1 Social Dumping in the Transformation Process

Business representatives and union leaders often complain about "Social Dumping", and want international harmonization of social conditions.

First of all, what is meant by social dumping?

It can be divided into two parts.

(i) Wages, working conditions (safety standards, children working, etc.,), and wage related fringe benefits.

(ii) Redistribution of resources among different types of individuals, such as tax-financed transfers to the poor. This is perhaps better called "welfare dumping".

We saw in last chapter that welfare dumping may be a problem.

But what about the other type of social dumping?

It is clear that some countries have higher social standards than others.

Think of safety standards in firms or social insurance contribution. In this case, countries like Germany have much higher standards than, say, Portugal or Spain.

Even among the richest countries there are large differences.

In the US, workers have a much less number of holidays than workers in Germany.

In Germany, on the other hand, workers are eligible for much less maternity and paternity leave than workers in Sweden.

But is this a result of a conscious policy of social dumping by the governments?

We will in this chapter study the motives for low labor standards in lesser developed countries and study the justification of harmonization agreements.

The EU-enlargement can be taken as an example of this problem.

We will see that there might be natural explanations for the differences.

We are still in a transition, the fully common market was not achieved until the 1990s.

Because real capital moves very slowly, the convergence may be slow.

The effects are slowed down because, for example, political institutions and public infrastructure are changing very slowly.

We will model the transition growth path of a lesser developed country that joins a well-developed economic core area.

Before joining, the lesser developed country has a low labor productivity, low wages and low social standards.

After joining it will catch up by sending guest workers to the core region and attracting capital investment.

We will first (today) study if countries have incentives to dump their social standards, i.e., if there is a need to have a supranational planner.

We will then (tomorrow) analyze some interesting properties of the catching-up process.

1.1 A Simple Model of the Economic Catching-up Process

- We will analyze three levels of decision problems.
  - Firms' optimization and market equilibrium.
  - National optimization.
  - Supra-national optimization.

- Consider a small, lesser developed joining country which opens its borders to a large already developed core area.

- t denotes time where 0 is the time of unification.

- Goods, financial capital and technical knowledge are completely mobile across the country's borders.

- Real capital and labor are only mobile to a limited extent.

- Real capital can migrate slowly. It has no preference of location other than the return that can be generated.

- The interest rate, r, is set in the core area.

- Investments, I_t, in the joining country result in a convex adjustment cost $\varphi(I_t)$ where $\varphi(0) = 0$, $\varphi'(I) < 0$ for $I < 0$, $\varphi'(I_t) < 0$ for $I_t > 0$ and $\varphi''(I_t) > 0$.

- Labor can migrate quickly but workers suffer an emigration cost.

- There are X_t guest workers who have migrated to the core area, each of which face the cost, $\Psi(X_t)$, of living and working in the core area.

- That is, they are away from family and friends. Other costs of living in the country come from commuting or traveling home, homesickness, etc.

- We have that $\Psi(0) = 0$, $\Psi'(X_t) > 0$, and $\Psi''(X_t) > 0$.

- The joining country produces its goods with the production function $f(K_t, L_t)$, which is strictly quasi concave.

- So K_t is capital used, and L_t is labor used, in the joining country.

- The constant labor force potential of the joining country is L_t^*.

- The number of guest workers sent abroad is therefore

$$X = L_t^* - L_t.$$

- The effective wage rate at home, which drives the migration decision, is w_t.

- w_t is the workers's subjective money equivalent of a benefit bundle consisting of the pecuniary market wage $w_{p,t}$ and the benefit resulting from firms' expense per employee $w_{s,t}$ necessary to meet the government-determined social standard

$$w_t = U(w_{p,t}, w_{s,t}).$$

- The wage in the core area is w^*, which is the subjective money equivalent of the direct and indirect wage elements available there.

- Now, workers with a high home-country preference

$$\Psi'(X_t) > w_t^* - w_t,$$

will stay at home.

- Workers with a high core-country preference

$$\Psi'(X_t) < w_t^* - w_t,$$

will move to the core area.

- The indifferent worker is defined by

$$\Psi'(X_t) = w_t^* - w_t.$$

- Also $U(w_{p,t}, w_{s,t})$ is linearly homogenous and normalized in such a way that

$$U(w_{p,t}, w_{s,t}) = w_{p,t} + w_{s,t}$$

if $w_{p,t}$ and $w_{s,t}$ are chosen such that $U_{w_{p,t}} = U_{w_{s,t}} = 1$.

- We assume that the government selects the level of working standard.

- To include an rationale for why the government does this, rather than firms, we can take an asymmetric information story.

- Workers do not know the effort of their future employers at the time they sign their employment contracts.

- Thus each firm has an incentive to under-invest.

- So the government takes over in order to avoid a lemon market for working standards.

- We assume finally, that the marginal productivity to labor in the joining country at time 0 is lower than the wage rate in the core area.

- So we have

$$w^* > f_L(K_0, L_0^*) \text{ for } t \leq 0.$$

1.2 The firms' problem

The representative firm selects the time path of its labor use, L_t, and its net investments, I_t, taking the interest r, the pecuniary wage $w_{p,t}$, and the government standard $w_{s,t}$, as given.

So it solves

$$\max_{L,I} \int_0^\infty e^{-rt}[f(K_t, L_t) - (w_{p,t} + w_{s,t})L_t - I_t - \varphi(I_t)]dt$$

subject to

$$\dot{K}_t = I_t.$$

and

$$K_0 \text{ given}$$

The transversality condition is

$$\lim_{t\to\infty} e^{-rt} q_t K_t = 0.$$

This is a dynamic problem where the control variables are L and I and the state variable is K.

$\dot{K}_t = I_t$ is the law of motion.

It shows how the capital stock evolves as a function of investments.

The second restriction simply says that we start at a given capital stock K_0.

The transversality condition says that the chosen value of the state variable at the end of the planning horizon discounted at the rate r must be zero.

$r > 0$ implies that the future is valued less than the present.

So we have to check later that q_t and K_t are bounded from above.

We now set up the current-value Hamiltonian

$$H = f(K_t, L_t) - (w_{p,t} + w_{s,t})L - I_t - \varphi(I_t) - q_t I_t$$

where q_t is the co-state variable of the capital stock (or the shadow price).

In general, first-order conditions to this problem are

$$\begin{aligned}
\frac{\partial H}{\partial L_t} &= 0 \\
\frac{\partial H}{\partial I_t} &= 0 \\
\frac{\partial H}{\partial K_t} &= rq_t - \dot{q}_t.
\end{aligned}$$

So in our case, we have

$$\begin{aligned}
\frac{\partial H}{\partial L_t} &= f_L(K_t, L_t) - (w_{p,t} + w_{s,t}) = 0 \\
\frac{\partial H}{\partial I_t} &= -1 - \varphi'(I_t) - q_t = 0 \\
\frac{\partial H}{\partial K_t} &= f_K(K_t, L_t) = rq_t - \dot{q}_t
\end{aligned}$$

1.3 The policy of the national government

From the equations we just set up, the joining government knows how migrants and private firms will react to the time path of the standard it announces.

It selects the time path of the firms' corresponding expense per workers, $w_{s,t}$ so as to maximize national welfare.

National welfare, W, is given by

$$\int_0^\infty e^{-rt}[f(K_t, L_t) - (w_{p,t} + w_{s,t})L_t - I_t - \varphi(I_t)]dt$$
$$+ \int_0^\infty e^{-rt}[U(w_{p,t}, w_{s,t})L_t + w_t^* X - \Psi(X_t)]dt,$$

where, remember, $X = L_t^* - L_t$.

The first part is the firms profit and the latter part consists of the utility of the workers.

Instead of solving this, a trick is used.

Consider a marginal perturbation ε_t of the time path of $w_{s,t}$ in this equation.

It incurs a first-order effect on welfare and a second-order effect through a potential change in labor, which affects welfare.

Let's look at the second order effect, $\frac{\partial W}{\partial L}\frac{\partial L}{\partial w_{s,t}}$.

It is zero since it takes place around the private optima, which we now show.

Let's see what happens as L changes in consequence to the perturbation ($\frac{\partial W}{\partial L}$).

Consider the first integral, which is the part that takes the firms' profits into account.

We know that $\frac{\partial W^{FIRMS}}{\partial L} = 0$ from the firms' optimization problem so this is zero.

As for the second integral we have

$$\frac{\partial W^{WORKERS}}{\partial L} = U(w_{p,t} + w_{s,t}) - w^* + \Psi'(L^* - L_t).$$

Recall that we defined the effective wage rate, w, as $w = U(w_{p,t}, w_{s,t})$.

Recall also that the citizens emigration condition in equilibrium is given by $\Psi'(X_t) = w_t^* - w_t$.

Since $X = L^* - L_t$ we also have $\Psi'(L^* - L_t) = w_t^* - w_t$

Hence, the overall effect is

$$\frac{\partial W}{\partial L} = w_t - w_t^* - w_t^* - w_t = 0.$$

Consider now the first-order effect.

This effect results from the changes in the direct and indirect wage components, given the behavior of private agents as described by L and I.

Recall that from the firms' first-order condition we have

$$\frac{\partial H}{\partial L} = f_L(K_t, L_t) - (w_{p,t} + w_{s,t}) = 0$$

We can total differentiate this with respect to $w_{p,t}$ and $w_{s,t}$ to see how changes in one of the variables affect the other.

This implies, since L is given, that

$$\begin{aligned} dw_{p,t} &= -dw_{s,t} \Leftrightarrow \\ \frac{dw_{p,t}}{dw_{s,t}} &= -1 \end{aligned}$$

Hence, the pecuniary wage falls one to one with an increase in the cost of the standard.

In other words, if the joining country increases the social standard by one unit, then the market will make sure that the pecuniary part of the wage is reduced by the same amount.

Thus, if the government has optimized its policy, this perturbation of the social standard is unable to change welfare.

So it is as a necessary condition for an optimum that $\Delta W \mid_{L,I}=$

$$\int_0^\infty e^{-rt}\varepsilon_t[U_{w_{p,t}}(w_{p,t}, w_{s,t}) - U_{w_{s,t}}(w_{p,t}, w_{s,t})] = 0$$

This implies that

$$\frac{U_{w_p}(w_{p,t}, w_{s,t})}{U_{w_s}(w_{p,t}, w_{s,t})} = 1$$

Because of the linear homogeneity of the utility function this implies that the government-imposed work place standard will improve gradually in step with a rise in the market wage.

Also, we note that this implies that the utility function may take on the form

$$U(w_{p,t}, w_{s,t}) = w_{p,t} + w_{s,t},$$

That is, the utility from having a job in the domestic country can be taken to be the algebraic sum of the wage paid out to the worker and the per capita government imposed social standard.

Result: Maximizing social welfare, the government of the joining country chooses a time path of social standard such that the rate of substitution between the pecuniary wage and the firms' expenses necessary to satisfy the standard is equal to one.

1.4 A supra-national planner

After studying the optimality conditions of private agents and the national government, a supranational perspective will now be taken to check whether the accusation of social dumping is justified.

If a supra-national planner would behave differently from the national governments, then social dumping is a problem.

Consider the problem of a supra-national planner.

It considers the firms' profits, workers' utility at home, workers' utility abroad, and the personal cost of being abroad.

So it solves

$$\max_{L_t, I_t, w_{s,t} w_{s,t}} W$$

where W is given by

$$\int_0^\infty e^{-rt}[f(K_t, L_t) - (w_{p,t} + w_{s,t})L_t - I_t - \varphi(I_t)]dt$$
$$+ \int_0^\infty e^{-rt}[U(w_{p,t}, w_{s,t})L_t + w^* X - \Psi(X)]dt.$$

$$s.t. K_0 \text{ given}$$

$$\dot{K}_t = I_t$$

and the transversality condition

$$\lim_{t \to \infty} e^{-rt} q_t K_t = 0.$$

There are now four control variables and one state variable.

The current value Hamiltonian, H, is given by

$$f(K_t, L_t) - I_t - \varphi(I_t) - L_t(w_{p,t} + w_{s,t} + U(w_{p,t}, w_{s,t}))$$
$$+w^* X - \Psi(X) + q_t I_t.$$

where q_t is the costate (the shadow price).

Note that there is an error in the book.

It says $w^*(L - L^*)$ rather than the correct expression $w^*(L^* - L)$.

The first-order conditions are

$$\begin{aligned}
\frac{\partial H}{\partial L} &= f_L - (w_{p,t} + w_{s,t} - U(w_{p,t}, w_{s,t})) - \\
-w^* + \Psi'(X) &= 0 \\
\frac{\partial H}{\partial I_t} &= -1 - \varphi'(I_t) - q_t = 0 \\
\frac{\partial H}{\partial w_{p,t}} &= (-1 + U_{w_{p,t}}(w_{p,t}, w_{s,t}))L_t = 0 \\
\frac{\partial H}{\partial w_{s,t}} &= (-1 + U_{w_{s,t}}(w_{p,t}, w_{s,t}))L_t = 0 \\
f_K &= rq_t - \dot{q}_t
\end{aligned}$$

We note that from the first-order conditions we get

$$\frac{U_{w_{p,t}}(w_{p,t}, w_{s,t})}{U_{w_{p,t}}(w_{p,t}, w_{s,t})} = 1,$$

which exactly coincides with the condition we found under the national optimum.

The assumed utility function

$$w_t = U(w_{p,t}, w_{s,t}) = w_{p,t} + w_{s,t},$$

generates this result.

In other words, the firms costs, $w_{p,t}+w_{s,t}$, and the workers utility at home, $U(w_{p,t}, w_{s,t})$, cancel in equilibrium.

So $\frac{\partial H}{\partial L}$ simplifies to

$$\frac{\partial H}{\partial L_t} = f_L(K_t, L_t) - w_t^* + \Psi'(X_t) = 0$$

It consists of the marginal change in production, the marginal change in incomes abroad and the marginal change in cost of having workers abroad.

More labor in the joining country reduces the marginal income from wages abroad by w_t^*.

Now, in equilibrium, we note that

$$\Psi'(X_t) = w_t^* - w_t.$$

So more labor in the joining country also reduces the marginal moving costs by $w_t^* - w_t$ since fewer people move.

Note that the wage level abroad, w_t^*, cancels.

So we get

$$\frac{\partial H}{\partial L_t} = f_L(K_t, L_t) - w_t = 0.$$

Let's now recall the national optimum where the firms maximized their profits with respect to L

$$\frac{\partial H^{FIRM}}{\partial L_t} = f_L(K_t, L_t) - w_t = 0$$

It consists of the marginal change in production and the marginal change in the cost for the home-workers.

Hence, the first-order conditions with the respect to L are the same and so are all the other first-order conditions!

Result: The transformation process chosen by market forces and the work standard policy chosen by the joining country's government are efficient from a supra-national perspective.

To sum up: Systems competition with public redistribution (chapter 3) erodes the welfare state but systems competition with work place standards does not.