion for the job-retention incentives. The net return can be represented as $G(h)w(h)+(1-G(h))(\underline{w}-k)$ while the consumption needed to guarantee utility U is as in MW: $c_{TW}(U)=E*\exp\{(1-ß)U\}$.

Table 2. Net Returns and Costs of the Different Policies

Policy Measure	Return net of administrative costs A(h)	Unit Cost of Promising a given level of welfare in monetary terms B(h)
Assegno Sociale per la Dissocupazione (ASDI) and Supporto per l'Inclusione Attiva (SIA)	*0*	*1*
Nuova Assicurazione Sociale per l'Impiego (NASpI)	$G(h)w(h)$	$E*I_S(h)$
Assegno di Ricollocamento (AdR)	$G(h)w(h)+(1-G(h))(0-k)$	$E*G(h)I_R(h)$
Extra-Curricular Internship (ECI)	$\underline{w}$	E
AdR+ECI	$G(h)w(h)+(1-G(h))(\underline{w}-k)$	E

Comparison Across Policies: The key Trade-offs

The description in the technical box indicates a nice property of our framework that allows an analysis of the key trade-offs of the different policies in both an intuitive and a rigorous way. When faced with a worker of skill h who is entitled to a level of generosity $c=c_{SA}$, measured as the level of equivalent consumption in SA, the government can describe net returns and costs by a value function of the form $\mathbf{A_i(h)-B_i(h)c}$, i=SA,UI,MW,JA,TW; and allocates the worker to the policy that delivers the maximal value. Table 2 summarizes the coefficients $A_i(h)$, $B_i(h)$ of the values associated with the five policy instruments we described above.[2]

These coefficients rank policies with respect to their expected net returns and with respect to their cost of delivering promised utility relative to the baseline cost in SA.

$A_i(h)$: A number of useful rankings across policies can be established with respect to the net returns, for a given level of welfare. The return in UI is larger than in JA because, even though the returns to search are the same in both policies, JA requires bearing the cost to operate the search assistance technology. The return in TW

[2] In the Table, E=exp{e}, with e being the cost of job/search effort, while w(h) the gross wage in the primary job for a recipient of skill h, and $\underline{w}$ the net production in the secondary-market jobs. The multiplicative coefficient G(h) is between one and zero, while both $I_S(h)$ and $I_R(h)$ are larger than 1 with $I_S(h)>I_R(h)>1$. The parameter k indicates the cost of using the assisted search technology.

is also higher than the return in JA because the net return from the secondary production technology is positive. SA has zero net returns, and thus, both MW and UI have higher returns than SA. However, one cannot rank the policies using search assistance with SA in terms of net returns because, for a large enough administrative cost and/or an h small enough, the net return of JA and TW may be negative. The most interesting case is the one where the net returns of JA are positive at least for some h and, therefore, JA dominates SA in some range. Under this additional assumption, depending on h, we have:

$$A_{UI}(h)>A_{TW}(h)>A_{JA}(h)>A_{SA}=0$$

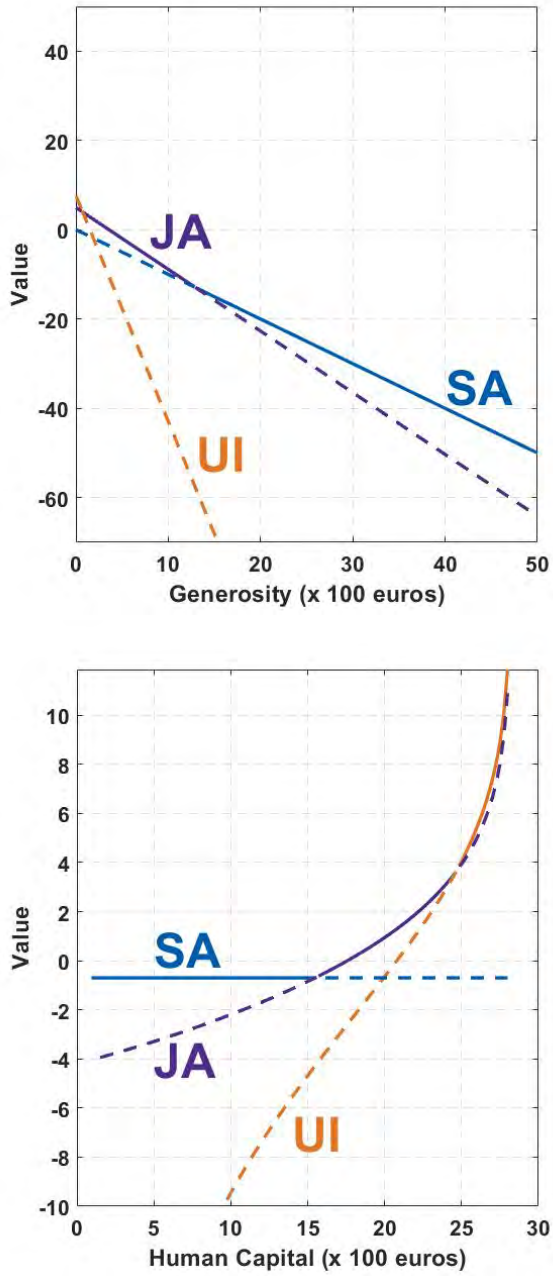
or

$$A_{UI}(h)>A_{MW}=\underline{w}>A_{JA}(h)>A_{SA}=0.$$

$B_i(h)$: The coefficient $B_i(h)$ represents the unitary costs of delivering a given level of welfare - in monetary terms - to a worker with skill h, under policy i. The model features an unambiguous ranking across all policies. SA is the policy where it is cheapest to deliver promised utility: its marginal cost is one. JA is next, since B_{JA} is less than the effort compensation cost present in MW and TW. Finally, UI is the most expensive policy for the planner because it features both the effort compensation cost and the incentive cost associated with satisfying the search incentive constraint. To sum up, we have:

$$B_{UI}(h)>B_{TW}=B_{MW}=E>B_{JA}(h)>B_{SA}=1,$$

Figure 1: An example of the value behaviour for different policies



These rankings of the net returns and costs of delivering promised level of welfare payment c shape the trade-off among policies at every point in the (h,c) space. Faced with a worker of type (h,c), the government chooses the policy that for every pair (h,c), dominates all the others.

In Figure 1, we report an example where the only three instruments available are: UI, JA, and SA. The left panel in the figure plots the value of UI, JA and SA as a function of the level of generosity

c for a given skill level h. That is, the slopes of the different functions represent the coefficients B_i. As explained before, we see that the value of UI is steeper than that of JA, which in turn is steeper than that of SA with respect to c. SA is the flattest because of the absence of effort compensation and incentive costs. JA is flatter than UI because of the absence of effort compensation cost and the reduced incentive costs compared to UI. Therefore, SA dominates for large levels of generosity, JA dominates for intermediate values of c, and UI dominates only for a small enough c.

The right panel plots the values of UI, JA and SA as a function of the worker skills h for given generosity c. That is, the slopes of the different functions represent the derivative of $A_i(h)-B_i(h)c$ with respect to h. We see that the value of SA is independent of h, the value of JA increases with h but it has a lower slope than the value of UI. Thus, again, UI dominates only for high enough h, JA for intermediate values and SA dominates for low h.

The solution to the problem projected into the state space, gives rise to the optimal welfare-to-work program, which we characterize next.

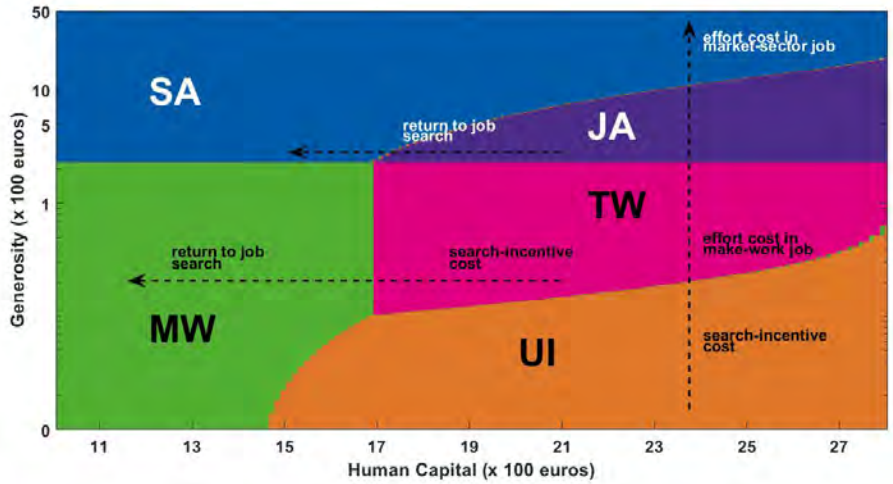
Policy Space in the Efficient WTW Program

The values of the different coefficients $A_i(h)$, $B_i(h)$ crucially depend on the estimated values for the function w, p and the effort cost e. In the appendix, we describe in detail how we estimated the function p, and calibrated the remaining parameters. As we explain there, we assumed a linear function w so that skill units correspond to a worker's productivity, while the function p has been estimated from Italian survey data from ISTAT. The effort cost has been calibrated according to the estimated values from micro data.

Figure 2 illustrates in which areas of the state space the different policy instruments arise as optimal. The unit in the scale for h on the x axis corresponds to €100 per month of gross earnings in a market-sector job. On the y axis, we measure the generosity level of welfare benefits per month in SA during the program, c. For a better visualization, the vertical axis is reported in a logarithmic scale. In other words, since we assume log utility for recipients (see technical box), the vertical scale would be equally spaced if expressed as a function of a recipient's per-period welfare. Towards the right-hand of the figure we have skilled workers; towards the left the unskilled. The policies at the top of the figure are those adopted by generous governments, while the bottom of the figure features policies adopted by more parsimonious governments. To simulate the figure, we keep both state variables, c and h, constant along the program. This means that there is no transition between policies during the program. For a given level of program generosity c, and a given level of worker's skills h, the optimal program determines the unique policy instrument to be used until, possibly, the agent finds a market sector job.

To understand the relative position of the policies in the state space, Figure 2 also illustrates the forces at work for different levels of c and h.

Figure 2: Policy Space in the Efficient WTW Program for Italy (All)



The horizontal axis variable *h* represents the participant's skill level (measured in hundreds of euros per month), while the vertical axis variable c represents the level of generosity of the program (for a better visualization of the figure, the vertical axis is reported in a logarithmic scale). UI: Unemployment Insurance; JA: Job-search Assistance; TW: Transitional Work; MW: Mandatory Work; SA: Social Assistance

Moving vertically (along c).

Fix a large value of h towards the right side of the state space. For small enough values of c, UI is optimal. As generosity increases, the cost of satisfying the search-incentive constraint becomes too large and the optimal program starts using the search assistance technology because its returns are equal to those of private search but its costs increase less sharply with c. At this point, generosity is still low enough that it is worthwhile for the planner to require the agent to produce on the secondary technology and compensate for the work effort, thus TW is used. For larger values of c, the effort compensation cost for the make-work job becomes too high, and the government should stop using the secondary production technology, and let the unemployed use only the search-assistance technology that requires no search effort: JA becomes dominant. Finally, generosity can be so high that it is too costly even to compensate the agent for the work effort of finding a job in the market sector, given the output produced at that level of h. Then the dominant policy is SA, an absorbing policy of pure income support.

Moving horizontally (along h).

Fix a high value of generosity such that JA is optimal. As worker's productivity h falls, the return to job search becomes so small that the planner does not find it optimal to pay the cost associated with assisted search and starts using SA.
Now consider a lower value of c such that UI is optimal. As h falls, the incentive costs related to the search incentive constraint rise, and the planner switches to the use of assisted search. However, the level of generosity is low enough that it requires the agent to exert high effort, no longer to search but to produce a make-work job while the planner searches on her behalf. For low enough values of h, the return to job search becomes too low to justify the use of assisted search and the planner switches to MW, an absorbing policy where the agent is required to hold a make-work job in exchange for a welfare check.

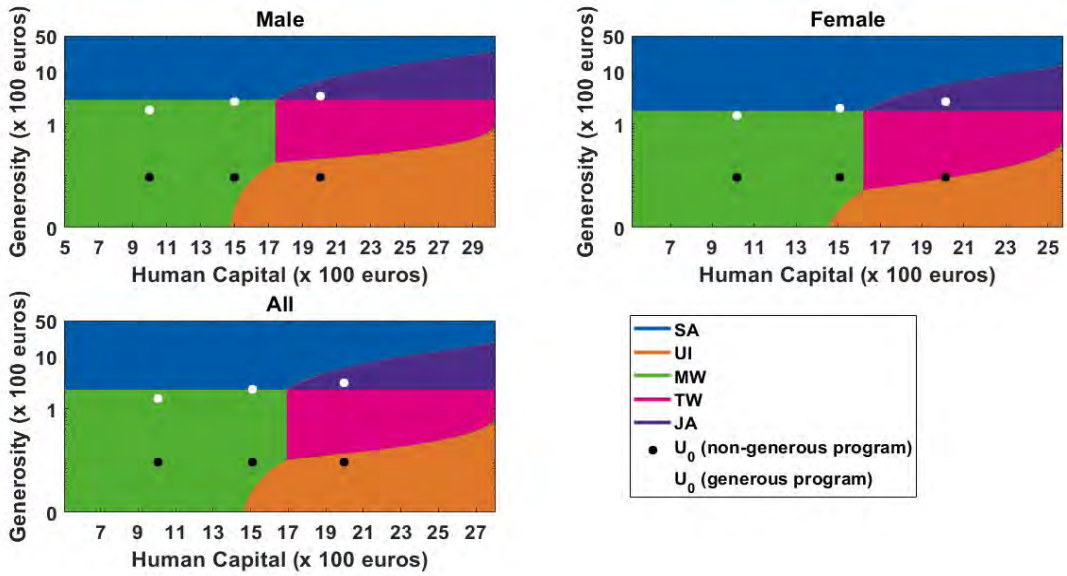
Policy indifference curves.

The boundaries between two policies represent the combinations of skill and generosity (c,h) for which the government is indifferent between the two policies.

Figure 2 shows that the policy indifference curve between MW and SA is horizontal because neither the costs nor the returns of these two policies depend on h.

The policy indifference curve between MW and TW is vertical because the costs of delivering c are the same for both policies. The boundary between JA and SA is positively sloped because a rise in h increases the returns to search for JA and has no impact on the value of SA, but a rise in c increases the costs of JA faster than for SA. The boundary between UI and MW is positively sloped because a larger h increases the returns to search, reduces the incentive costs for UI, and has no impact on the value of MW, but a higher c increases the costs of delivering promised utility for UI faster than for MW. Finally, the positive slope between TW and UI is explained by the fact that, as generosity increases, the costs of UI rise faster; at the same time, as h increases, the returns to search increase equally for both policies, but satisfying the search-incentive constraint for UI becomes cheaper.

FIGURE 3: Optimal Welfare-to-Work program for Males and Females



The Effect of Demographics: Males vs Females

The two top panels in Figure 3 illustrate how the policy space changes with Males vs Females. The bottom left panel reports the state space for the two groups pooled together (as in Figure 2). Within our framework, male and female recipients differ at least along two main dimensions.

Job Finding Probability. In our model, males and females first of all face different job finding rates at a given gross wage (see Figure 4 in the Appendix). Because of the lower return to job search, the optimal program for men tends to make heavier use of SA and MW than for women. At the same time, whenever private search is implemented in the program, incentive compatibility requires a larger promised utility gap to induce the worker to exert high effort. The wage tax (subsidy, if negative) rate for an agent who

finds a market-sector job from UI therefore increases (decreases) with p. Thus, if we look at the effect of the different job finding probabilities, the optimal design of welfare programs for men calls for the use of lower wage taxes or higher wage subsidies for UI recipients than for women.

Effort cost. The effort cost e might differ a great deal across demographic groups. When dealing with high-cost individuals such as women, the program should make greater use of policies that do not require effort. For high generosity levels, the optimal program should use JA for high levels of h, where assisted job search still has positive returns, and SA where the returns from job search are too small (i.e., for low h). At the same time, whenever private search is implemented in the program, incentive compatibility requires a larger promised utility gap to induce the worker to exert high effort when effort cost is large. Thus, if we look at the effect of the different effort cost, the optimal welfare program for women calls for the use of lower wage taxes or higher wage subsidies for UI recipients than for men.

As we have seen, the two dimensions of heterogeneity between men and women have somewhat opposite predictions both in terms of program assignment and in terms of optimal transfers between the two groups. All in all, the difference in the area sizes associated with different policies in the top panels of Figure 3 indicates that the optimal program calls for a heavier use of UI for men which is replaced for a heavier use of TW for women. This is intuitive as the effort cost for women is higher so it becomes very costly to satisfy the search incentive constraint implied by UI for this group.

In the Figure, we also report the generosity implied by the existing scheme in Italy, for three different levels of skills and two hypotheses regarding the estimated generosity. In all panels, the white bullets refer to the implied generosity of the Italian program for workers who are entitled to the maximal duration of NASpI (26 months); the black bullets refer to the level of generosity for workers not entitled to NASpI. They hence represent the rage of generosity of the Italian WTW program. The allocation of the different recipients to policies again reflects mainly the higher effort cost for women. For example, for generous programs and intermediate skill, women should be allocated to SA, and men to MW. For the skill level corresponding to a gross monthly earning of €2,000, if we consider low levels of generosity (towards the black bullets), men are optimally allocated to UI while women should be allocated to TW.

Skill Depreciation, Stigma and Policy Sequences

Up to this point, we have thought of h as a fixed individual type. An alternative view is that h is a stock of human capital that depreciates along the non-employment spell. Human capital depreciation has two implications. Since the wage function w depends on h, this generalization allows for a decline in earning power during non-employment, an idea supported by the empirical literature on earnings losses upon displacement which shows that these losses increase with the duration of the unemployment spell. Because the job-finding rate p depends positively on h, skill depreciation also means that the unemployment hazard displays negative duration dependence.

Pavoni et al. (2013) offer a characterization of the optimal welfare program when h decays along the unemployment spell. There, we show that in spite of the fact that skill depreciation affects the values of some policies, the state space does not change much relative to the case with fixed skill levels. Thus, to describe the optimal WTW program in this case, we can again use the policy space represented in Figure 2.

When h falls during unemployment, Figure 2 becomes a *phase diagram* where workers on the welfare program transit from right to left ---as

their skills decay--- at a constant level of continuation utility, the initial value c promised by the program The comparative static analysis on h discussed in the previous section (horizontal movements from right to left) suggests that two types of welfare programs emerge as optimal, depending on the level of generosity of the program c. A generous (or deep pocketed) government would implement an optimal program featuring the `effort-free' policy sequence JA -> SA. A more parsimonious (or more budget constrained) government would, instead, implement an `effort-intensive' program that follows the sequence UI -> TW-> MW, and would skip TW for especially low levels of c. The set of policy transitions featured by optimal programs is thus very limited. In particular, there would never be a transition originating from SA or from MW, and never a transition into UI.

Our computations suggest that for young Italian recipients, given the low generosity of the program for such individuals, the effort-intensive program UI->TW->MW is optimal.

TAKEAWAYS

- There is no one-policy-fits-all: different policies should be tailored to workers with different skill levels and different demographics.
- Each policy must be designed and evaluated within a more general context and jointly with all other available policies.
- An important ingredient in the design of policies is the worker input and the incentives that must be provided for the worker to participate actively to each policy.
- Worker effort and incentives shape the policy space not only as a function of a worker's skill level, but also as a function of the generosity of a welfare-to-work program
- Generous programs tend to implement effort-free policies such as Social assistance and Assisted Search, while less generous programs tend to implement more extensively policies such as Unemployment Insurance, Mandatory Work and Transitional Work.
- For Italy, despite the lower probability of finding a job compared to the US for example, because of the low generosity of the system, the optimal set of policies to be implemented is mainly 'effort-intensive'.
- The optimal WTW program should also treat men and women differently. More specifically, for men, efficiency calls for a greater use of the Nuova Assicurazione Sociale per l'Impiego (NASpI) (a classical Unemployment Insurance policy), while for women our computations suggest the combined use of the Assegno di Ricollocamento (AdR) and Extra-Curricular Internship (ECI) (Transitional Work policies) are often optimal.
- In the case of skill depreciation during the unemployment spell and less generous entitlements, such as is the case for young recipients, our computations suggest that for individuals skilled above the median, the optimal program for Italy sees a first assignment to NASpI (UI) then a transition to a policy that combines AdR with ECI (TW) and then, in the case of an unsuccessful search, the worker should be allocated to ECI (MW). Said it differently, AdR-like policies should have limited duration.
- The newly introduced WTW program (*Reddito di Cittadinanza*) replaces ASDI, REI and SIA and complements the measures of the Jobs Act (such as NASpI), with three main characteristics. First, the new measure is heavily means tested. Second, it uses quite intensively social work and the CPIs. Third, it envisages a direct monitoring of the recipient's job search activity.

References

ALDIERI, L. (2012): ``The Effect of Unemployment Experience on Subsequent Wages in Italy," *Research Gate Working Paper*.

ATTANASIO, O., H. LOW, and V. SANCHEZ-MARCOS (2008). 'Explaining Changes in Female Labour Supply in a Life-cycle Model', *American Economic Review*, 98(4), 1517-1552.

COGAN, J. F. (1981). 'Fixed Costs and Labor Supply', *Econometrica*, 49(4), 945-963.

ECKSTEIN, Z., and K. I. WOLPIN (1989). 'Dynamic Labour Force Participation of Married Women and Endogenous Work Experience', *Review of Economic Studies*, 56(3), 375-390.

FLINN, C. (1986): ``Econometric Analysis of CPS-Type Unemployment Data," *Journal of Human Resources*, 21(4), 457-484.

HAUSMAN, J. (1980). 'The Effect of Wages, Taxes, and Fixed Costs On Womens' Labor Force Participation', *Journal of Public Economics*, 14, 161-194.

KEANE M. P., and K. I. WOLPIN (1997). 'The Career Decisions of Young Men', *Journal of Political Economy*, 105(3), 473-522.

PAVONI, N. (2009): "Optimal Unemployment Insurance, with Human Capital Depreciation and Duration Dependence," *International Economic Review*, 50(2), 323–362.

AVONI, N., O. SETTY, AND G. L. VIOLANTE (2014): "Search and Work in Optimal Welfare Programs," *NBER Working Paper Series*, (Working Paper 18666).

PAVONI, N., O. SETTY, AND G. L. VIOLANTE (2016): "The Design of `Soft' Welfare-to-Work Programs," *the Review of Economic Dynamics*, 20, March: 160-180.

PAVONI, N., AND G. VIOLANTE (2005): "Optimal Welfare-to-Work Programs," *Federal Reserve Bank of Minneapolis Discussion Paper 143*.

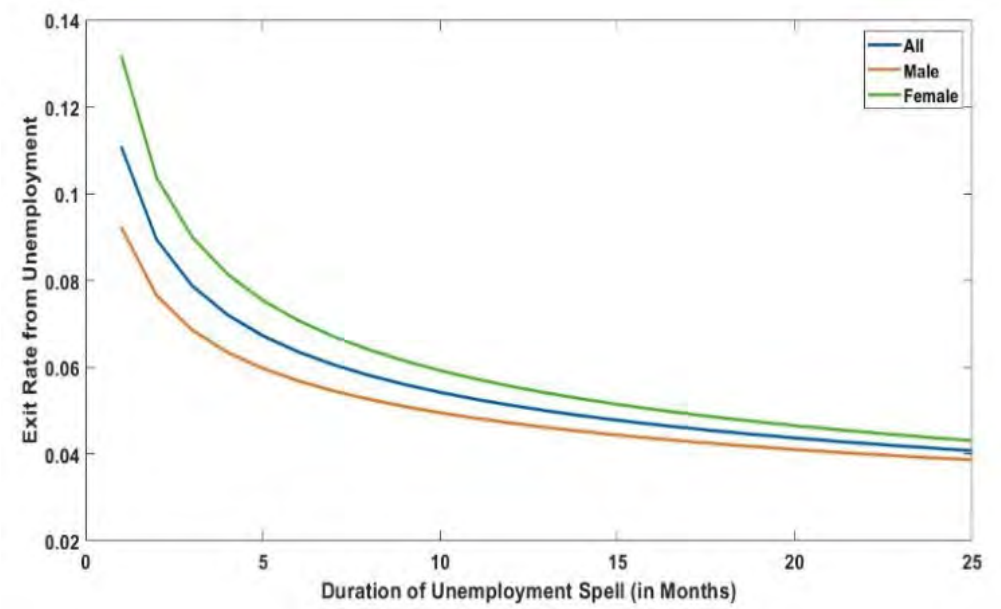
PAVONI, N., AND G. VIOLANTE (2007): "Optimal Welfare-to-Work Programs," *Review of Economic Studies*, 74 (1), 283– 318.

Appendix: Summary of the Calibration Exercis

We have a few key parameters to estimate and calibrate based on the Italian labor market. In particular, the functions w and p, the effort/work cost e, the production in the secondary market $\underline{w}$, together with the administrative cost k of running the public search agency.

w: As in Pavoni and Violante (2007) and Pavoni (2009), the wage function is assumed to be linear **w(h)=h**, that is, the empirical counterpart of our skill level h is the gross wage received by the recipient before displacement.

Figure 4: Estimated Hazard Rate (Weibull)



p: Again, following previous literature, the function p describing the probability of finding a job as a function of the worker's skills has been estimated to be a function of unemployment duration. This, together with a deterministic yearly depreciation rate of 5%, based on the estimation by Aldieri (2012), generates a mapping between unemployment duration and the skill level h.

Our source of data is the 'Rilevazione Continua sulle Forze di Lavoro' ('Continuous Survey on Labor Forces'), run by the Italian National Statistical Institute (ISTAT) on a quarterly basis, starting from 2014.

The survey is carried out in a face-to-face interview and administered to a sample of households residing in Italy, irrespective of their nationality. The sampling process has 2 stages: first, it selects the municipalities, and then the inhabitants within each municipality. While the municipalities stay the same over time, the households in the sample are periodically replaced. In particular, each selected household is interviewed for two subsequent quarters, left out of the survey for the next two, then surveyed again for the following two, and finally dropped out of the sample. Overall, in each quarter around 1,400 municipalities (out of less than 8,000) and 70,000 households are involved in the survey.

After identifying the unemployed (current and past) and the currently employed, we record respectively how long (in months) the unemployment spell has lasted and the monthly net wage (for the currently employed only). Having identified these categories, we estimate the hazard rate assuming that the durations of unemployment spells follow a Weibull distribution, where the hazard rate is allowed to change over time.

For those who are currently unemployed, we face two main problems: right censoring, and length bias. We address such features following the literature (Flinn, 1986). Figure 4 reports our estimated hazard function.

e: Recall that e may differ across gender. Various studies have been conducted that try to measure the cost of working effort for women: Attanasio et al. (2008), Hausman (1980), Cogan (1981), and Eckstein and Wolpin (1989) computed costs of, respectively, 21%, 27%, 41% and 62% in consumption equivalent terms. On the other hand, Keane and Wolpin (1997) estimated a cost for male workers of around 50% in consumption equivalent terms using a dynamic model similar to that of Eckstein and Wolpin. Given that in our sample there is no significant difference between male and female workers in the average education level, and there is strong evidence that the effort cost of working for women is higher than for men, we fix the cost for men at 50% in consumption equivalent terms, and choose a value at the high end of the range of existing estimates for women (namely, 62% in consumption equivalent). From these numbers, in order to compute e, recalling that we assumed log utility for the recipients, we proceed as follows: **e=u(c)-u((1-t)c)=log(c)-log((1-t)c)=-log(1-t),** where t is the percentage cost in consumption equivalent terms. We hence obtain **e=.69, e=.97** for men and women, respectively, and we used an average of and **e=.81** when considering the two demographic groups pooled together.

k: The Jobs Act envisages the possibility of an unemployed worker being assigned an outplacement voucher AdR which can be redeemed either at a public or private CPI. This endowment is transferred directly to the centre chosen by the worker, only if the latter manages to find a new job for the applicant; if not, the CPI is given only a small refund ('Fee for Services') of at most €106.50 for being in charge of the process. In order to avoid the risk that private agencies cherry pick the most employable workers, AdR is inversely proportional to the individual chances of finding a job: the more likely that a job is found, the lower the refund. In addition, AdR is differentiated according to the type of contract the worker is provided with and can take values of up to €1,500 for temporary jobs and up to €5,000 for permanent jobs for low skilled individuals. Any worker who is entitled to receive the voucher must fill in a Declaration of Immediate Employability (*Dichiarazione di Immediata Disponibilita'*, DID hereafter) measuring their own chances of finding a job, and is assigned a score (between 0 and 1) according to various criteria: individual features (gender, age, citizenship, education, state of employment), the characteristics of the local labour market, and a discretionary assessment done by the CPI following national guidelines. Depending on this score, the CPI computes the amount of the voucher to be assigned to the worker.

In our theoretical model, the technology is used only to find permanent contracts. Hence, to calibrate the parameter k, we only consider the costs associated with the permanent contract outcome within AdR. Moreover, recall that we assume that the job finding probability of the JA program is the same as that of private search, namely the hazard p. We hence take 1/p(h) for the median worker of the pooled sample as an estimate of the average duration of unemployment for the recipient to transform the average lump sum value associated with permanent jobs of €3,500 into a monthly amount (unfortunately, we do not have data on the amounts paid to CPI for permanent jobs). After such normalization, we obtain a monthly average cost of job search for a CPI of **k=€387.8**. Such a figure is in line with the monthly cost of k=$500 computed in Pavoni et al. (2016) for the US.

w: w is the net output of a secondary-sector job technology, that is the difference between the gross output and the administrative costs the government must sustain in order to use it. Recall that we consider the extra-curricular internship (ECI, to be distinguished from the curricular

internship, which is a job-school matching project addressed to high-school students) as MW. Since the 2001 Constitutional Reform, the design and implementation of labour active policies in Italy is a task shared by the central government and the Regions. In particular, each of the 20 Regions set the minimum monthly wage to be paid by employers (along with some other specifics, like the minimum and maximum number of hours an intern can work each week). Assuming the minimum wage to be equal to the average gross output of internships, we compute the gross output by averaging out regional minimum wages weighted by the share of internships activated in 2017 in each Region. The estimation leads to a value of approximately **€400** per month. The administrative cost of filling in a vacant internship position is based on two observations. First, according to the Guidelines on Extra-Curricular Internships approved by the State-Regions Committee in 2013, an extra-curricular internship cannot last longer than one year. Thus, the reimbursement for a permanent job never applies here. Second, given that internship vacancies are posted directly by firms, there is no estimate of those that remain unfilled. Therefore, we consider the AdR rebate only for contracts different from the permanent ones. On top of the permanent contract, the recipient might obtain 4 possible outcomes: (i) a term-contract with duration longer than 6 months; (ii) a term contract with duration between 3 and 6 months; (ii) other types of contract; (iii) no job found. The average monthly cost for the CPI depends on the share of workers with the different contracts. Unfortunately, no data is yet available to assess its efficacy and compute the transition probabilities from unemployment to either of the 4 situations outlined above. We, therefore, exploit evidence coming from the so-called *Contratti di Somministrazione* (Supply Contracts, CDI hereafter), an agreement a CPI can sign with employers to provide a certain number of workers (among the registered ones), for a given occupation and period of time. Given that CDIs have different durations, we assume the relative frequency of each type of CDI to be the likelihood that a job is found having the same duration, conditional on finding one via the CPI, which is then given a corresponding reimbursement. The evidence from the 2017 Annual Report on Compulsory Communications (*Rapporto Annuale sulle Comunicazioni Obbligatorie*) and the 2015 Survey on Employment Services (*Indagine sui Servizi per l'Impiego*) released by the Ministry of Labour, shows that a large majority of CDI are temporary contracts (96.7%). The weights of the different outcomes multiplied by the average cost per month implied by the outcome (assuming no search frictions) leads to an estimated cost of **€111.4** per month. The net output is hence **w=400-111.4=€288.6** per month.