GENERALITIES ABOUT EPZ

- **EPZ are** geographically defined areas within a country, where economic activities are promoted by policies not available to the rest of the country. There are more than 850 EPZ of different sorts in the world: production for export, high-tech and R&D, services and trade. Most of the recently established EPZ are based in LDCs.
- The following **types of incentives** are available for EPZ: duty free imports; tax holidays, reductions and/or exemptions; simplified administrative procedures and regulations; improved infrastructure facilities; advantageous geographic location.
- **MNEs** account for the vast majority of the investment in EPZ.
- The **host country's aims in establishing EPZ** are job creation, forex earnings, generation of technological externalities and learning, and export and trade promotion. Some of these aims are static (ex., job creation and forex earnings) whereas technological externalities and learning are dynamic effects.
- The **investor's aims in investing in EPZ** are: reduced costs, increased profits, access to new markets and advantageous market location.

NATURE OF DYNAMICS EFFECTS

- The **evaluation** of the impact of an EPZ is complex because of the dynamic spillovers (technological externalities and learning) into the domestic economy. Whereas static costs (infrastructures, foregone tax revenue, etc) and benefits (job creation, exports, etc) are easily measurable, dynamic effects are much more complex to measure, let alone predict. This difficulty arises from the fact that dynamic benefits are not a linear function of any known quantity, and depend on many factors, some of which are hardly measurable (ex., the institutional ability to learn).
- The **dynamic spillovers available** from EPZ (technological learning) are not only those directly related to the production process (choice and adequate management of technology, quality and standards), but those more indirectly observable, such as designing, engineering, management and marketing know-how.
- The **channels** by which spillovers may be transmitted into the domestic economy are: adoption of the production technique; movement of skilled labour from the EPZ back into the domestic economy; subcontracting of domestic firms; formal and informal exchange of information.

DYNAMICS OF THE EPZ: THE MODEL

- **Learning (T)** is a function of the size of the EPZ (Q1), time that the learning curve takes to develop (t) and the ability of domestic firms to learn (α). Learning ability depends on the institutional setting, workers and entrepreneurs training and incentives, organised learning effort, technological challenges and opportunities, technological differential, etc. The learning time depends on what has to be learned, how far it is from the current technological level, how tacit and context sensitive the required knowledge is, the ability to learn, the learning sensitivity of production and exports, the incentive to exports, etc. Thus, t and α are highly correlated. Hence:

  $$T_{(t)} = \alpha Q_{1(t)}$$

- Domestic firms face a **price incentive to export**, which is given by the differential between the world price and the domestic price (determined by the MNE) and the domestic price (which is assumed to be fixed and unaffected by government policy to promote exports because exports result from increasing production, not from cutting back domestic consumption). Hence:

$$p_{(t)}^x = p_{(t)}^w - p^d$$

- The **host country exports** (excluding exports from the EPZ) depend on, and are positively related to, learning and the export price incentive. Hence:

$$X_{(t)}^n = X_n \left[p_{(t)}, T_{(t)} \right] \qquad \frac{\partial X_n}{p_{(t)}} > 0 < \frac{\partial X_n}{T_{(t)}}$$

- The **world demand** faced by the MNE is the sum of the output produced by the MNE subsidiary in the EPZ (Q1) and elsewhere outside the host country (Q2). A higher world price and/or supply of host country's exports would reduce the demand faced by the MNE. Hence:

$$Q_{1(t)} + Q_{2(t)} = a - b p_{(t)}^w - Xn \left[p_{(t)}, T_{(t)} \right]$$

where "a" and "b" are positive constants.

- The **fundamental propositions** of the model are as follows:
    - lower unit cost in the EPZ (due to incentives) induces the MNE to re-locate to the EPZ;
    - as the EPZ increases, the spillover effects into the domestic economy also increase, depending on the magnitude and speed of technological learning by domestic firms;
    - as domestic firms become more efficient because of the spillovers, they export more until eventually they compete against the MNE in the world market, thus reducing the market share of the MNE subsidiary (Q1);
    - in order to increase its discounted profits and reduce spillovers into the domestic economy, the MNE may reduce Q1 and increase prices. This policy is efficient from the point of view of the MNE if, and only if, the learning elasticity of Xn is sufficiently high; otherwise, a reduction in Q1 will not reduce Xn;
    - Xn increases regardless of changes in the world price, as long as the responsiveness of the Xn to T(t) is sufficiently high;
    - the market share of the MNE subsidiary in the EPZ declines over time, provided that the world price and Xn move in the same direction and the world demand is sufficiently inelastic with respect to prices;
    - the market share of the MNE as a whole declines, unless $\partial Q2/t > \partial Q1/t$, or the world demand is sufficiently elastic.
- Therefore, the MNE faces a **trade-off** with respect to its decision to invest in an EPZ. On one hand,.. And. Thus, the MNE faces a cost/profit incentive to relocate to the EPZ, but as such relocation takes place the MNE's share of the market may be reduced. The reduction in the market share of the MNE depends on the magnitude and speed of technological learning by domestic firms.

POLICY CONCLUSIONS

- EPZs tend to be trade enhancing because of the removal of trade barriers and development of export related productive capacities. Hence, EPZs simulate the opening up of the current and capital accounts. The production/trade related liberalisation of the current and capital accounts tend to induce other and deeper reforms, as producers pressurise for additional efficiency gains.
- Therefore, in the long run EPZs may provide a **path to industrialisation** and economic reform in the host country, and domestic firms may capture the EPZ activities. This path of reform, in which liberalisation emerges as a means to a goal (ex., production for exports) is preferable to the mainstream path of reform in which liberalisation is the goal in itself.
- Given that technological externalities are the central element of the dynamics of EPZ, the best policies are those that develop and strengthen the link between the EPZ and domestic firms and promote and encourage the learning ability of the domestic firms.