Online Appendix for
"Productivity Growth and Capital Flows: The Dynamics of Reforms"

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A   Historical Narratives: Sustained Growth Accelerations with and without Reforms

As discussed in Section 1, the economic reform indicator based on Sachs and Warner (1995), Wacziarg and Welch (2003), and Abiad et al. (2010) miss some of the best-known major economic reforms that led to sustained accelerations. This shortcoming can partly be addressed by reviewing the policy changes around the years statistically identified as the start of sustained accelerations.

Of the 22 post-1980 sustained growth accelerations we focus on, 11 have the reform indicator go from zero to one, five or fewer years prior to the start of the acceleration. They are, with the statistically dated start year in parentheses, Albania (1993), Chile (1985), Dominican Republic (1991), El Salvador (1991), Ireland (1987), Korea (1983), Poland (1993), Singapore (1988), Sri Lanka (1990), Trinidad and Tobago (1994), and United Kingdom (1982).

Of the remaining 11, two are not covered by the reform data and have no reform indicator: Laos (1988) and Sudan (1993). For the other nine, there is no change in the reform indicator in the five years preceding the start of the respective acceleration: China (1991), India (1983), Mauritius (1983), Panama (1988), Portugal (1984), Spain (1983), Taiwan (1985), Turkey (1981), and Vietnam (1990).

A perusal of the economic history of the latter groups of countries points to well-documented major reforms—not picked up by the reform indicator—immediately preceding seven of the 11 accelerations: China, India, Mauritius, Laos, Taiwan, Turkey, and Vietnam. In Section 4.3.2, we already described the cases of China and India. For each of the other five, we provide a brief description below.

In Laos, a comprehensive pro-market reform program was inaugurated in the mid-1980s. By 1988 most state enterprises were given the power to decide on prices and investment by themselves, followed by a privatization program in 1989 (Bourdet, 2000).

The acceleration of Mauritius (1983) followed reforms of the early 1980s designed to move away from import substitution, which accounted for 80 percent of manufacturing investment during 1978–81. The reforms eliminated price controls, quantity restrictions on imports, and export taxes on sugar. Tariffs were gradually reduced, and the differential tax treatment of companies under various special regimes was removed. In the sugar industry (a major player well into the 1980s), most size-dependent policies were abandoned, leading to consolidation and productivity gains (Gulhati and Nallari, 1990; Dabee and Greenaway, 2001).

With its eighth four-year plan of 1982–86, Taiwan began undoing the import substitution policies that had favored petrochemical, machinery, and steel industries in the late 1970s. The policy emphasis on liberalization and internationalization was also restored (Leipziger, 1997).

In the aftermath of the 1977 debt crisis, Turkey implemented a series of stabilization and liberalization policies, embarking on a development path "with a greater reliance on export expansion and market forces." The reforms included price adjustment of public enterprise products, product market deregulation, and trade liberalization (Celâsun and Rodrik, 1989).

In Vietnam, the transition toward a market economy started in 1986 with piecemeal measures, followed by more comprehensive structural reforms in 1989. They included a land reform, price liberalization, exchange rate unification, public enterprise restructuring, and the introduction of private contracts to attract foreign investment (Lipworth and Spitäller, 1993).

Now four sustained accelerations remain unaccounted for: Panama (1988), Portugal (1984), Spain (1983), and Sudan (1993). As for Portugal and Spain, their accelerations started around the time they joined the European Economic Community. For Panama and Sudan, the accelerations followed a foreign military intervention or a civil war. Related, although the acceleration of El Salvador (1991) is immediately preceded by a change in the reform indicator, we note that it also followed the conclusion of a prolonged civil war. For these five countries, it would be unconvincing to argue that distortion-removing economic reforms were the primary driver of their sustained accelerations.

In summary, using the reform indicator alone, of the 22 post-1980 sustained growth accelerations, 11 followed major reforms and nine did not, while the other two are indeterminate because of the lack of data. When we combine the information from the historical narratives, we conclude that 17 of the 22 sustained accelerations followed major reforms, while the other five may not be explained as neatly by economic reforms.
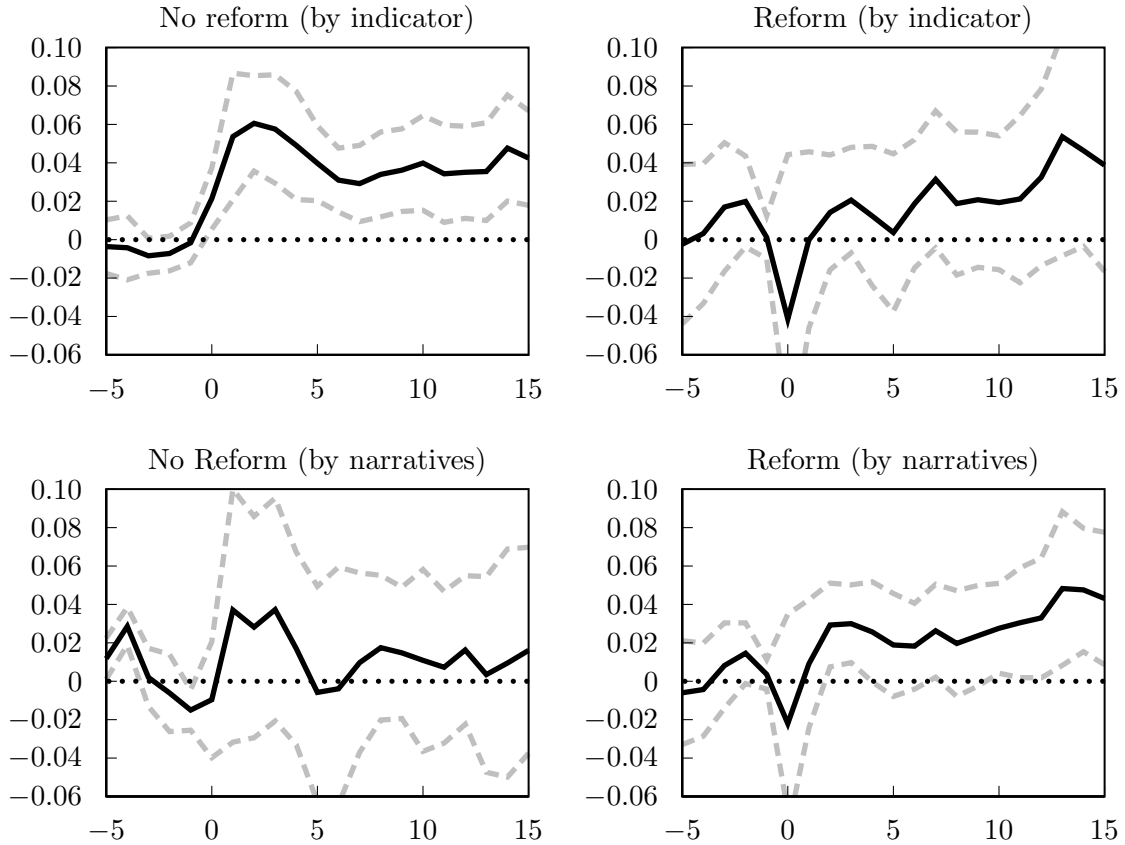
Fig. 1: Capital Outflow during Sustained Growth Accelerations. The top panels show the average of saving minus investment rates during sustained accelerations that did not follow reforms (nine episodes, left) and that did follow reforms (11 episodes, right), according to the reform indicator. The bottom panels are constructed similarly, except that the presence of reforms is determined by both the reform indicator and the historical narratives: five episodes without reforms (left) and 17 with reforms (right). The horizontal axis is years, with year 0 as the statistically identified beginning of each episode. The saving minus investment rates are in point deviations from the average over years -5 through -1, and the dashed lines are 5- and 95-percent error bands.

We now ask whether the sustained accelerations that do and do not follow reforms exhibit significant difference in terms of capital flows.

In the top panels of Figure 1, we compare the dynamics of the excess saving over investment during sustained accelerations without (top left) and with reforms (top right), as determined by the reform indicator alone. The saving minus investment rates are averaged across countries and in point deviations from the average over years -5 to -1, with the statistically identified start of each sustained acceleration as year 0. As discussed above, we have nine episodes in the top left panel and eleven in the top right panel. (Laos and Sudan are dropped because the reform indicator is not defined for them.) By this classification, we find that only those sustained accelerations *not* preceded by a major reform are accompanied by statistically significant capital outflows. This admittedly casts doubts on the main economic mechanism we propose in the paper that emphasizes distortion-removing reforms.

However, when we utilize the information from the historical narratives, we obtain the opposite result. In the bottom panels, the sustained accelerations are divided into no-reform (five episodes, bottom left) vs. reform (17 episodes, bottom right), based on the historical narratives as well as the reform indicator. The saving minus investment rates (i.e., capital outflows) are now significantly positive only for those sustained accelerations preceded by large-scale, distortion-removing reforms.

The insignificance result in the bottom left panel is to a large extent because of the small sample size: Only five out of 22 episodes are not related to reforms. This fact reinforces our view emphasizing the role of distortion-removing reforms.

B   Simplified Version of the Quantitative Model

We present a simplified version of the quantitative model in the paper to illustrate more clearly some of the forces driving the dynamics of TFP, investment and saving. We gain tractability by abstracting from the permanent income and precautionary saving motives, which are important driving forces of the aggregate saving as explained in Section 4.4.[1]

There are two classes of agents: workers and entrepreneurs. In turn, there are two types of entrepreneurs: (1) low productivity entrepreneurs who are initially wealthy and (2) productive but initially poor entrepreneurs. The ratio of their productivity is $\chi > 1$. Individual technologies have constant returns to scale in capital and labor, and capital depreciates fully in one period. Entrepreneurs are infinitely lived and have logarithmic

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[1]This simplified version is also useful for highlighting some features that our model shares with the theory in Song et al. (2011). To facilitate the comparison, when possible, we follow the functional forms in that paper. However, this does not mean that Song et al. (2011) is a special case of our quantitative model. The driving forces are qualitatively different, as described in the introduction of our paper.

preferences. Workers are hand to mouth. To simplify the exposition, we assume that the interest rate is constant, which implies a constant rental price of capital, $R = 1 + r$. We consider a transition from an initial condition where unproductive entrepreneurs have a large fraction of the net worth of the economy and therefore are active in the beginning. Productive entrepreneurs are endowed with a small, but positive, initial net worth.

There are four main features of the transition that will be highlighted: (1) As capital and labor are reallocation from unproductive to productive individuals, TFP rises; (2) Aggregate capital, which equals investment since capital depreciates fully, decreases over time; (3) The aggregate entrepreneurial saving rate is initially low but increases over time; (4) Provided that borrowing constraints are sufficiently tight, the aggregate foreign asset position becomes positive during the transition. These properties will hold as long as unproductive entrepreneurs are active.

B.1 Case 1: Active Unproductive Entrepreneurs

Assuming that unproductive entrepreneurs are unconstrained, they solve the following.

$$\max_{k_{1,t}, l_{1,t}} k_{1,t}^\alpha \left(z l_{1,t} \right)^{1-\alpha} - R k_{1,t} - w_t l_{1,t}$$

As long as they operate and are unconstrained, wages are given by

$$w_t = (1 - \alpha) \left(\frac{\alpha}{R} \right)^{\frac{\alpha}{1-\alpha}} z. \tag{1}$$

The capital to labor ratio of unproductive entrepreneurs equals

$$\frac{k_{1,t}}{l_{1,t}} = z \left(\frac{\alpha}{R} \right)^{\frac{1}{1-\alpha}}$$

and their output is

$$y_{1,t} = k_{1t}^\alpha \left(z l_{1t} \right)^{1-\alpha} = \left(\frac{\alpha}{R} \right)^{\frac{\alpha}{1-\alpha}} z l_{1t}.$$

Given the capital input (that is going to be constrained in equilibrium), productive entrepreneurs solve the following.

$$\max_{l_{2,t}} k_{2,t}^\alpha \left(\chi z l_{2,t} \right)^{1-\alpha} - w_t l_{2,t}$$

The labor input of productive entrepreneurs is

$$l_{2,t} = \left(\frac{(1 - \alpha)}{w_t} \right)^{\frac{1}{\alpha}} (\chi z)^{\frac{1-\alpha}{\alpha}} k_{2,t}$$

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or, after substituting (1),

$$l_{2,t} = \chi^{\frac{1}{\alpha}} \left(\frac{R}{\alpha}\right)^{\frac{1}{1-\alpha}} \frac{k_{2,t}}{\chi z}.$$

The output of productive entrepreneurs equals

$$y_{2,t} = \chi^{\frac{1-\alpha}{\alpha}} \frac{R}{\alpha} k_{2,t}$$

and their profits are

$$\pi_{2,t} = \chi^{\frac{1-\alpha}{\alpha}} R k_{2,t}.$$

Capital depreciates in one period. Entrepreneurs can collateralize a fraction η of their future income. Given the log utility, capital in period $t+1$ equals the sum of entrepreneurs' saving (internal funds) $\beta(1-\eta)\pi_{2,t}$ and loans (external funds) $d_{2,t+1}$:

$$\begin{aligned}
k_{2,t+1} &= \beta(1-\eta)\pi_{2,t} + d_{2,t+1} \\
&= \beta(1-\eta)\pi_{2,t} + \frac{\eta}{R}\pi_{2,t+1} \\
&= \beta(1-\eta)\pi_{2,t} + \frac{\eta}{R}\chi^{\frac{1-\alpha}{\alpha}} R k_{2,t+1} \\
&= \beta(1-\eta)\pi_{2,t} + \eta\chi^{\frac{1-\alpha}{\alpha}} k_{2,t+1},
\end{aligned}$$

or

$$k_{2,t+1} = \beta \frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}} R}{1 - \eta\chi^{\frac{1-\alpha}{\alpha}}} k_{2,t}.$$

We now start using capital letters to denote aggregate variables for each entrepreneurial type, which in this simple model equal the individual ones, e.g., $K_{1t} = k_{1t}$ and $K_{2t} = k_{2t}$. The net worth of unproductive entrepreneurs $A_{1,t}$ follows

$$A_{1,t+1} = \beta R A_{1,t}.$$

The net worth of productive entrepreneurs, $A_{2,t+1} = K_{2,t+1} - D_{2,t+1}$, follows:

$$\begin{aligned}
A_{2,t+1} &= K_{2,t+1} - D_{2,t+1} \\
&= K_{2,t+1} - \eta\chi^{\frac{1-\alpha}{\alpha}} K_{2,t+1} \\
&= \beta \frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}} R}{1 - \eta\chi^{\frac{1-\alpha}{\alpha}}} A_{2,t}.
\end{aligned}$$

The capital input of unproductive entrepreneurs equals

$$K_{1,t} = z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} L_{1,t}$$

$$= z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} (L - L_{2,t})$$

$$= z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} \left(L - \chi^{\frac{1}{\alpha}} \left(\frac{R}{\alpha}\right)^{\frac{1}{1-\alpha}} \frac{K_{2,t}}{\chi z}\right)$$

$$= z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} L - \chi^{\frac{1-\alpha}{\alpha}} K_{2,t}.$$

Thus, provided $\beta[(1-\eta)\chi^{(1-\alpha)/\alpha}R]/(1-\eta\chi^{(1-\alpha)/\alpha}) > 1$, all capital and labor will be eventually used by productive entrepreneurs. Aggregate capital equals

$$K_t = K_{1,t} + K_{2,t} = z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} L - \left(\chi^{\frac{1-\alpha}{\alpha}} - 1\right) K_{2,t}. \tag{2}$$

This equation implies that aggregate capital decreases over times as long as unproductive entrepreneurs are active. Aggregate output equals

$$Y_t = K_{1,t}^{\alpha} (zL_{1,t})^{1-\alpha} + K_{2,t}^{\alpha} (\chi zL_{2,t})^{1-\alpha}$$

$$= zL_{1,t} \left(\frac{K_{1,t}}{zL_{1,t}}\right)^{\alpha} + \chi zL_{2,t} \left(\frac{K_{2,t}}{\chi zL_{2,t}}\right)^{\alpha}$$

$$= zL_{1,t} \left(\frac{\alpha}{R}\right)^{\frac{\alpha}{1-\alpha}} + \chi zL_{2,t} \left(\frac{\alpha}{R}\right)^{\frac{\alpha}{1-\alpha}} \frac{1}{\chi}$$

$$= z \left(\frac{\alpha}{R}\right)^{\frac{\alpha}{1-\alpha}} L. \tag{3}$$

As long as unproductive entrepreneurs remain active, per capita output is constant along the transition. Rearranging the expression for aggregate output, we obtain

$$Y_t = \left[\frac{z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} L}{z \left(\frac{\alpha}{R}\right)^{\frac{1}{1-\alpha}} L - \left(\chi^{\frac{1-\alpha}{\alpha}} - 1\right) K_{2,t}}\right]^{\alpha} K_t^{\alpha} (zL)^{1-\alpha}$$

$$= \left[\frac{1}{1 - \frac{L_{2,t}}{L} + \frac{1}{\chi^{\frac{1-\alpha}{\alpha}}} \frac{L_{2,t}}{L}}\right]^{\alpha} K_t^{\alpha} (zL)^{1-\alpha},$$

which shows that total factor productivity is increasing along the transition.

Aggregate Saving Rate The aggregate entrepreneurial saving rate is as follows.

$$\frac{S_t^E}{Y_t^E} = \frac{(R-1)A_{1,t} - C_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1\right) A_{2,t} - C_{2,t}}{(R-1)A_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1\right) A_{2,t}}$$

$$= \frac{(R - 1 - (1-\beta)R)A_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1 - (1-\beta)\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}}\right) A_{2,t}}{(R-1)A_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1\right) A_{2,t}}$$

$$= (\beta R - 1) \frac{(R-1)A_{1,t}}{(R-1)A_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1 \right) A_{2,t}}$$

$$+ \left(\beta \frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1 \right) \frac{\left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1 \right) A_{2,t}}{(R-1)A_{1,t} + \left(\frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} - 1 \right) A_{2,t}}$$

Thus, the aggregate entrepreneurial saving rate is an income weighted average of the saving rates of the two types. To the extent that the net-worth of unproductive entrepreneurs declines, which is necessary for a stationary equilibrium, and the net-worth of productive entrepreneurs increases over time, the aggregate saving rate increases over time.

Aggregate Investment Rate

$$\frac{I_t}{Y_t} = \frac{K_{t+1}}{Y_t}$$

As long as unproductive entrepreneurs are active and productive ones expand, aggregate investment declines over time as can be seen from (2) and (3). Also note that investment of productive entrepreneurs exceed their saving, as they can leverage their net-worth.

Net Foreign Asset Position   The net foreign asset position at the end of period t is as follows.

$$NFA_t = NFA_{1,t} + NFA_{2,t}$$
$$= A_{1,t+1} - K_{1,t+1} + A_{2,t+1} - K_{2,t+1}$$
$$= \beta R A_{1,t} - \left(z \left(\frac{\alpha}{R} \right)^{\frac{1}{1-\alpha}} L - \chi^{\frac{1-\alpha}{\alpha}} K_{2,t} \right)$$
$$+ \beta \frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} A_{2,t} - \beta \frac{(1-\eta)\chi^{\frac{1-\alpha}{\alpha}}R}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} K_{2,t}$$
$$= \beta R A_{1,t} - \left(z \left(\frac{\alpha}{R} \right)^{\frac{1}{1-\alpha}} L - \chi^{\frac{1-\alpha}{\alpha}} K_{2,t} \right)$$
$$- \beta(1-\eta)\chi^{\frac{1-\alpha}{\alpha}} R \frac{\eta\chi^{\frac{1-\alpha}{\alpha}}}{1-\eta\chi^{\frac{1-\alpha}{\alpha}}} K_{2,t}$$

The first two terms in the right hand side correspond to the net foreign asset position of unproductive entrepreneurs, which is strictly positive at least by the time they exit entrepreneurship, i.e., $K_{1,t} = 0$. Productive entrepreneurs have a strictly negative, and decreasing, foreign asset position. Provided borrowing constraints are sufficiently tight, i.e., η close to 0, the aggregate foreign asset position is positive in the initial phase of the transition.

B.2 Case 2: Inactive Unproductive Entrepreneurs

In this case $K_{2,t} = K_t$, $L_{2,t} = L$, and the aggregate output equals

$$Y_t = Y_{2,t} = K_t^\alpha \left(\chi z L\right)^{1-\alpha}.$$

The profits of productive entrepreneurs are

$$\pi_{2,t} = \alpha K_t^\alpha \left(\chi z L\right)^{1-\alpha}$$

and the evolution of aggregate capital is given by

$$K_{t+1} = \beta(1 - \eta)\alpha K_t^\alpha \left(\chi z L\right)^{1-\alpha} + \eta\alpha K_{t+1}^\alpha \left(\chi z L\right)^{1-\alpha}.$$

C Computational Procedure

Discretizing the Entrepreneurial Productivity Distribution We discretize the support of the entrepreneurial productivity distribution into 42 grid points: $\mathcal{Z} = \{\bar{z}_1, \ldots, \bar{z}_{42}\}$. Denoting the c.d.f. by $\Omega(z) = 1 - z^{-\eta}$, $\bar{z}_1$ and $\bar{z}_{38}$ are chosen such that $\Omega(\bar{z}_1) = 0.36$ and $\Omega(\bar{z}_{38}) = 0.998$. Indexing the grid points by j, we construct $\bar{z}_j$ to be equidistant from $j = 1$ through 38. The largest four values on the grid satisfy $\Omega(\bar{z}_{39}) = 0.9985$, $\Omega(\bar{z}_{40}) = 0.9990$, $\Omega(\bar{z}_{41}) = 0.9992$, $\Omega(\bar{z}_{42}) = 0.9995$. The corresponding probability mass for $2 \leq j \leq 42$ is given by $[\Omega(\bar{z}_j) - \Omega(\bar{z}_{j-1})]/\Omega(\bar{z}_{42})$ and for $j = 1$ by $\Omega(\bar{z}_1)/\Omega(\bar{z}_{42})$.

Computing the Stationary Equilibrium We solve for the stationary equilibrium of this small open economy using the nested fixed-point algorithm. We have to iterate on wage w and, for the distorted initial stationary equilibrium, tax rate τ, until the labor market clears and the government budget is balanced.

1. Guess the tax rate in the stationary equilibrium, τ^i. (For the new steady state with no taxes/subsidies, the tax rate is 0 and this outer loop is irrelevant.)
2. Guess the wage in the stationary equilibrium, $w^{i,j}$.
3. Given the tax and wage, solve the individuals' problem. From the optimal decision rules, the stochastic process for entrepreneurial productivity and idiosyncratic subsidy, and an arbitrary initial joint distribution of wealth and productivity, iterate on the joint distribution forward using the laws of motion for wealth and entrepreneurial productivity until time-invariance is achieved.
4. Check the labor market clearing condition, aggregating labor demand and supply using the invariant distribution. If there is excess labor demand (supply), choose a new wage $w^{i,j+1}$ that is greater (smaller) than $w^{i,j}$. Use bisection.

5. Repeat steps 3–4 until the labor market clears under the invariant distribution.
6. Holding fixed the wage and the wealth-productivity joint distribution, compute the tax $\widetilde{\tau}^i$ that balances the static government budget and compare it to τ^i. Update the tax rate ($\tau^{i+1} = \widetilde{\tau}^i$) and go to step 2. Stop when the τ^i sequence (indexed by i) converges.

Computing the Transition Dynamics   To compute the transition dynamics following the economic reform, we have to iterate on the wage and capital rental rate ($r_t + \delta$) sequences. Although it is a small open economy, in the first few years of the transition, the irreversibility of domestic aggregate capital may bind. The return on assets is still equal to the world interest rate, because price of domestic capital rises over time (i.e., capital gains) as long as the constraint binds. Taking these factor price sequences as given, we solve for the individuals' problem and then check whether the labor market clears and the capital irreversibility condition is satisfied. We set T, the period by which all transitions are completed and we arrive at the new stationary equilibrium, to 80. We numerically verify that increasing T to 100 has no effect.

1. Guess a capital rental rate sequence $\{r_t^{i=0}+\delta\}_{t=0}^{\infty}$, with $r_t^{i=0}$ equal to the constant world interest rate for all t. The depreciation rate δ is constant.
2. Guess a wage sequence $\{w_t^{i,j}\}_{t=0}^{\infty}$, with $w_t^{i,j}$ equal to the new stationary equilibrium wage for $t \geq T$.
3. Let $v_T(a, z) = v(a, z)$, where $v(\cdot)$ is the individual value function in the new stationary equilibrium. By backward induction, taking the wage, capital rental sequences and the world interest rate as given, compute the value function $v_t(a, z)$ for $t = T - 1, ..., 0$.
4. Using the optimal decision rules, the stochastic process for entrepreneurial productivity, and the initial joint distribution of wealth and entrepreneurial productivity, iterate forward the joint distribution over t. Check whether the labor market clears in every period. If not, construct a sequence $\{\widetilde{w}_t^{i,j}\}_{t=0}^{T}$ that clears the labor market period by period taking as given the sequence of the joint wealth-productivity distribution. Update the wage sequence: $w_t^{i,j+1} = \eta_w \widetilde{w}_t^{i,j} + (1 - \eta_w)w_t^{i,j}$ for all t, with $\eta_w \in (0, 1)$.
5. Once the wage sequence converges, check the irreversibility constraint on the domestic aggregate capital. For the periods in which this constraint is violated, compute a domestic capital rental rate $\widetilde{r}_t^i + \delta$ that satisfies the irreversibility constraint with equality, taking as given the wage and the joint wealth-productivity distribution of the period. For the periods in which the irreversibility constraint is slack, let $\widetilde{r}_t^i$ equal to the world interest rate. Update the capital rental rate sequence: $r_t^{i+1} + \delta = \widetilde{r}_t^i + \delta$, $\forall t$. Given the new domestic rental rate sequence, by backward induction, compute the sequence of the price of domestic capital over time. It must be less than one for the

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periods with the binding irreversibility constraint and one otherwise. Adjust the wealth distribution of the initial stationary equilibrium using the drop in the price of domestic capital immediately following the reform, assuming that the fraction of total financial wealth held in domestic capital is the same across all individuals. Use this adjusted initial wealth distribution as the initial condition of the post-reform transition.

6. Repeat steps 2–5 until the domestic capital rental rate sequence also converges.

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