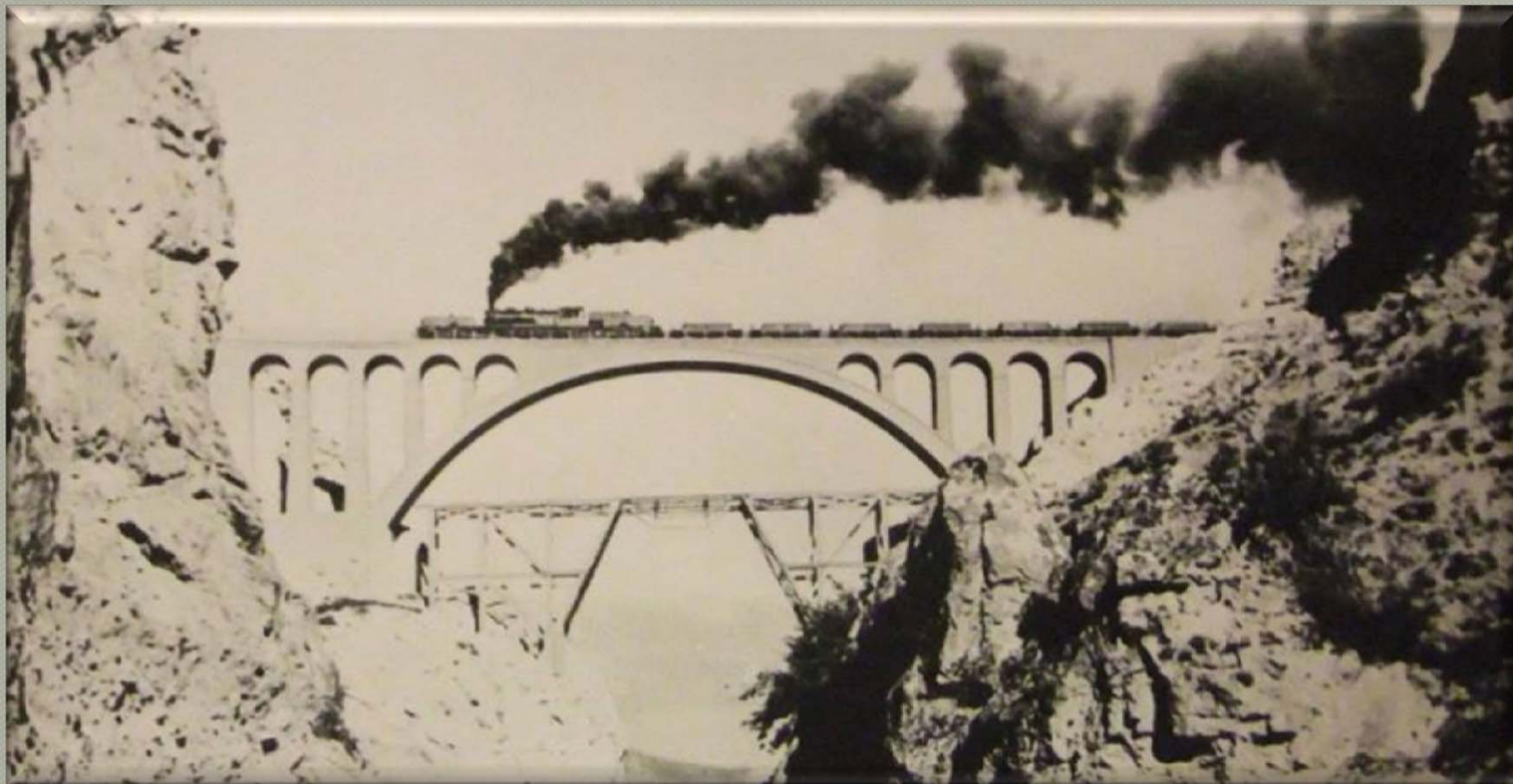


A Cost-Benefit Analysis of the Trans- Iranian Railway: Was it a Reasonable Investment?

Farshid Mojaver, June 2016



TIR: A National Aspiration

- The feasibility study Bill of 1926 passed (91 to 0)
- The TIR Bill of 1927 passed (90 to 2) in 1927
- TIR: a national dream long before Reza Shah



The “minority” lead by Hassan Moddares

Trans-Iranian Railway (TIR): 1927-38

1,400 km, cost \$156 million



Termini "Bandar Shahpoor"



The Iranian State Railway (ISR)

3 Major Extensions: Planned to be completed by 1942; 754 km track lines were built

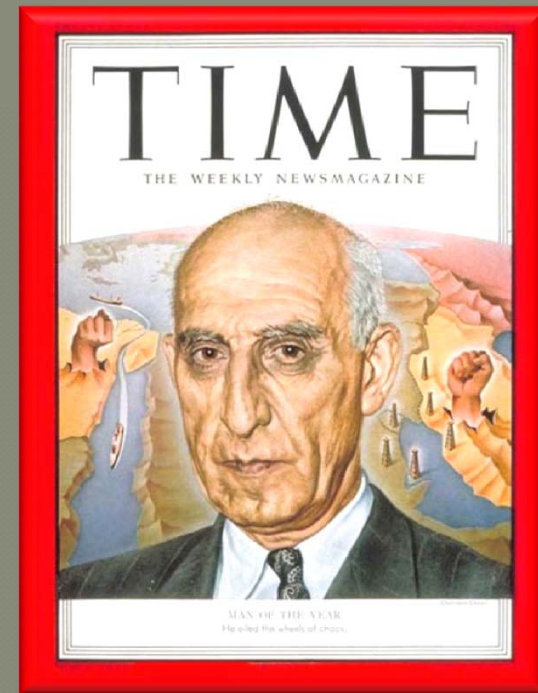
Built by the Ministry of Roads at a much lower cost per km



The Significance of the Question

TIR became controversial

- Dr. Mossadegh (1943):
 - “The dictator built a railway with our money to our detriment and built up ammunition for our today’s Allies for 20 years”
- Others: wasteful, irrational
- was for personal gain,...
- Few if any evidence offered



Why the question matters?

- The argument turned into criticism of economic development and modernization efforts in Iran

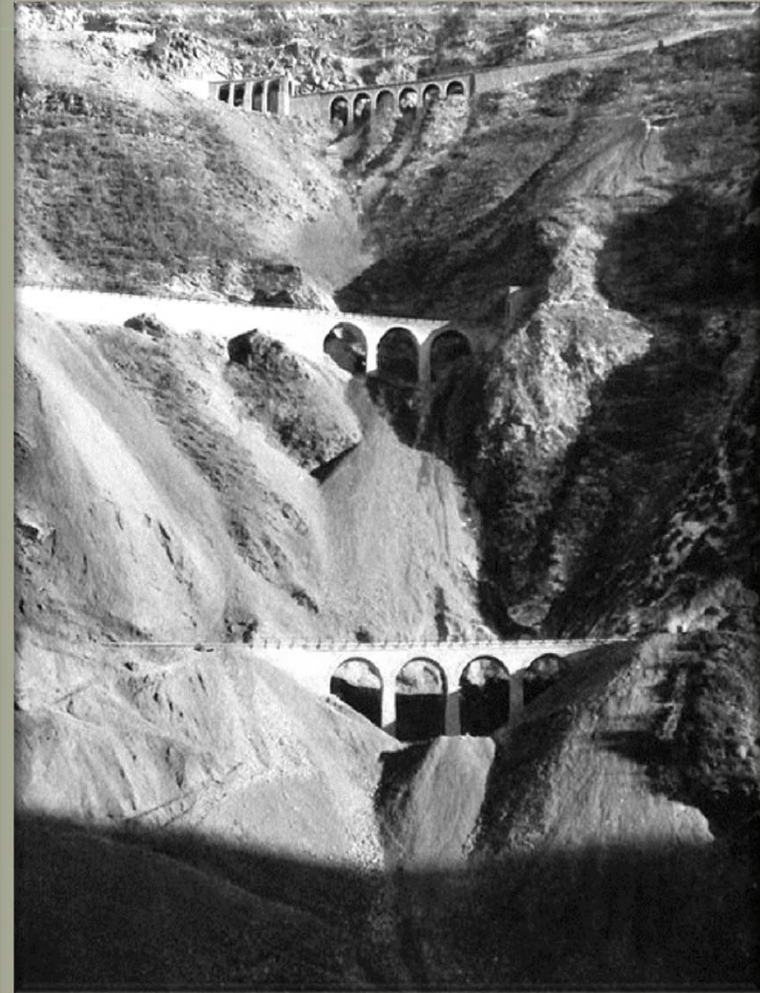
Approach of the Study

Examine the rationality of the TIR

- Objectives of the project
- Standard CBA
- Opportunity cost
- Alternative projects



TIR was finance by tax on tea and sugar

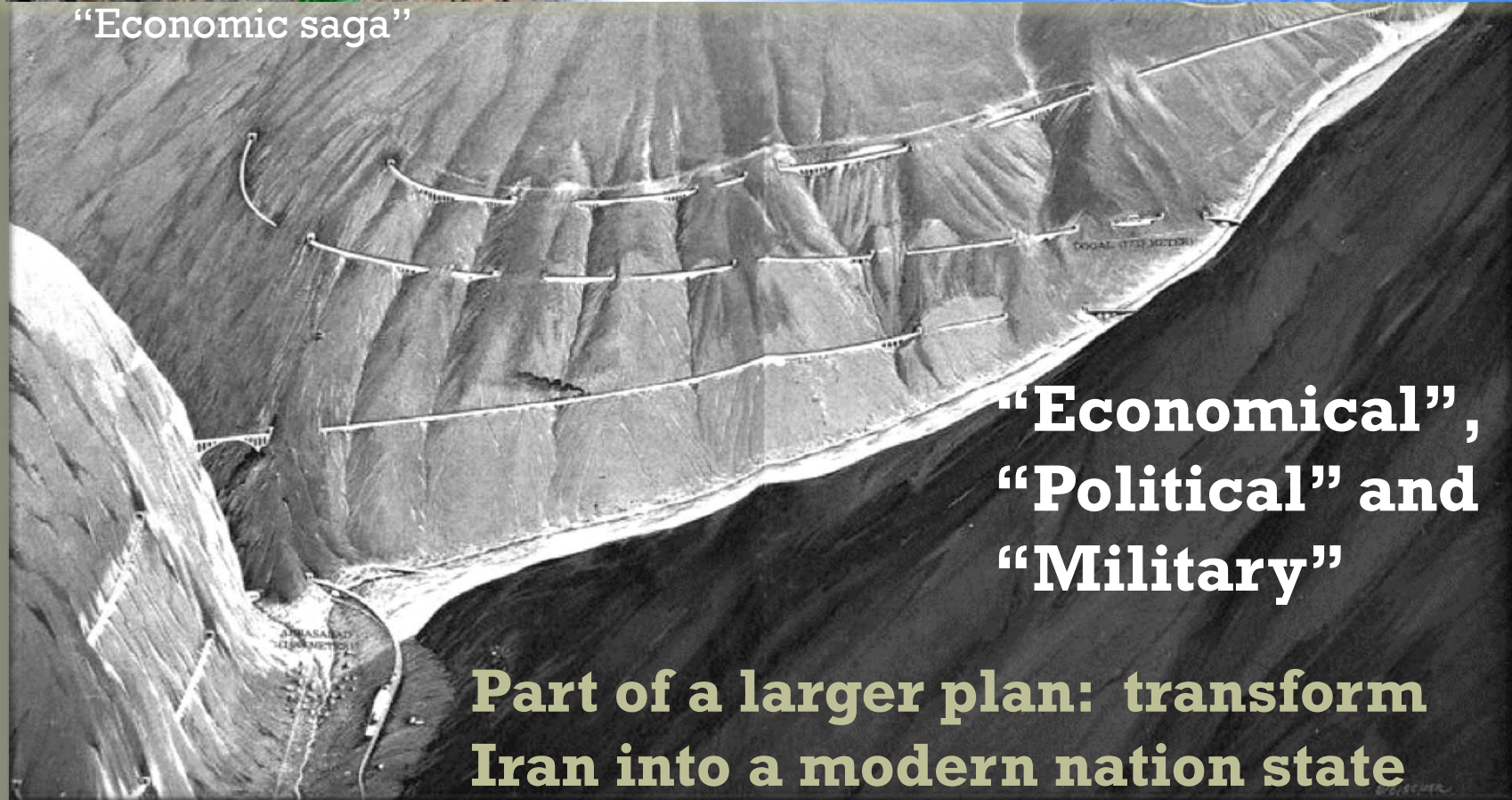


Three “gold lines”-Mazandaran

Objectives of the TIR



“Economic saga”



“Economic”,
“Political” and
“Military”

Part of a larger plan: transform
Iran into a modern nation state

Economic Objectives

- Travelling to Tehran from the Persian Gulf
 - via Caspian Sea
 - via land: 28 to 42 days



Travelling to Mecca



Hadow (1925): inadequate roads result in the ever-recurring fear of **famine** in one part of the country, while another is burning its grain for lack of a market.

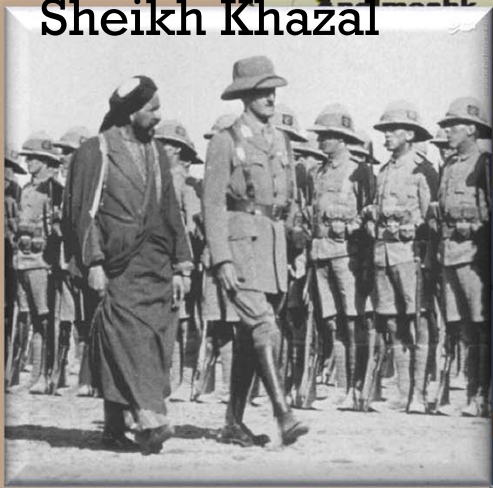
Political and Military Objectives



Ismail Agha
Simko



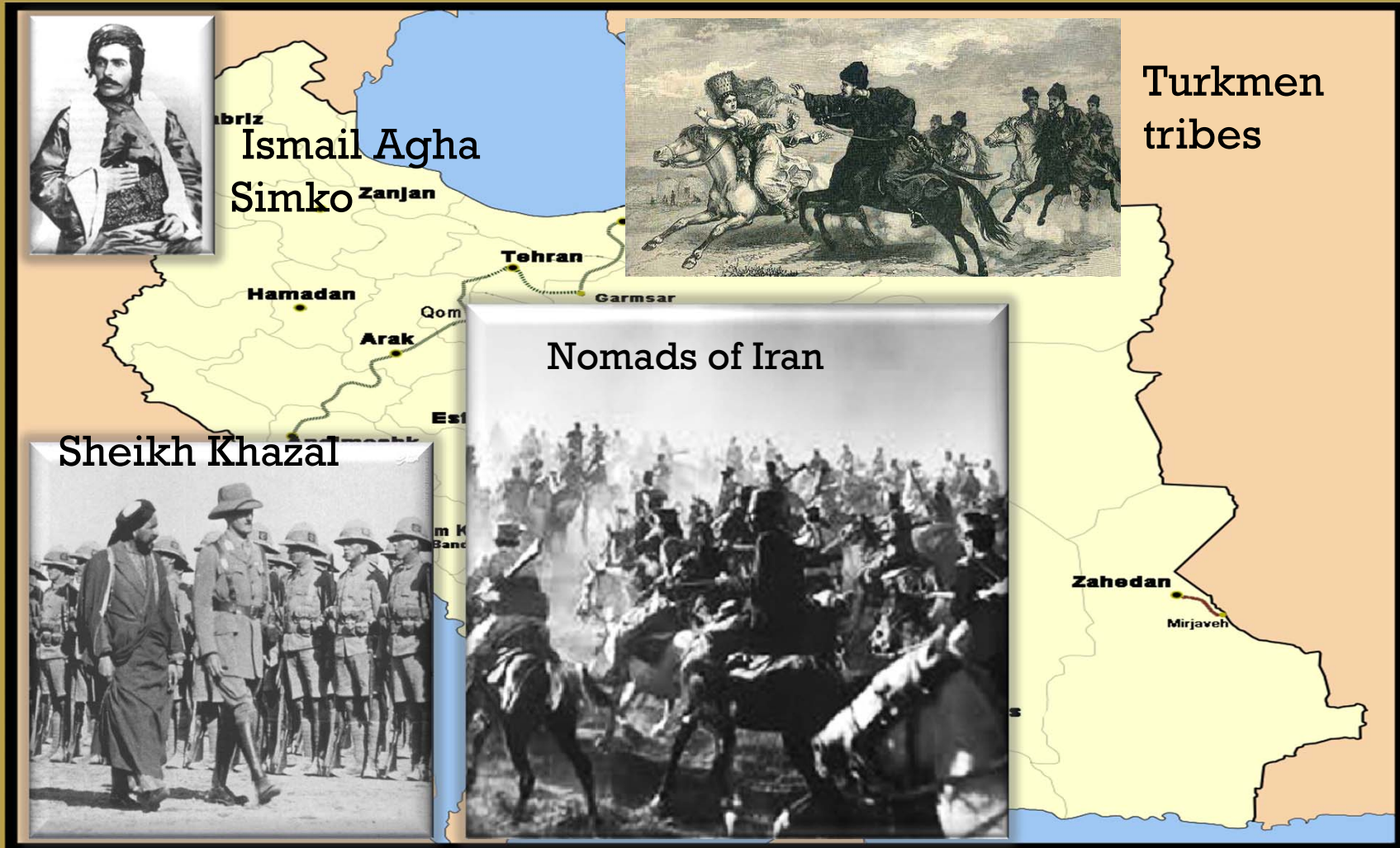
Turkmen
tribes



Sheikh Khazal



Nomads of Iran



Cost-Benefit Analysis of the economic objective alone

Standard CBA: $BCR > 1$?

Was the project commercially acceptable?

Not profitable as expected but was it economical?

- **Corrected for subsidies and overstaff:**

1,650 million Rial (59% of capital cost) short

- **Social CBA: consumer surplus = 289 mr. in 1939**

1,650 mr. = 5.7 years of consumer surplus

- **TIR is socially acceptable**

Reasonable on the economical ground alone

Rail vs. Road

Why not roads?

Critics: Road building was much cheaper but was “ignored by the dictator”

But road transport was not cheap at the time!

Hadow (1927):

2-3 times more expensive than traditional methods



Opportunity Cost the TIR

Other beneficial projects?

- Roads: 3,200 km in 1924 to 22,600 in 1938
 - Modern Man'g: a few in 1925, hundreds in 1941
- Not clear if more was cost effective



“Vatan” textile complex in Isfahan, 1930’s



A weaving shop in Isfahan 1910’s

... Education and Health



Modern , mixed school in Namin 1935
(a village near Ardabil)



Traditional, religious based education



Field hospital Salmas 1931



Nomad physician and "cupping"

Investments in Judicial system, Banking, Municipal, and Culture



Progress; Not a Miracle

**Welfare improvements:
1925-1941**

Population: increased 30%-50%

Income per Capita: doubled



Allies entering Ghazvin 1941



Tehran 1921

Why not a second Japan?

“Today in Persia there are no surveyors, road engineers, architects, agricultural experts, mechanical engineers, or builders in the modern sense of these words, able to assist in the reorganization of their country”.
Hadow 1925

Suggested Alternatives to TIR

Dr. Mossadegh: criticisms and alternatives

- His position changed from support (1925), to skepticism (1927), to onslaught attack (1928)
- **Main criticism:** TIR cannot be completed with national resources

Mossadegh 1943: TIR was built for the Allies

- **Alternatives:**

1. **Sugar mills:** a loss making industry assumed to have a spectacular rate of return. Later seven sugar mills were constructed by the state but none were a great success.

.... Suggested Alternatives

2. Public trucking system

Import 50 buses that “work with steam engines”; private sector imported 16,000

3. Fixing the existing roads

Not a national motor road sys

4. East-west railroad of Khanikin - Duzab: Twice as long and cost and with far less benefits; favored by the British.

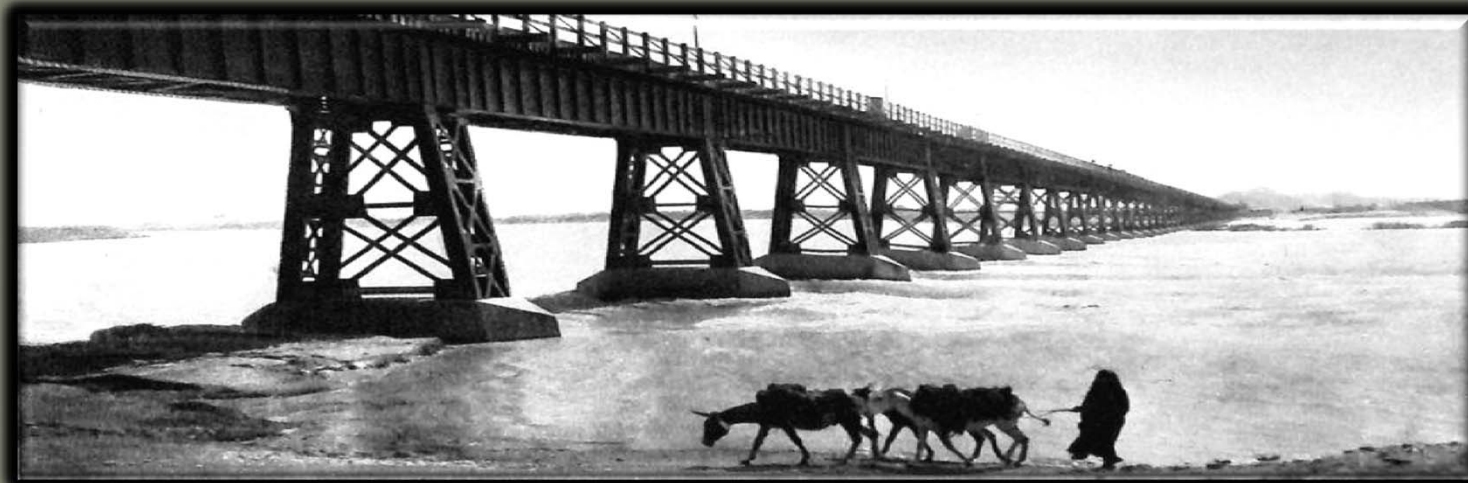
- No alternative development strategy was ever offered



Final Evaluation

Was it a reasonable investment?

- Acted effectively on their best information, right priorities, not misinformed, right balance, and achieved the objectives of the project in time and budget
- Alternative ideas: misinformed and incoherent



Central station 1942

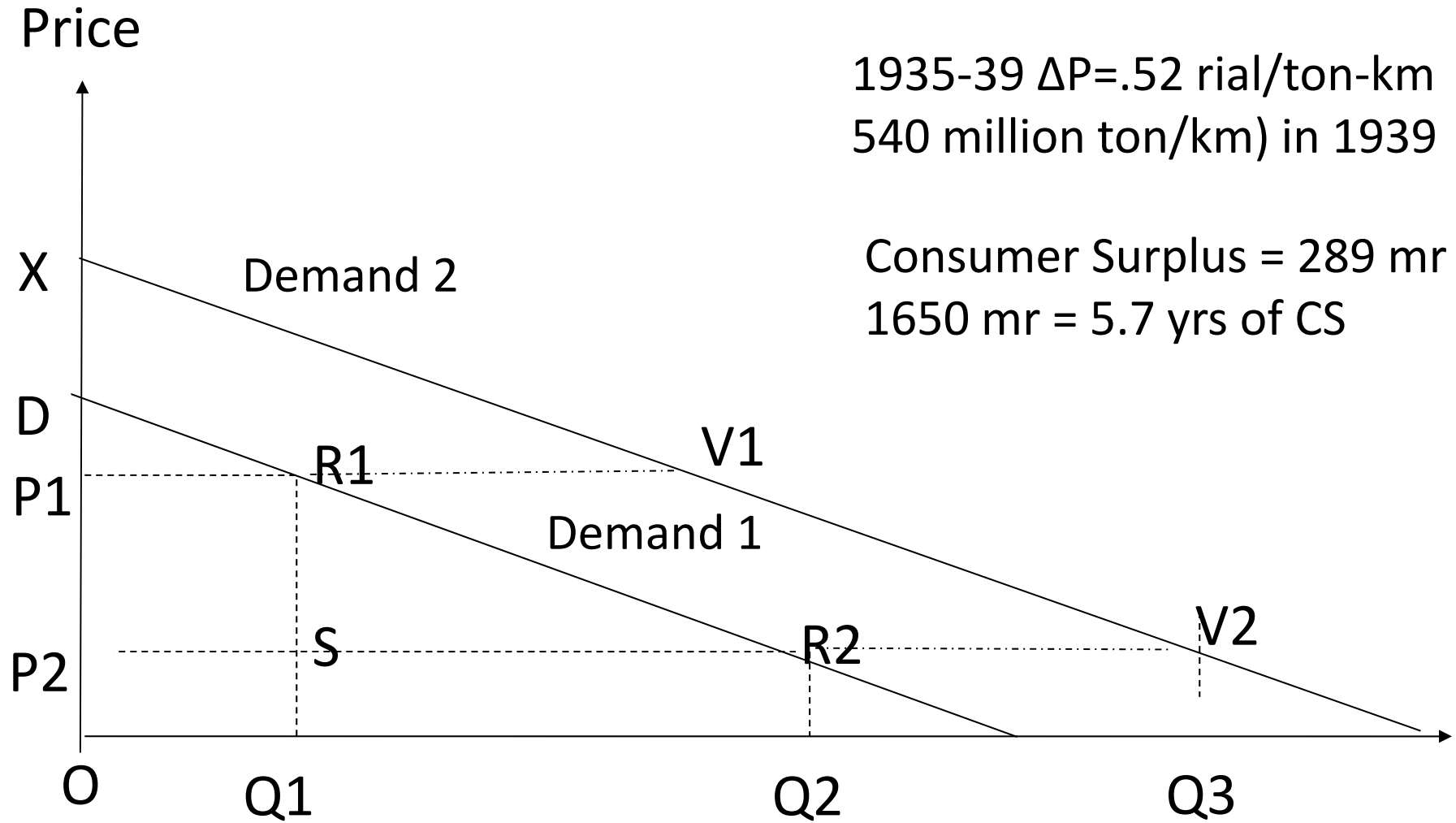


Thank you!

Central station 2016



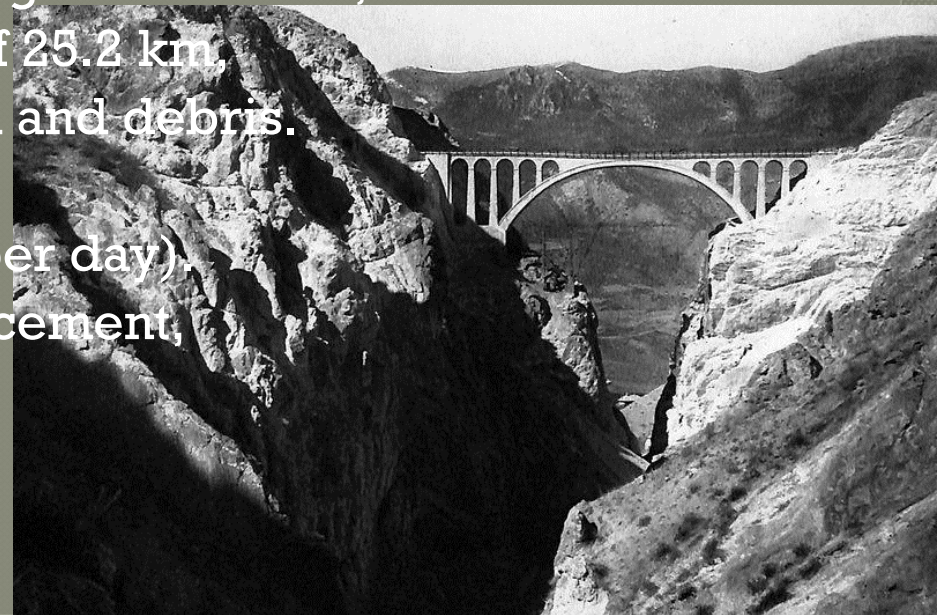
Consumer Surplus



“A Magnificent Feat of Engineering”

“One of the outstanding railway achievements of the century”

- An enormous undertaking in terms of tons of explosives and cement used, and the number of people employed, comparable with the construction of the Suez and the Panama Canals.
- Kampsax oversaw the building of
 - 224 tunnels with a combined length of 83.7 km,
 - 4,772 bridges at a joint length of 25.2 km,
 - removal of over 20 mcm of earth and debris.
 - employed 60,000 laborers,
 - and 450 engineers at its peak (per day).
 - It consumed 170 million tons of cement,
 - 2.8 million tons of dynamite,
 - 100,000 tons of rails,
 - and 1.5 million sleepers



Road and Railroad bridge built over the Rhada river near the oil fields.



Iranian Historical Photographs Gallery : www.fouman.com

Talaar Bridge











شورا ایلمی
بن امریکائی
زف کارل
غاز کرد
انی کدر
ندام دولت
بین
روانه
ف
تیر



..... کارگران زحمتکش راه آهن تراورسها را برای ادامه کار حمل میکنند



Public
transportatio
n in 1910's

□ وسیله نقلیه مردم - قاجار



Kandovan Tunnel Opening day by Reza Shah on 1317

افتتاح تونل کندوان توسط رضا شاه بزرگ در ۲۷ اردیبهشت ۱۳۱۷ خورشیدی









کارگاه تراشکاری پالایشگاه نفت آبادان - سال های دهه ۱۳۱۰ش





Robbers arrested





نمای دانشکده پزشکی



Lantern slide, showing a group of Persians waiting at the medical dispensary of the British Consulate, Kirman. Iran - circa 1900





