Optimum Choice

Intermediate

Microeconomics

by

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Optimum choice:

Most preferred bundle (MPB) amongst the feasible bundles.

Optimum choice is characterized by the commodity bundle for which

$MRS = P_1/P_2$ and

$$\overline{M} = PX$$

First, any commodity bundle, say, $X \ni \overline{M} = PX$

will be strictly preferred to $X^{'} \ni \overline{M} > PX^{'}$

Proof.

Let X={x_1, x_2 } and X={$x_1^{'}$, $x_2^{'}$ }

By presumption, at least for one i, $x_i^{'} < x_i$

$$P_1x_1 + P_2x_2 = \overline{M} > P_1x_1^{'} + P_2x_2^{'}$$

Now if $(a) x_i^{'} < x_i \forall i \Rightarrow XPX^{'}$

$(b)(x_1^{'} < x_1, x_2^{'} = x_2) or (x_1^{'} = x_1, x_2^{'} < x_2)$

$(c) x_1^{'} < x_1 but x_2^{'} > x_2$

Define $X'' = \{x_1^{''}, x_2^{''}\} \ni X''IX'$ $\& \, x_1^{''} < x_1, x_2^{''} < x_2$

$$\therefore XPX'' \& X''IX' \Rightarrow XPX'$$

Second, any commodity bundle $X \ni \overline{M} = PX$

will be strictly preferred to any other bundle if at X an IC is tangent to the budget line, that is, XPY.

Note that by the axioms of strict convexity of preferences and transitivity at any other bundle Y (on the budget line) $Y \ni \overline{M} = PY$

the ICs must be cutting the budget line.

X lies in the better set to Y.

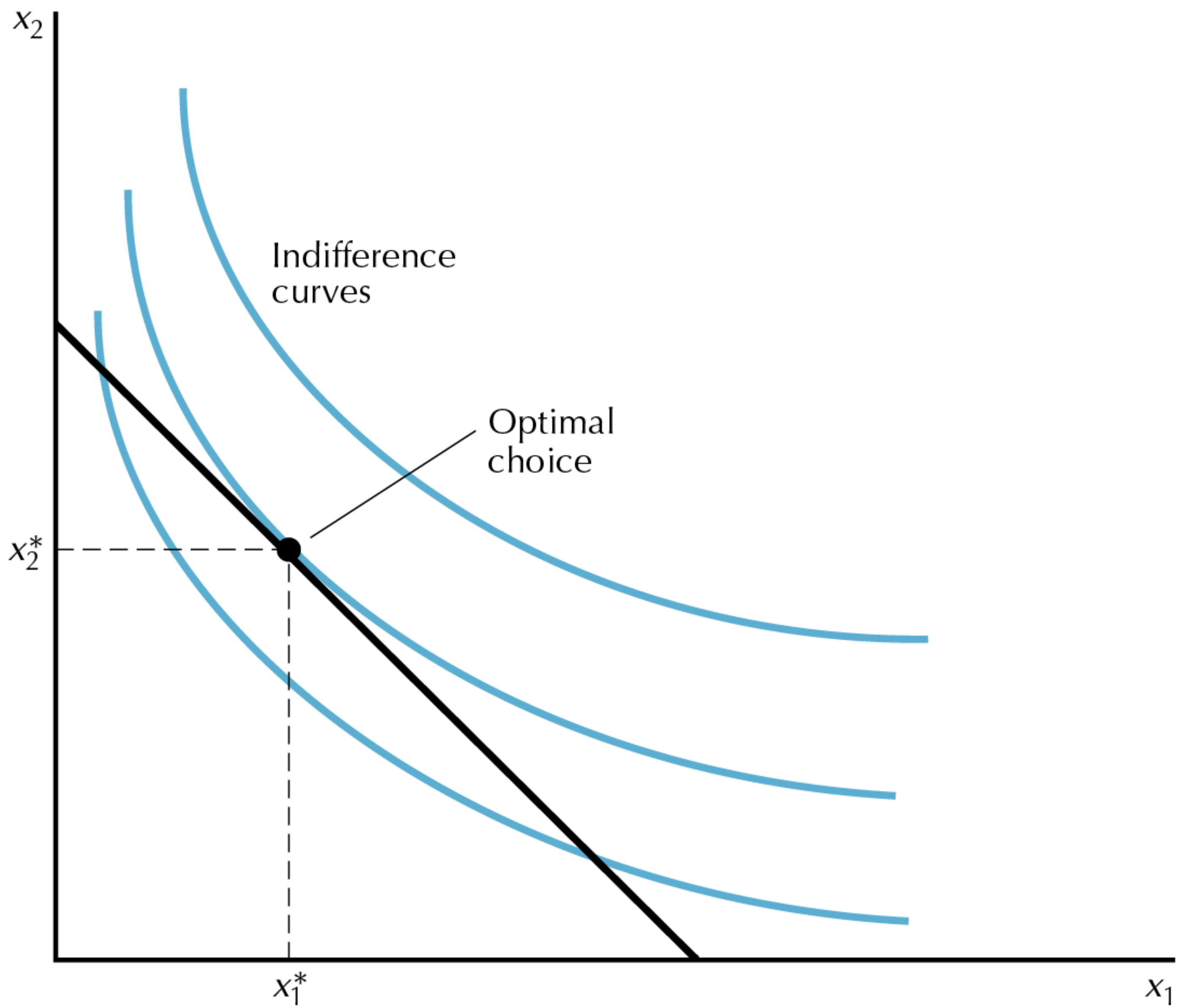

Figure 5.1 Optimal choice

Remark 1

As long as preference is monotonic and strictly convex, the optimum choice is the one where IC is tangent to the budget line, that is,

(a) $MRS=P_1/P_2$ and

(b) $\overline{M} = PX$

Remark 2

The consumer doesn’t save at the optimum.

Concave preference

The bundle for which (a) and (b) are satisfied is in fact the least preferred bundle among those for which M=PX.

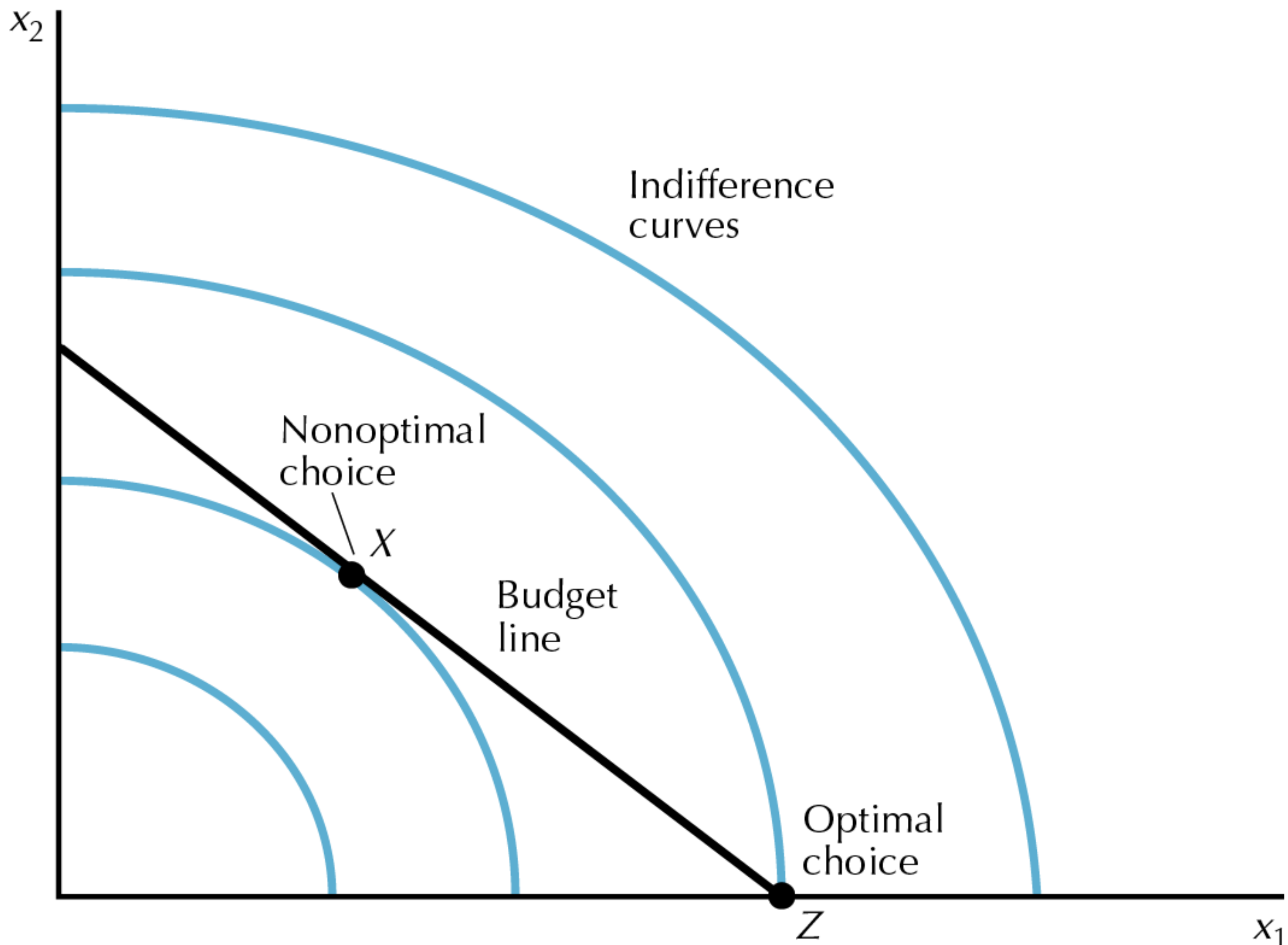

Figure 5.8 Optimal choice with concave preferences

Remark 3

A MPB is the one where the better set and budget sets are non-overlapping.

Upper set is better set for monotonic preference.

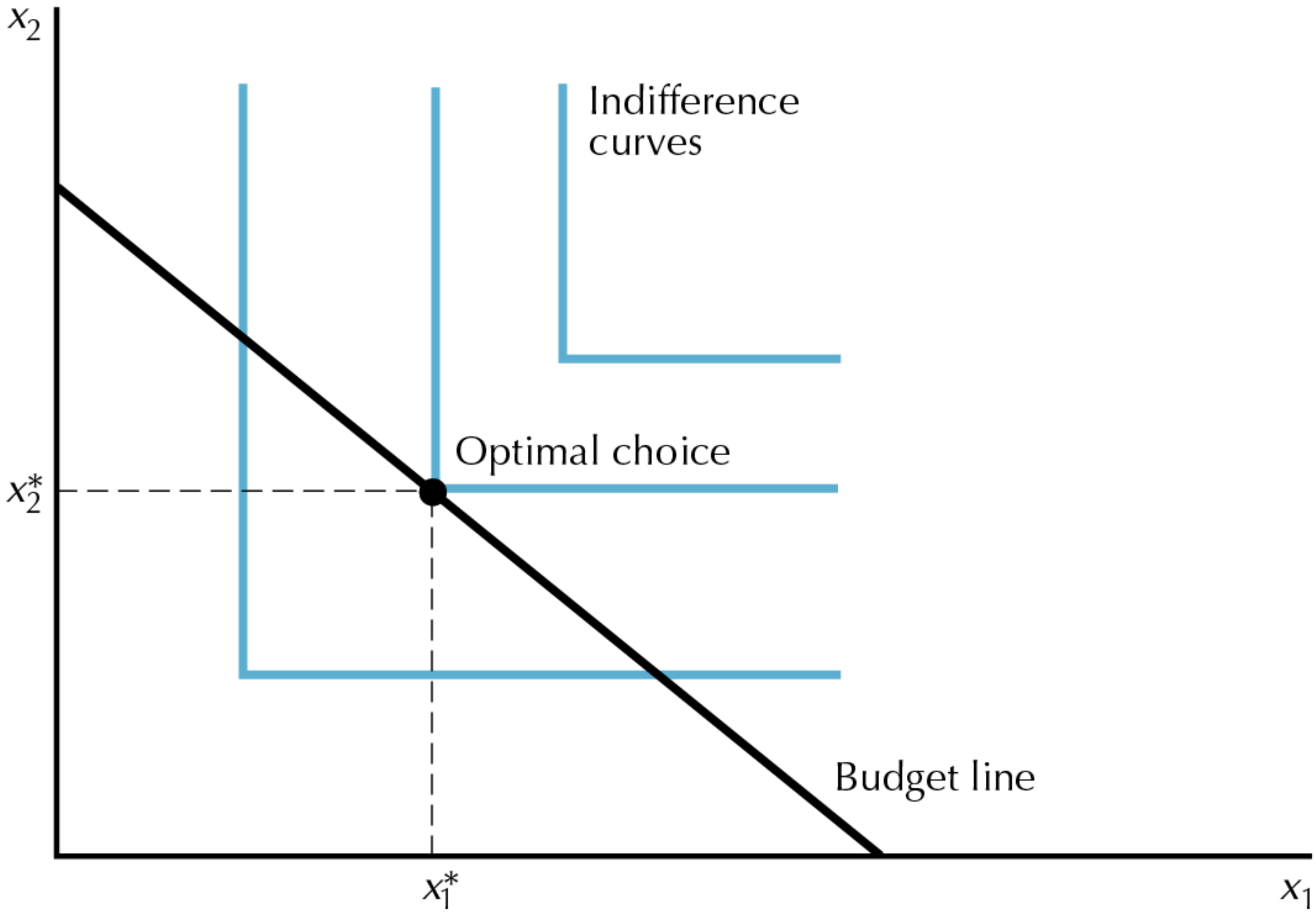

Figure 5.6 Optimal choice with perfect complements

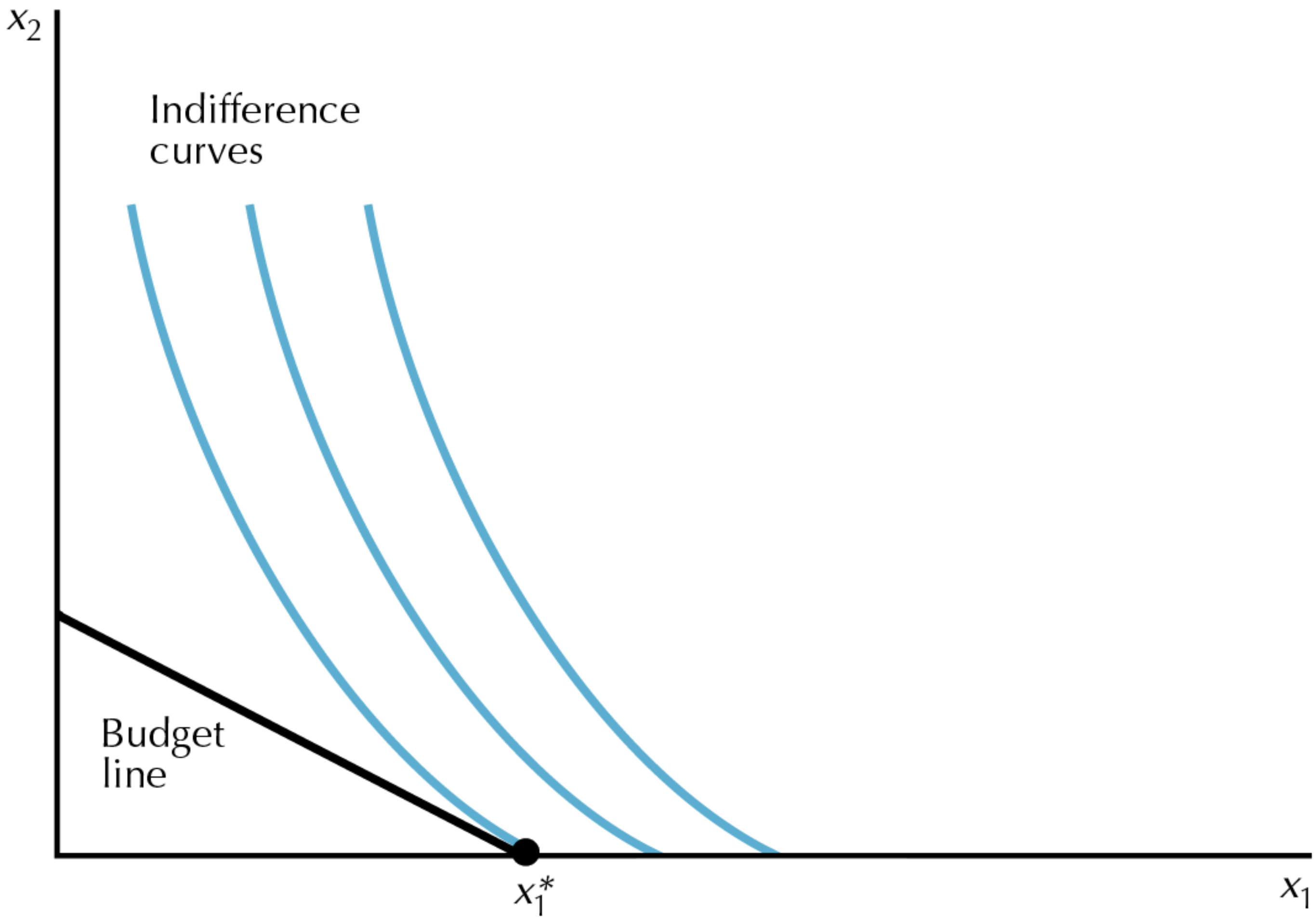

Figure 5.3 Boundary optimum

Remark 4

If preference is strictly convex then we have (a) unique and (b) interior optimum.

Proof.

If preference is unique then
MRS(X)≠MRS(X') for all X & X' and
$\overline{M} = px \;\&\; \overline{M} = px'$
If X is the MPB such that MRS(X)=P_1/P_2, then we cannot have

MRS(X')=P_1/P_2.

Let both X and Y be the MPBs.

By tangency MRS(X)=P_1/P_2 =MRS(Y)

which implies MRS(X) =MRS(Y).

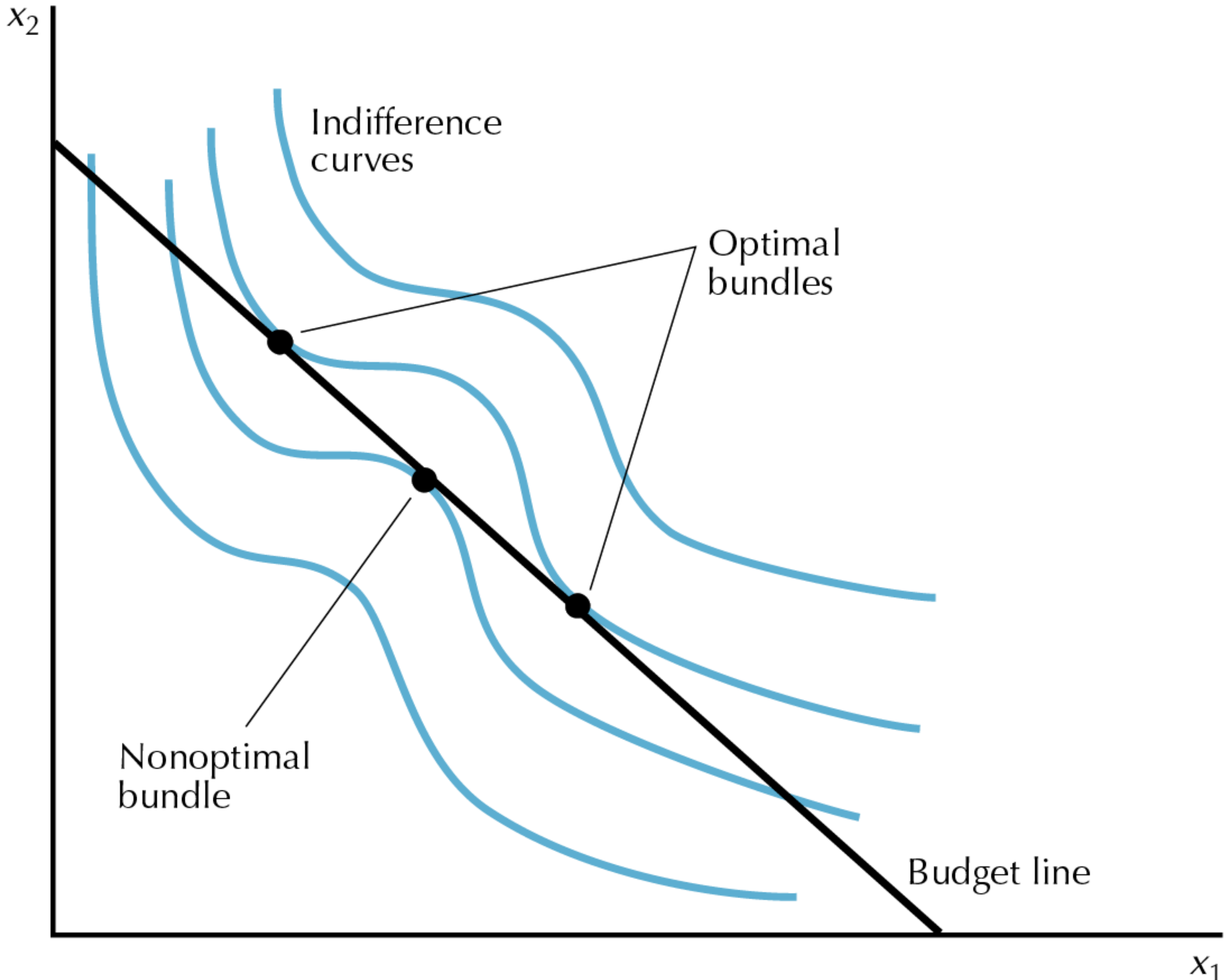

Figure 5.4 More than one tangency

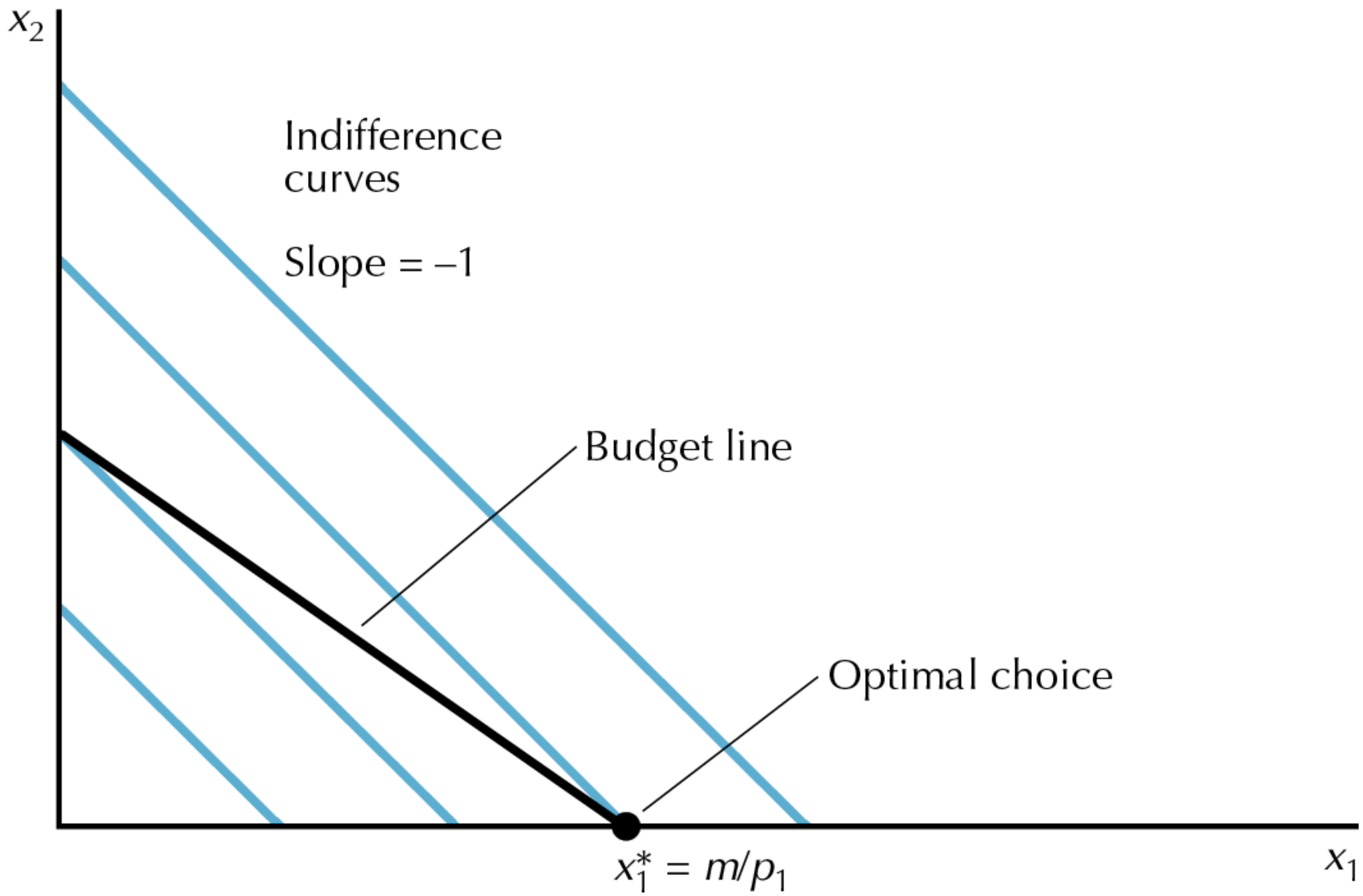

Figure 5.5 Optimal choice with perfect substitutes

Remark 5

- For non convex and concave preference most preferred bundle “may” not be unique and interior one.
- But the converse may not be true because unique and interior optimum doesn’t necessarily imply preference is convex.